THE BOOK WAS DRENCHED

UNIVERSAL
LIBRARY
OU_166625
UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No. 818.5/W97A Accession No. 28906

Author Wylie, Philip.

Title American Thoughts. 47.

This book should be returned on or before the date last marked below.

AMERICAN THOUGHT 1947

AMERICAN THOUGHT

1947

With an introduction by PHILIP WYLIE

Distributed by

NICHOLAS KAYE Ltd., Publishers

1, Trebeck Street, London, W. 1.

AMERICAN THOUGHT 1947

COPYRIGHT, 1947, BY
THE GRESHAM PRESS INC.

Printed in the United States of America

All rights in this book are reserved. No part of this book may be reproduced in any manner whatsoever without written permission except in the case of brief quotations embodied in critical articles and reviews. For information address The Gresham Press.

TABLE OF CONTENTS

INTRODUCTION	*Philip Wylie*	9
PUBLISHERS' NOTE		17
AERONAUTICS		
THE FRONTIERS OF ALTITUDE	*Wolfgang Langewiesche*	25
ANTHROPOLOGY		
IS MANKIND COHESIVE?	*Caryl P. Haskins*	43
ARCHITECTURE		
THE DIRECTION OF ARCHITECTURE	*Richard M. Bennett*	59
ART		
ART AND CIVILIZATION	*Mathurin Dondo*	71
BIOLOGY (PHYSIOLOGY, PSYCHOLOGY)		
THE BIOLOGICAL BASIS OF IMAGINATION	*Ralph W. Gerard*	80
DOMESTIC SCENE		
OKLAHOMA	*George Milburn*	101
ECONOMICS (LAW, INTERNATIONAL AFFAIRS)		
"NO!" TO INTERNATIONAL CARTELS	*Ben W. Lewis*	111
ECONOMICS (DOMESTIC SCENE)		
WAGES AND PRICES: THE BASIC ISSUE	*Alvin H. Hansen*	128
EDUCATION		
EDUCATION FOR VOCATION	*Sidney Hook*	133
ELECTRONICS, MEDICINE		
NEW AIDS FOR THE BLIND	*Paul A. Zahl*	147
GEOPOLITICS		
MACKINDER'S HEARTLAND	*Hans Weigert*	163
HISTORY		
THE SLAVE POWER CONSPIRACY: 1830–1860	*Russel B. Nye*	172

INTERNATIONAL AFFAIRS
THE BEAM IN OUR OWN EYE — *Clyde Eagleton* — 182

INTERNATIONAL AFFAIRS
IS EINSTEIN RIGHT? — *Christian Gauss* — 190

INTERNATIONAL AFFAIRS
ARE WE READY FOR A WORLD STATE? — *Edward R. Lewis* — 197

LABOR
THOUGHTS ON LABOR DAY — *Thurman Arnold and Walton Hamilton* — 206

LAW (INTERNATIONAL AFFAIRS)
NUREMBERG AND INTERNATIONAL LAW — *Robert H. Jackson* — 213

LITERARY CRITICISM
THE ART OF KATHERINE ANNE PORTER — *Vernon A. Young* — 223

LITERARY CRITICISM
DARWIN AND THE TANGLED BANK — *Theodore Baird* — 239

LITERARY CRITICISM (POLITICS)
SHAW AT NINETY — *Eric Bentley* — 248

LITERARY CRITICISM (SOCIAL CRITICISM)
POETS, TEST-TUBES AND THE HEEL OF ELOHIM — *Hyat Howe Waggoner* — 263

MILITARY SCIENCE
MILITARY POLICY AND THE ATOMIC BOMB — *Bernard Brodie* — 271

MINORITIES
COLLEGE QUOTAS — *Dan W. Dodson* — 290

MUSIC
AESTHETIC IDEAS AS THE BASIS OF MUSICAL STYLES — *Hugo Leichtentritt* — 299

PHILOSOPHY
THE THEORY OF HAMLET — *James Feibleman* — 311

PHYSICS
A PHYSICIST SURVEYS THE SCENE — *I. I. Rabi* — 324

POETRY
RECENT AMERICAN POETRY — *Selected by Oscar Williams* — 343

POLITICS (DOMESTIC SCENE)
HATE PROPAGANDA IN DETROIT — *Carl O. Smith and Stephen Sarasohn* — 355

POST-WAR (DOMESTIC SCENE)
MIDDLETOWN REVISITED —MUNCIE AT PEACE — *John Bartlow Martin* — 377

PROFILE
PORTRAIT OF A DANGEROUS MAN — *Milton Mayer* — 391

PSYCHICAL RESEARCH
THE PSYCHOKINETIC EFFECT: A REVIEW — *J. B. Rhine* — 412

PSYCHOLOGY (MASS PSYCHOLOGY)
THE SLAYING OF THE EUROPEAN FATHER — *Max Lerner* — 425

RADIO (BUSINESS)
THE MYTHOLOGY OF BROADCASTING — *Eleanor E. Timberg* — 432

RELIGION
THE IMPORTANCE OF RELIGION — *Horace L. Friess* — 446

SOCIAL CRITICISM
MYTHS FOR MATERIALISTS — *Jacques Barzun* — 459

SOCIOLOGY
FAREWELL, MY LOVELY MAGNOLIAS — *J. H. Marion, Jr.* — 469

THEATRE
THE STATE OF THE THEATRE — *Harold Clurman* — 482

WAR (INDUSTRY)
AMERICA AT WAR — *Hanson W. Baldwin* — 486

NOTES ON AUTHORS — 499

INTRODUCTION

by PHILIP WYLIE

IT IS the purpose of the editors of this volume to publish its duplicate every year so that there will come into being a small encyclopedia of the annual crop of thinking in America. They intend to display the major "trends" of ideas and the major "achievements" in each "field." Just as Burns Mantle selects the Best Plays of each dozen months, they plan to select the best judgments, notions, opinions and intellectual discoveries. It is their further aim to cause each American collection to be published in various nations abroad, and to import similar volumes from foreign lands, so that a function of prodigious exchange will be added to their large pattern of anthology.

In this world of data, abbreviated compilation has become the necessity even of specialists. No one botanist, for example, is able to peruse all the current literature of his science. For the general reader, moreover, the "compilation" is an obsession. There are monthly samplers of science, art, religion, music, sports and what-not. Symposia of every genre of fiction have been printed in book form. Dr. Walter B. Pitkin even brought forth, some years ago, a monumental tome called "A Short Introduction to the History of Human Stupidity." Few took his hint: the volume was not popular although it was Dr. Pitkin's best. It is curious, then, and even perhaps significant to the wise, that so many decades of excellent market for compiled knowledge passed by before it occurred to any one to try and collect our thoughts.

Try we ought, as none will deny, for we have spent the past half-century in a steep crescendo of mental confusion, as is amply proven by the fact that, in the period, we have wrecked about half of our physical plant, homes, cities, and possessions.

Nevertheless, although I hold the above good opinion of the value of Reason, I demurred intensely when the editors of this volume requested me to write a Preface for it. I demurred on the grounds that the writing of a short introduction to the history of contemporary intelligence would be too cosmic an undertaking for any known man excepting, perhaps, the late H. G. Wells.

And I demurred on the further grounds—which seemed cogent to me—that what I regard as thought, and what I have tried to describe as thought in my own books has very little to do with what the Intellectuals and the Scientists consider thought to consist of. I tried to explain that, while I believe the common American is more thoughtful than is suggested by the popular characterization he gives to himself, the American Thinker scarcely thinks at all. These protests were overridden and I have undertaken the assignment: caveat editor.

It will be seen from the Table of Contents that the compilers of this volume regard Thought as the proper instrument for the examination of everything and every subjective quantum besides. Aeronautics, Anthropology, Art, Biology, Labor, Literary Criticism, Minorities, Physics, Poetry itself, Politics, the Post-War World, Radio, Religion, Sociology, War—these and many another "field" have been winnowed for the authoritative and representative expression. And yet, in the directive which was sent to the laboring hordes of winnowers, I find the following statements: ". . . the point of view of the selector should be that of a man of good will, a democrat believing without qualifications in the inalienable rights of man as exemplified, for instance, in the American Constitution." Elsewhere the directive says, "The criterion . . . should be fact and truth, rather than the avoidance of uncomfortable issues . . ."

Here, then, is an obviously valuable collection of those phenomena now running through the heads of Americans, which has nevertheless hit even in its planning stage upon something of a paradox. It is to deal with fact and truth. Yet it is to be appraised by persons committed to certain emotional and intellectual attitudes of an *a priori* nature. The editors, that is to say, have already decided that what is factual and true must necessarily be in accord with good will and democratic rights. This contradiction has baffled most living Thinkers and is the one with which I propose to deal briefly in this note. This is a chore I could easily escape by politely "reviewing" selected thoughts from selected essays herein contained, and, indeed, they are all interesting enough to provoke further remarks, criticism or testament.

But an anthology of Thought ought to think a little about itself and about Thought itself.

Modern Americans, as every man with a worldly education fully knows, have, perhaps, the lowest record per capita for broad, original thinking among the nations of the world. Such

thinking skill as they possess is concentrated upon the analysis, adaptation, and application of hypotheses created elsewhere. If America makes a lasting contribution to human evolution it will more probably be in the field of group behavior than by the work of individual giants in the enterprises of science or the arts. Ralph Waldo Emerson furnished immense and as yet largely unrecognized contributions to psychology. Benjamin Franklin helped to pioneer electrical science. But, since the time of such thinking, and such even earlier tinkering, American thinkers and mental prospectors have been crowd-followers, or, at least, leader-followers.

Modern art and literature, for better or for worse, were birthed abroad. It is patriotic to assume that Edison and the Wright brothers were originals. But behind Edison—rather, before him—are strung the names of Watt and Ohm, Ampere, Volta, Faraday, Galvani—the true creators. None is American. Before the Wrights were centuries of work done abroad. The greatest single piece of thinking in the science of our age was accomplished by a Swiss named Einstein; in that field the two next greatest names are Bohr and Plank—both foreigners. And what is to my mind the most profound modern thinking of all was the masterpiece of a Viennese named Sigmund Freud. This last attainment, oddly enough, revealed that no man really thinks much but only thinks that he thinks; it proved that most human reasoning is rationalization—most conclusion, the outcome of a conflict of instinct with the strictures and fiats of childhood.

Since the only satisfaction left to a modern educated man had long been the illusion of the breadth, penetration and detachment of his Reason, this hypothesis is most abhorrent to him. Yet psychology, after the furnishing of proper clues by Freud, has established beyond the possibility of reasonable doubt, for all who care to examine the facts, that most of our main ideas are mere institutions of the instinct and most of our great public thoughts are mere attempts to rationalize the results of an inner war between human instinct and whatever conscience has been grafted upon each of us by our experience as infants and children.

Thus it might be said that the editors of this volume who would have it on the one hand true and factual, and on the other hand the selection of men of good will democratically bound to the institution of inalienable human rights, were trained in early childhood that goodness was the best of all positive human aims and democracy the perfect instrument for the public achieve-

ment of goodness—while, at the same time, a secondary fealty to the truth for its own sake was also taught to them or learned by them in their years of maturation. And, while I would not quarrel with them on the value of goodness as a personal and social aim, or of democracy as the only social method congruent with the evolutionary process in which all living things have their existence, I shall make note of the fact that an *a priori* allegiance even to "goodness" and "democracy" gravely interferes with the inspection and the understanding of truth.

They have put the cart before the horse, like the other Thinkers of our times. Knowledge of the nature of goodness and the value of democracy must proceed if there is to be such knowledge, from an examination, first, last and always, of Truth. And good, honorable democrats, who insist that their institutional ideas are to be served even ahead of the inspection or presentation of Truth, advance (or retreat) over the veriest quagmire. Wherever Truth appears to contradict their definitions of "goodness" or of man's "inalienable rights," all such are compelled unconsciously to deny or censor that Truth. This negation or suppression is necessary to them because their attitude is primitive and emotional; it cannot elicit itself; it cannot explain itself in any and all the terms of known fact; it derives not from an understanding of psychological law and physical reality but from a childhood indoctrination in some brand of the morality which has been handed down by religions, or evolved through social reforms, or it even derives from rebellion against early indoctrinations opposed to ideas of goodness and democracy.

Such persons, however well educated and however hard they strive to be honest, often act from *motives.* Believing they know what is good, they believe they know what is good for man. Believing they understand democracy with their minds, they believe themselves able to determine what individuals in "democracies" must and must not do, say, think, et cetera. Unconscious motivation always produces quagmire. But it has been the basis of modern Intellectualism and Liberalism in America in this century. Its specialist attitudes will be observed in this book; the astute reader will be able to find arguments in which the author's virtuous and ennobling motives lead him to reject, avoid or short-circuit those truths which interfere with the point he expounds.

The hazard of this Intellectual-Liberal condition of the mind can easily be shown. For example, liberal protest against the rise of fascism in the world, although quick and continuous, was

largely political. Objection to fascism was raised on the grounds of its interference with "inalienable" human rights. Fascism is merely a modern brand of man's tyranny over man. It is foredoomed by human instinct. But the Liberals were unable to see the validities which it contained—the truths, that is (call them partial, if you will), which sustained fascism and gave it the power to wreck half our planet.

Democracy attempts to equate human instincts, both creative and destructive. Fascism simply undertook to exploit both sorts for the purpose of national aggrandizement. But the Liberals, humane men with a firm belief in their own reasonableness, denied or underestimated the power of exploited instinct. Because they could not explain their own position lucidly enough, they were unable to present to common man in America a description of fascism that made evident its menacing reality. Indeed, while students of the laws of psychology—a precious few in America—were in a cold sweat over the rise of Hitlerism, most Liberal Intellectuals were still laughing at the man with the little moustache and assuring the world he was harmless by economically logical demonstrations that Germany was too poor to wage a great world war. The seeming outward facts blinded them to the real inner nature of man, their own included.

In the opposite direction, or the direction alleged to be opposite, most Intellectual Liberals in America have been similarly deceived. The expressed goals of communism are universal goodness and democratic world government. These are in accord with the early conscience training of numbers of very articulate and important Americans, including, even, some clergymen, who are willing to overlook the non-subjective nature of communist dogma in order to anticipate happily the material benefits and fraternal equalities which are the conscious motives of communism. Thus, Liberal-Intellectual minds which were unable to perceive the terrible validities implicit in fascism have also failed to see, or been willing to overlook, the total negation of human instinct in the communist philosophy. They have been able to side with leftists even when leftist doctrines were absurdly at variance with known psychological law—because of their *a priori* interpretation of good will. The long, changing and tortuous briefs for communism which have afflicted a generation of American "thinking" do not represent reason at all but merely display a multitude of rationalizations designed to support childish concepts of good will and liberty. In the past ten years, the com-

munists themselves have so grossly, so frequently and so publicly manhandled truth, justice and common sense for transparently private purposes that the deeply unconscious nature of *their* motivation has become almost as obvious as war finally made the motives of the fascists.

We open the year of 1947 at a moment when Liberalism and Intellectualism have passed their zenith as mental methodologies. None ever offered a complete description of man, or a satisfactory statement of why man behaves as he has behaved, or a rational integration of man's vast (if local) material progress with his subjective stagnations and regressions. The world now flashes with naked instinct—with fear of destruction and the raving urge for survival. Russia, the great communist state, no longer pretends to practice democratic socialism excepting as a future promise. Good will and democracy in America have been arrested in their perfection by the fact that human instinct is not always in accord with liberal logic and the further fact that for every new "organization" of management or labor or even things themselves which was intended to increase industrial production there has been, necessarily, a commensurate sacrifice of this or that element of private freedom. The cake gets bigger and bigger but there still is no way to eat more and have relatively more, too.

Superficially, the system of production for profit seems pitted against the system of production for the state. Actually, two vast groups of human beings, one walled off and the other somewhat "infiltrated," are trying to capture the world in order merely to protect themselves. They are afraid of each other. Man, that is, for all his scientific progress, is still afraid of man—which is to say that every man mistrusts himself. This the psychologists have explained—but the statesmen, and even the Liberals, are a long way from achieving the insight provided by the explanation. In this world crisis of self-doubt, America has made the first step in the august process of capturing atomic energy. The rest of the world will not be far behind. And the terror of that physical power (in view of the uses to which electrical and chemical energy have been put by a dread-beleaguered and unhappy species) is inevitably destined, as more discoveries are made and more common men begin to grasp their magnitude, to grow and grow and grow.

Next to creative impulse, fear is the most valuable instinct. It is, indeed, the companion of creativeness. And Americans, who seldom have been thought creators, have suddenly been fright-

ened into trying to think. This is the chief circumstance of 1947 and the boon of the atomic bomb. The scientists, who have for so long insisted their field to be "a-moral," are suddenly demanding a moral world. They now perceive that in order to live man must be as honest about himself subjectively—about his motives, opinions, attitudes—as he has become concerning physical phenomena. The Liberal Intellectuals have also restored the word "morality"—so long abhorred—to their vocabulary. Thinking people have abruptly developed an increased fear of ideological errors, lies, liars, secrets, hidden motives, rationalizations, superstitions and even their own misconceptions.

The question of the century has finally been asked: How is man to achieve a subjective honesty that equals his honesty concerning matter? How, in other words, is the individual to become so trustworthy to himself that other men may trust him, and human confidence in humanity—based not on ideologies but truth itself—may at last be initiated? If psychology is correct in the hypothesis that instinct and not reason controls most of contemporary human behavior, there are alternative answers to the question of this age. One is to proceed, as most of us are at present, until our fears and our unhappinesses, our unconscious motives and private rationalizations precipitate us into enough headless instinctual activity—enough war, enough social chaos—to compel a world-wide reconsideration of nations, races and the nature of man, among the final survivors of such calamities. That is a physical, quasi-Malthusian solution of the problem. The other solution lies in the conscious study of human instinct and the application of its laws—already known—to human society.

Of the "moral" nature of instinct I will say no more here than to point out that it has brought consciousness from the dim level of knowing which is the property of sea scum and viruses to the human level. That progressive elevation of awareness is a natural fact which draws into the future for mankind a most extravagantly hopeful curve. And in the assessment of the forces that have brought consciousness into being will be found, I think, ways and means of putting "goodness" and "democracy" on a permanent, understood basis. The Columbuses and Newtons of psychology have landed and have set forth their principles. It remains for humanity to learn them.

What passes for thought, whether it is mere scrutiny of an object and report upon the nature of it, or the mere statement of a subjective fact that happens to be true locally at a given

time, will continue for some while to represent the American's best notion of the thinking process. It is valuable in itself—as this volume abundantly makes plain. But, in the years ahead, I feel certain that there will arise in some land thinkers and interpreters who are able to transcend our seeming conflicts and paradoxes —to explain psychological motion as clearly as Newton explained action and reaction in moving bodies—and thereby to re-orient our species, or, rather, to orient it, in accordance with its real nature. Truth about objects gave us science. Truth about subjects will fill in the other half of the portrait of reality and some day end our millenniums of chaos. Man is the subject, of course, and he is still unwilling truly to know himself. But that he has at last put the question is a dazzling step towards its answer.

I am, as a reader will see, of the opinion that this book should be presented as a symposium of American data and speculation rather than as a compendium of much true thought. But I am also, as the reader will also see, hopeful and even expectant that it may be an ancestor-volume of those true thoughts which will set the world free.

PUBLISHERS' NOTE

AMERICAN THOUGHT—1947 is the first of a series of books forming part of a more comprehensive publishing plan. The second and third books—British and Latin American counterparts—will be published shortly. In essence the plan is based on the desirability of an international exchange of important current world thought. Thus the American book will make available to readers all over the world a representative synthesis of what has been thought in the United States, during the twelve months prior to Fall 1946, on vitally important aspects of life and culture, expressed by qualified men and women. Similarly the British and Latin American books will enable American readers to gain an insight into representative British and Latin American minds, focusing their attentions on problems involving a wide variety of general, literary, artistic and scientific themes.

It was not deemed opportune, in this first year, to publish books of a like nature and scope on Continental Europe, on the Islamic World, the Far East, the Soviet World or other cultural entities, although it is hoped to expand in that direction in succeeding years, making available to American readers the thoughts, say, of a poet in Teheran, a psychologist in Madras or a sage in Stockholm.

It may prove of interest to readers to know how the selections from the vast amount of material were made, generally in the case of the first three books and specifically in the case of the American book.

Teams of readers were organized in New York, London and Buenos Aires. In New York the readers were headed by Dr. R. S. Nathan, who during the war edited magazines in French, Italian, German, Dutch and Danish for the United States government and who is still concerned with periodicals in the occupied areas of Europe and the Far East. In London readers were headed by Miss Marjorie K. F. Dickson, who is connected with the United States Information Services in London in the capacity of Associate Editor. In Buenos Aires readers were directed by Dr. Hector

Quesada Zapiola, Jr., who is a member of the Argentine Judicial branch.

Preliminary round-table discussions were held in these capitals, based on the Publisher's Editorial Directive, extracts from which, for the American book, read as follows:

> The idea, in essence, is to present a yearly survey of American thought and achievement in the most important cultural, scientific, and technical fields. One article per subject cannot hope to deal exhaustively or effectively with each subject. What is possible is for a judicious choice to reflect the general trend, the most outstanding achievement in each field, and for the sum of the articles to capture the spirit of the total American scene. This, therefore, is the aim.
>
> In controversial and inflammatory subjects such as anthropology, finance, business, economics, history, law, military science, politics, sociology, the point of view of the selector should be that of a man of good will, a democrat believing without qualifications in the inalienable rights of man as exemplified, for instance, in the American Constitution. Such a point of view on the part of the selector should guarantee the choice of constructive material. No more need be said or can be said on this aspect, since the matter rests largely with the individual reader's subjective conscience. The foregoing is not meant, on the one hand, to insure selection of material in any propaganda sense blindly advocating the American way of life nor, on the other, to stifle authoritative, conscientious and sincere material or criticism dealing with the free discussion of systems and theories of interest to men and women living in the free societies of today or similar criticism of shortcomings in America as compared to stated ideals.
>
> It must be remembered that an ultimate objective is to have this book published abroad. The criterion, therefore, should be fact and truth, rather than avoidance of uncomfortable issues or deliberate whitewashing.
>
> In scientific subjects such as astronomy, biology, botany, chemistry, geology, medicine, meteorology, natural history, physics, psychology, general science, the aim of the selector should be to secure authoritative articles representing the year's advances in knowledge of some important aspect of each subject. In case of need, selected articles will be submitted to expert opinion for judgment as to statements of fact.
>
> In humanistic subjects such as architecture, art, literary criticism and history, classical studies, drama, essays, music, the aim of the selector should be to obtain authoritative articles or material reflecting current thought, development and speculation in these fields in America.
>
> The spirit of the book throughout should be young, not academically dull, because the book is not conceived as a text book, but rather as a synthesis of the exciting ferment of culture which this country reveals to the perspicacious.
>
> The standard of writing should be high; it may vary according to the subject, but it should never descend to the "popular" level, as the book

is based on the belief that there are a sufficient number of intelligent people in the world willing to make an intellectual effort to read about subjects at which they are not necessarily experts but about which information in the complex modern world is essential. In deciding the standard, this formula should be used: "Articles understood by the intelligent man or woman, yet not outraging the sensibilities of the expert in that particular field."

The book is visualized as a book of "American" thought and should, therefore, reflect as far as possible the outstanding opinions, thoughts and achievements of all strata of American life by writers of all origins and faiths, and not preponderantly represent one set, class, clique, etc. "American" in this context excludes foreign writers appearing even exclusively in American periodicals. It also excludes resident aliens writing in America, unless such aliens are incorporated into the American stream of life and thought. This is not meant to exclude all writers who do not have proof of U. S. citizenship (an obviously impractical and ridiculous procedure) but only such writers as depend for their cultural heritage or spiritual sustenance on non-American sources.

The round-table discussions resulted in the isolation of the most important subjects for material research and in the crystallizing of the mechanics of work. The interchange of the results of these group discussions proved of benefit to readers in all the research centers. One of the most important results achieved by these discussions was to put the prime emphasis on "thought" rather than "achievements" in any particular subject.

The material to be considered was confined to essays, articles, papers, etc., appearing in periodicals, journals and other like forms of publication in the period under review, with recourse to chapters of books only in the second instance. After a reader chose his subject, its most important aspect during the period was determined and three or four essays on that subject were recommended.

The typical report of a reader searching for material on *"Theatre"* for the American book (a procedure paralleled in London and Buenos Aires) runs as follows:

SOURCES:

Indexes

Bulletin of Bibliography
Dramatic Index
Readers Guide to Periodical Literature
International Index

Periodicals

American Mercury
American Speech
The Atlantic Monthly
The Call Board
The Carolina Play-Book
The Chicago Review
Christian Science Monitor Magazine
The Community Theatre Cue
Cue
The Drama Leaguer
Dramatics
The International Arts Quarterly
National Theatre Conference Bulletin
The New Yorker
The New York Times Magazine
Players Magazine
Poet-lore
Saturday Review of Literature
Stage Pictorial
Theatre Arts Monthly

PROCEDURE:

There seemed to be four important main ideas in the field of *Theatre:* (1) The Playwright-Critic battle, (2) the effect of the English Old Vic Company on the American stage, (3) the formation and discussion of a United States National Theatre, and (4) the recommendations of the National Theatre Conference.

My first recommendation: The Community Theatre in the Next Decade by Sawyer Falk (*Theatre Arts Monthly*) is top notch in this field. It has a provocative theme and is of primary importance this year.

My second recommendation: The State of the Theatre by Harold Clurman (*The New York Times*) is excellently written and says a great deal more than the usual on the theme. Its drawback may be that the author does not offer concrete solutions.

My third recommendation: Toward a National Theatre by Robert Porterfield and Robert Breen (*Theatre Arts Monthly*) has been the basis for a great deal of discussion and subsequent action.

Other essays considered were: My Neck is Out by Wolcott Gibbs (*The New Yorker*), Drama Critic Replies to his Critics by L. Nichols (*The New York Times*), Ducking Stool by Rosamond Gilder (*Theatre Arts Monthly*), Concerning the Jukeses by J. M. Brown (*Saturday Review of Literature*), The Theatre of the Future by Margaret Webster (*The Chicago Review*), The Alternative to Broadway by Eric Bentley (*Arizona Quarterly*).

THE AMERICAN BOOK

Once the material (the result of many months of work) was classified, a final selection was made in numerous and detailed discussions. It was found that on some subjects there was no apt material—sometimes it was too technical in nature to fit the policy of the book, at other times it was descriptive or summarizing, rather than consisting of original and constructive "thought." Thus, of seventy-two subjects considered, only about one half

were ultimately included. In the present book there were only two cases (*Hate Propaganda in Detroit* by Carl O. Smith and Stephen B. Sarasohn and *America at War* by Hanson W. Baldwin) where exceptions to this rule were made. It was felt that these exceptions in favor of articles, one dealing with an important social and political problem of the domestic scene, the other isolating the elements that went towards the winning of a kind of war no longer likely to be repeated in the atomic age, would not invalidate the general principles governing the other selections.

In some fields (notably International Affairs, Military Science, Labor, Literary Criticism, etc.) there was an abundance of excellence. Space limitations and considerations of the over-all balance of the book's contents forced the elimination of some essays that should have had a place in the book. One may here mention in particular John Hersey's *Hiroshima,* which might be deemed an indispensable component of such a book as this.

It was a general rule not to shorten any of the material and cutting was only reluctantly resorted to in a few cases of articles of extraordinary length, but of great importance for the book.

That there will be disagreement with the selections appearing in the present book, or with the methods employed to achieve the objectives, is inevitable and inherent in the plan. Any such disagreement, however, will be welcomed as healthy and stimulating. It would be presumptuous and false to claim for any essay that it is the *best,* since, like *beauty* or other abstract values, the matter is a question of opinion, conditioned by subjective taste, circumstances and a vast array of other considerations. The essays were chosen primarily for their qualities of original thought; the points of view expressed in them do not necessarily conform with the points of view of those concerned with the compiling of the book. The most that the publishers claim is that the book *as a whole* is widely representative of the richness and ferment of intellectual activity in America, that it is intellectually honest, "young," and provocative in approach.

In general, authors, editors, institutions and publishers proved most co-operative and flattering in their sympathetic recognition of the importance of the objectives of the over-all publishing plan. Apologies are due from the Publisher (and are herewith respectfully tendered) to those editors and authors who granted permission for the use of their material, most regretfully not included at the last moment merely for reasons of space.

VLADIMIR IVANOVIC, *Publisher*

AMERICAN THOUGHT 1947

AERONAUTICS

THE FRONTIERS OF ALTITUDE

by WOLFGANG LANGEWIESCHE

OF THE many coast-to-coast records recently set up, one stands out to air transport men. Early in 1945, the Boeing Strato-Cruiser, civilian brother of the B-29, piloted by A. Elliott Merrill and John B. Fornasero, flew from Seattle to Washington, D. C., in 6 hours 4 minutes, making 383 mph.

Better records have since been made. But this flight still stands out because it most nearly simulated routine airline procedure. Most such flights, you ought to know, are made with helps which Public Relations doesn't like to mention. Often the flight starts only after months of waiting for a freak weather situation with extra-strong tail winds all the way; hence you may credit the wind with 60 to 80 mph of most transcontinental record speeds. Often the flight is made with throttles wide open—at the risk of burning out an engine. Fuel consumption at wide-open throttle being so wasteful, often the airplane is overloaded with extra fuel tanks and can't lift a payload. Again, some recent records have been made by bombers with slender fuselages, crammed full of extra tanks, which had not even space for a payload. But the big Boeing had a fat, two-story cabin, with space for 114 seats, a cocktail lounge and powder room, and even a circular staircase! The engines ran at reduced power, and tail winds contributed only 45 mph of the speed, so that the ship itself actually did 338.

It was a preview of a revolution which is now beginning in air transport: a sudden spectacular increase in flying speeds. The Boeing Strato-Cruiser is not yet in actual service. But it is only one of a whole new breed of super-airplanes now being built to definite orders of the airlines. Not all are quite so fast; 300 mph will be more nearly average. Some, like the big new Douglas, are still in the flight-test stage. But one airplane of the breed, the

From HARPER'S MAGAZINE, *Frederick Allen, Editor*

Copyright, 1946, by Wolfgang Langewiesche.

Lockheed Constellation, is already flying for TWA, so that you can buy yourself some of that new high speed right now.

Three hundred miles an hour may not seem so fast compared to the 400 mph bombers and the 600 mph fighters now in the news. But that comparison would not be fair. Military airplanes need speed at any price; transport airplanes must satisfy a more exacting formula—speed at a price the passengers can afford. The fair comparison, therefore, is to the present standard ship of the airlines, the trusty Douglas DC3: it cruises at 180, and cannot carry profitable payloads farther than 700 miles, non-stop. With refueling delays, its actual long-distance progress is more nearly at 140 mph. Thus, with longer range as well as higher speeds, the new airplanes promise easily to double our present traveling speeds.

Such sudden jumps in development are not supposed ever to happen, either in business or in engineering. What magic is it that permits this speed-up?

It isn't size. The new airplanes are giants, by present standards; but size does not make an airplane faster; it merely makes it more profitable, provided the owner can fill it with payload. The magic speed-up could be done just as well on a small airplane. In fact, single-seat fighters get much of their speed by the same trick.

And it isn't "streamlining." A smooth, slippery shape gives you mostly not miles per *hour,* but miles per *gallon:* not speed, but cruising range. The magic speed-up was once done effectively on a strut-and-wire biplane of World War I, increasing its poky speed by nearly half!

Nor does the new speed magic lie in power—at least not in the simple sense of bull-headedly pushing the ship faster by brute force. Every airplane has its own inherent cruising speed; to push it faster would make no sense because air resistance would rapidly become too stiff, and absurd powers would be required. To raise the cruising speed by a mere 15 per cent would require a doubling of the power; to double the cruising speed would require eight times the power! An airliner which got its speed by brute power would lose money, and would soon find itself in a museum.

Then there is the old racing pilots' formula: clip the wings and *then* add power. That way you do get higher cruising speeds without having to use absurdly big engines. Much of the progress

since the Wrights has been accomplished by this formula. But in a sense it has been fake progress; for as your smaller wings increase your cruising speed, they also increase your landing speed, and you need more runway. The formula has never evaded the big curse of the airplane—that it could not do both, fly fast *and* land slowly. The new super-airplanes do use the clipped-wing formula to the limit: their wings may not *look* small, but they are, considering the airplanes' weights. The early Wrights had so much wing that each square foot had to lift only 2½ pounds. If the Boeing had proportionately as much wing it would darken the sky. In the Boeing, each square foot holds up 70 pounds. As a result, it lands at about 100 mph, and then the brakes take a mile to stop it. But even at that, those clipped wings still would give them cruising speeds of only 200 plus, not 300 plus. Thus the clipped-wing formula is part of the answer, but not the essential part.

No. The real speed magic consists of one trick only: *flying high.* The big Boeing cruised at 340 simply because it flew at 30,000 feet, where the air is thin and offers less resistance. That is the true speed formula: the higher you go, the thinner is the air. The thinner the air, the faster you can fly *without* absurd expenditure of power, *without* clipping your wings so that every landing becomes an adventure. And that is why the campaign for altitude goes on although we can now easily clear trees and mountains: we want to clear the thick low air that holds us back. The campaign for altitude is a campaign for speed. As long as the airplane flies low, it cannot free itself from its basic curse—that it must land at about 40 per cent of its cruising speed; or, vice versa, that it can cruise only at about 2½ times its landing speed. Thus it must always cruise impractically slowly, or else land dangerously fast. But if it can take off and land in low, thick air, and cruise in high, thin air, it's different. At 40,000 feet it can cruise at five times its sea-level landing speed. And that is only a beginning. Just as soon as we can, we shall go high into the stratosphere and cruise at *eight* times landing speed! Way upstairs—that's where the airplane belongs.

The altitude record for airplanes is 56,046 feet. Yet transports and bombers are flying above 40,000 still only experimentally. Most war flying was below 30,000. The airlines are still merely beginning to move up to a mere 25,000; almost all airline flying at the moment is still below 10,000. If altitude is so

good for airplanes, then why aren't we flying *really* high right now?

High flight is mostly a problem of breathing. Not only for pilots and passengers; the engine, too, must devour air if it is to make power. The upper air does not differ chemically from low air but there is less of it: each cubic foot of space contains fewer actual air particles. Hence each lungful of breath contains less life; each cylinderful of fuel-air mixture contains less power.

The engine's breathing problem stops you first. At about 15,000 feet—where the pilot can still muddle through—the ordinary airplane quits climbing because its engine can't get enough air, hence can't burn enough fuel, hence can't produce enough power. The engine buzzes just as it did down lower, but there is little force behind the buzz. The propeller turns as usual, but in the thin air it takes little force to turn it, and the resulting pull is feeble. And so you sit there with your nose pointed up for a climb, but you don't climb: you have reached your ceiling.

Even as you read this you have probably invented the remedy. Why not *cram* air into the engine with a pump? Let the engine itself drive the pump, and there you are: full power at any altitude.

Today, such a pump—called a supercharger—is built right into the engine of almost every airplane except trainers and light private planes. It is a centrifugal blower, similar to that in a vacuum cleaner: a wheel with vane-like spokes, spinning at high speed, slings the air away from itself by centrifugal force; a surrounding housing catches the air and conducts it to the cylinders. If any one thing has opened the upper air to us it is this little wheel—no bigger than a saucer—whirling away deep in the innards of the engine.

But it has not been easy to make it work. To keep the pump small and light and yet make it furnish enough pressure, it must be spun at terrific speed—twenty times as fast as the propeller. This causes fantastic mechanical problems. The driving gears and clutches alone make the gearbox of your car look like oxcart engineering. The centrifugal force turns every ounce of material on the wheel's rim into a crazy quarter-ton trying to tear itself loose and fly away; if there is the slightest flaw in material or design, the wheel simply explodes.

The air inside the pump flows so fast—almost at the speed of sound—that it breaks into shock-waves and compression-waves and all the contrariness of "compressibility" which bothers an

airplane in very fast flight. You can see why it took from before the First World War until the early thirties to make the supercharger practical; and why there are only three firms in the United States, only a dozen in the whole world, building high-altitude engines.

With a supercharger the average airplane's ceiling was raised to 25,000 or so, and load-carrying cruising flight became possible at 15,000. (Special record airplanes could, of course, go much higher.) But now the pilot's and passenger's breathing problem became acute. Actually, the problem was old. The bearded professors of Victorian days had explored the upper air in balloons, with amazing nerve, and some of them had died in their baskets for lack of air. Most moves in the high-altitude campaign have been strangely timed. Our account here is not a true chronological history of the campaign, but an attempt to show its internal logic—a logic which was actually quite hidden behind the cross-purpose strivings of many men.

Above 8,000 feet, every breath leaves you with a slight deficit of oxygen. But you don't gasp for more breath; you feel fine. Too little oxygen acts much like a bit of alcohol. Tyrolean boys and girls get the "upper-pastures-intoxication" when they drive the cattle up the mountains in spring—a state of elation, coupled with a pleasant relaxation of sex taboos. Even the eighteenth-century balloonists used to report that the upper air contained "invigorating acids." Actually, you ought to feel awful at, say, 14,000 feet, perhaps as if a snake had bitten you; you are slowly suffocating. But your sensory system is itself doped-up, and in all aero-medicine there is only one record of a pilot who actually felt as sick at altitude as he was. Actually, your mental arithmetic with miles, minutes, and gallons of fuel becomes sloppy; your flight-test notes turn out later to be illegible scrawls; on the radio you report yourself "southeast" of the field when you mean "southwest"; but your confidence rises. After half an hour at 12,000 feet you may suddenly loop the loop simply because it seems a good idea at the time.

On longer exposure above 10,000, well-being turns into lassitude, drowsiness, intense fatigue. To unfold a map, to adjust an engine control no longer seems worth the effort; and the passenger stops reading his paper. You still don't realize your condition. But a whiff of oxygen taken after, say, half an hour at 12,000 feet shows it up. All of a sudden the light seems to go on,

and the engines are roaring music, and the world is in technicolor: you have come out of a gray narrow cave. That's why domestic airliners have so far been compelled—by actual law—to stay below 10,000 except in special cases; some early crashes in the high West could be explained only by the assumption that the pilots had been befuddled by lack of oxygen. Professional pilots soon learn to stay below 10,000 except on business; even a short time above 10,000 takes the pep out of you for that evening. Transatlantic passengers often feel a little dead for several days after an eastward crossing, when pilots tend to cruise high to take advantage of strong west winds aloft.

Above 18,000 feet the effects of altitude become vicious. Vision blurs. Hallucinations begin. Out of the corner of your eye you see someone flying formation on you, but when you look for him he isn't there. An Army pilot and observer once flew for several hours at 18,000 without oxygen. The observer began to notice the pilot's red, sunburned neck, and after a while the sight so irritated him that he searched frantically for a fire extinguisher or other club with which to kill the pilot! And the higher you go, the worse it gets. The symptoms always depend on various factors—altitude, length of exposure, quickness of climb, the victim's constitution and personality. Some get melancholy, others get giggly, still others vicious; some fade out gradually, some collapse suddenly. But the end result is always the same: if you fly high enough long enough, you pass out into a glassy-eyed, open-mouthed coma. And if you stay in that coma long enough, you die.

Even the old professors knew the solution: carry your own oxygen, compressed in a bottle. They used to breathe it through a pipestem clamped between the teeth. But puffing on a pipe requires concentration; that's why smokers keep having to relight. An airplane pilot sooner or later becomes preoccupied with flying and forgets to puff, breathing through the nose instead. Then oxygen-starvation sets in; with it come drowsiness and befuddlement and, since the symptoms are not unpleasant, nothing reminds him to start puffing again. The pipestem drops from the slackened mouth and he fades out.

Obviously a mask was needed that would cover both mouth and nostrils. But such a mask was more of an inventor's problem than it may seem. For it must imitate in rubber and aluminum a function of the living body. An artificial throat, it must separate

incoming breath from outgoing by shifting valves; and unless the valves shift with the utmost ease the wearer feels he's being choked, and wants to tear the thing off. It must lead away the moisture of the breath into outside air which may be so cold that any moisture instantly turns to ice. It needs a built-in nervous system to budget the oxygen flow according to the pilot's need; for while the gas itself is light, the bottles are heavy and cut into the airplane's useful load: the stuff must not be wasted. No wonder that even today such a mask is not foolproof. It must be continually watched. For if it leaks or jams or becomes disconnected at high altitude and lets the pilot breathe outside air, then every breath not only fails to give him oxygen but actively drains him of the oxygen-content which he had artificially maintained. And with that treacherous absence of warning symptoms, out he goes like a light. Many a pilot during this war has suddenly waked up in a screaming dive near the ground—to discover that he had quietly passed out; and some haven't waked up in time.

Still, with a blower for the engine and a mask for the pilot, we could at last fly high *and* long, really working the thin-air trick and making it pay. Thus in 1935 the great Wiley Post—whose flights, like those of Lindbergh, always made sense—installed a highly supercharged engine in a Lockheed which had a sea-level cruising speed of 150 mph. Post flew it at 30,000 feet from Los Angeles to Cleveland nonstop, averaging 235!

Take a closer look at that thin-air trick; just *how* does it speed an airplane up? To understand that, no aerodynamics are required. A bicycle will do.

On a bicycle practically all your power goes into overcoming air resistance—just as in an airplane in cruising flight. You cruise a bicycle at 10 mph because that's all you can get with the power you've got. If you rode twice as fast, air resistance would quadruple; thus you would have to push the pedals four times as *hard.* In addition, of course, you would have to push them twice as *often.* Thus it would take eight times the power to go twice as fast, and you would soon quit.

It is the same with an airplane in cruising flight. If it doubled its speed, its drag would quadruple; hence its propeller would have to pull four times as *hard.* In addition, the prop would have to pull twice as fast, and it would require eight times as powerful

an engine to turn it. And if you tried to *triple* the airplane's speed, you would need 27 times the power! Even if it could be engineered, it would be poor business.

But now suppose you could thin out the air to one-fourth of its usual density. Then (your own breathing somehow taken care of) you could ride a bicycle at the usual 10 mph and meet only one-fourth of the usual resistance. You could speed up to 20 mph and let the resistance quadruple—and it would still be only the resistance which in the usual air you used to meet at 10 mph. Thus you could ride twice as fast without having to push the pedals any *harder*. You would, however, still have to push them twice as often. This means you would still have to double your power output. Instead of riding twice as fast with eight times the power, you would do it with twice the power.

An airplane actually can thin out its air: at 40,000 feet, the air is one-fourth as thick as at sea level. Hence a ship that cruises at 200 down low can cruise at 400 up there and have no added drag. To keep up that doubled speed, however, its propellers have to turn twice as fast; or rather (since that is not practicable) the propeller blades have to be set at a steeper angle, which makes them advance twice as far for each revolution but also makes them twice as hard to turn, requiring twice as big an engine. Thus the airplane, too, can fly twice as fast on twice the power, simply by seeking out thin enough air—whereas in thick air the same speed-up would have taken eight times the power!

Twice as fast on twice the power may not seem much of a bargain. But consider a trip of 1,200 miles. Some low-altitude airplane, cruising at 200 mph, runs its 1,000 hp engine for six hours. The same airplane re-designed for cruising at 40,000 feet needs a 2,000 hp engine, but cruises at 400 and runs its twice-as-big engine only for half the time. Thus the high-flying one uses no more fuel, but gets there twice as fast: speed has been grabbed out of thin air, free of charge.

The same logic works, on a lesser scale of course, also at the lesser altitudes. At 21,000 feet, for example, you can cruise 1½ times as fast as at sea level by using 1½ times as much power. Even our present airliners, which cruise at 8,000 or thereabouts, fly about 15 per cent faster there, for only 15 per cent additional power, than they would if they stayed way down. If they wanted to fly at 500 feet and still cruise the usual 180, they would have to run with throttles pretty wide open, burning lots of gas and wearing out their engines.

This thin-air trick is really *the* speed trick of aeronautics. Build 'em fast in the first place—as heavy and small-winged as you dare, in view of the resulting high landing speeds—but then fly 'em high. Speed at low altitude is so expensive, in engineering as well as financial terms, that even the military airplane can't afford it. An apparent exception, just at the moment, are the ultra-fast jets: they *have* to get their extreme speeds down low, in order to stay in warm air and thus stay out of "compressibility" troubles. But they pay for it: the power they have to develop to get those high speeds down low is truly fantastic; so is, of course, the fuel-consumption. And they, too, will start *really* speeding only when they can finally try it up high. The ordinary 400 mph bombers and fighters you read about all get their speed by height. Most of them are really a 250 mph sort of airplane; that's what they would do if cruising with low-altitude engines near sea-level; that's what their landing characteristics are like. They do 400 simply because they are sufficiently supercharged and well enough powered to do their cruising at 20,000 or 30,000 or higher. Thus when it is announced that such-and-such a ship "has a speed of 400 mph at an altitude of 25,000," it doesn't mean: "Look, even that high it can go so fast. What a ship!" It means: "It can cruise so high that it can actually hit 400. What supercharging!" When it is announced that some famous fighter has come out in still another, still faster model, there usually has been no important change in the airplane itself; it has simply been given a little more power and a lot more supercharging, so that it can fly higher—and then it naturally flies faster.

In commercial flying this simple logic is sometimes obscured by secondary considerations. For a short flight the climb to high altitude may take too much time and extra power—so you stay low. Strong headwinds aloft may make high flight too slow. In really high flight, supercharging and cooling become a tax on the thin-air deal—as will be explained. The economics of the airline business is very complex. At present, for example, most airplanes are flown much too fast, from an engineering viewpoint. The familiar Douglas airliner would carry bigger loads on less fuel if it were cruised at 130 rather than 180. But that would be too slow for the customers; also, such dawdling would mean fewer trips per week, and smaller gross earnings. But in the high thin air an airplane can mush along slowly and still make decent speed. Thus some airline may elect to operate the new, high-flying airplanes, not at 300 but at an easy-going 250—and charge lower fares. But which-

ever way you twist it, you still have that gain: the thinner air lets you move more easily.

Flights such as Wiley Post's were appetizing. You wanted more of the same—fly really high, and with loads. But now the problems really began to pile up. Really thin air cannot be sufficiently compressed by one blower; you need two, the first one feeding the second, the second one feeding the engine. You need gear shifts so that you can throw your blowers into high gear when the air gets thin. But now the first blower may deliver more air than the second can take, or less than the second demands. Then air surges back and forth in the duct between them, and the engine quits. So now you complicate your engine with an automatic supercharger-regulator—a Rube Goldberg device in which bellows A operates linkage B which opens gate C, and so on. Then the regulator makes errors, and you complicate it with an automatic compensator—and so it goes, with the result that today only a few dozen minds really understand all about a high-altitude engine.

And that isn't all. When air is compressed it heats up—as you know from pumping up your tires. The air at 35,000 feet is about 55 below zero; but compress it sufficiently for use in the engine, and add also some friction-heat from those crazily spinning blower-wheels—and it gets twice as hot as boiling water! Fed such hot air, the engine would knock and wreck itself. So now the high-altitude airplane blossoms forth with an entirely new part—added to the usual airplane parts such as wing, engine, tanks, landing gear: an air-cooler, much like the radiator of a car, through which the hot, compressed air is piped before it is fed to the engine. This "inter-cooler" is quite a burden on the airplane because of its weight, and because of its bulk which makes the airplane bulge in the wrong places, and especially because of the drag it adds. True, it is hidden inside the airplane and doesn't spoil the external streamlining. But just like an automobile radiator, it needs a stream of cooling air to carry away the heat—and pushing air through a radiator is work. In a car this is done by the fan, and the engine uses some of your gasoline to drive the fan. In the airplane it is done apparently without work, simply by scooping up some of the air which rushes by outside, and ramming it through. But it is still work. The scooped-up air, in hitting the radiator inside the airplane, still pushes backward against the airplane; and the engine must therefore pull forward harder.

But the most serious complication of really high flight is the

work it takes to run the superchargers. When you pump up a tire, you work; but that's nothing compared to the work of keeping up a continuous torrent of high-pressure air for an engine which continually sucks it away. This work, too, is done by the engine itself. At 20,000 feet, a 1,000 hp engine may have to use 200 of its own horses to run its own blowers; thus only 800 are available to pull the airplane. And as you climb higher and shift your blower system to high gear, the power waste rapidly increases. At 55,000 feet, two blowers may still manage to feed the engine enough air—but *all* of the power developed now goes into driving the blowers, and none is available to drive the airplane: the whole device has become useless. And even far below that altitude the engine hasn't enough power, after supercharging, to fly the airplane.

The answer to that one is easy to think up if you have ever watched the exhaust shoot out of a car's tail-pipe. Most airplane engines have no mufflers, and the exhaust gas comes blasting out alive with three kinds of energy: it is white hot, very fast, and under high pressure. In most airplanes (and all automobiles) this energy (nearly a third of your money's worth in gasoline) goes to waste. Then why not use this blast to drive a windmill, and let the windmill drive a blower?

You have just invented the turbo-supercharger—a device which has figured large in American air power. The Flying Fortress, the Liberator, the Thunderbolt, the Lightning, the Mustang—all get their altitude-ability, and hence their speed, by an exhaust-driven supercharger which feeds air into a second, engine-driven one. And the B-29 has *two* turbos on each engine, feeding air into an engine-driven blower; so has the big Boeing liner.

This invention, too, was made long before the problem was really acute. A Frenchman, Rateau, thought it up during World War I. It came to the United States in the course of routine inter-Allied exchange of information. General Electric, experienced in steam-turbines and in blowers, developed it. Flight-test methods being too crude in 1917, a turbo-supercharged engine was trucked to the top of Pike's Peak and tested. It had developed 350 hp near sea level: now it developed 356, proving that here was a supercharger which did not tax the engine for power. It was with this early high-altitude engine that Maj. R. W. Schroeder in 1920 flew at heights up to 30,000 feet and thus increased the speed of a 1918-vintage biplane by nearly half.

But to make the thing practical took twenty years. Credit for

such persistence belongs to G.E. and the Army. The main problem was metallurgy: the exhaust blast is so hot that the turbine wheel runs cherry red. At such temperatures ordinary metals lose four-fifths of their strength and become plastic. But the little turbine spins at 25,000 rpm, and centrifugal force tries to pull it apart. New metals had to be developed which would not splatter under such conditions. Another problem was control. If the turbine slowed down for any reason, the engine would get less air, and would make less exhaust blast, and thus the turbine would slow down still more; presently you would sit there at 30,000 feet with a feeble, unsupercharged engine. Or, if the turbine speeded up for any reason, it would super-supercharge the engine, and the increased exhaust blast would speed it up still more; ask any ex-bomber pilot about runaway turbos! Sensitive regulators were built to control the whirring devil; they were too sluggish. The problem was entirely solved only during this war, when fancy electronics came to the rescue.

Thus the airplane's ceiling is now probably about 65,000 feet, and a new world's record is overdue. Cruising flight ought now to be possible at 45,000. But now the pilot is the weak link again. It can't be proved, but airport opinion is that some of our military airplanes have never been flown to their ceilings.

For at really high altitude an oxygen mask is no longer enough. It feeds you the oxygen all right; but from 35,000 feet on up, the lack of *pressure* begins slowly to kill you, much as it kills some deep-sea creature hauled up to the surface. Your stomach expands and presses against your diaphragm from underneath, so that you feel breathless and may think your heart is acting up. Severe intestinal pains may develop. Above 37,000 feet, lack of pressure begins to make your blood fizz, much as a coke fizzes when you open the bottle and thus release the pressure: nitrogen, which normally is dissolved invisibly in the blood, now forms bubbles. These bubbles float in the bloodstream and lodge at joints, causing cramp-like pains much like arthritis: the same deadly "bends" which sometimes overtake men who have worked in compressed air under water, and have come up too fast.

At 40,000 feet you may get the mysterious "chokes"—perhaps because in such thin air coughing no longer clears the throat, perhaps because nitrogen bubbles form in the throat tissues. Above 42,000 feet or so, the lack of pressure stops the breathing process; at this point, even if you breathe pure oxygen, it can no longer

penetrate through the lung tissues into the blood. Thus life can be sustained only under artificial pressure.

That's why Wiley Post invented that Martian-looking pressure suit: a diver's outfit, airtight from boots to helmet, kept full of pressure-air by the engine supercharger. It is awkward; the internal pressure makes it rigid, like a blimp. It is cleverly tailored to stiffen the pilot in a sitting attitude, hands in position for stick and throttle, feet extended toward the rudder; but at best it is bound to make his flying stiff. And it seems fearfully flimsy. If it should burst at, say, 65,000 feet, you would die instantly: at such altitude the pressure is so low that your own body temperature will make your blood boil!

Still, it was with pressure suits that the altitude record was run up, just before the war, first to 46,000 feet by the British, then to 56,000 feet by the Italians, who have always excelled at "pure" aeronautics and have often held the world's speed record as well.

Meanwhile Americans—always more interested in the applied arts than the pure—had tackled a new problem: altitude comfort for the cash customer. Record flights were all very well; but unless people pay cash to be flown, there can't be much flying.

Commercial transport with heavy pay-loads must, of course, stay well below the record altitudes. The region between 20,000 and 30,000 feet interested our airline operators. At those levels, the pressure suit was not needed. The oxygen mask was not wanted; it takes too much instruction, too much watching, too many heavy oxygen bottles. It was too uncomfortable. To wear one for several hours can become torture, for it must fit tightly over the nose, around the cheeks, and under the chin. It has been aptly described as a malevolent hand clamped on your face. In addition, the bestial, pig-like expression it gives its wearer would scare the lady-trade away.

But why not put the passengers into an airtight cabin and pump the cabin up to sea-level pressure? Then you need not even carry oxygen at all: high air, compressed, becomes precisely like low air. And there you've got it: high flying and low living.

The "pressurized" cabin is what gives the new generation of airliners its distinctive appearance. Pressure acting inside a hollow thing tends to force it into a spherical shape. Hence the cabin of the plane is built in the first place in the shape which it would want to assume when full of pressure. Some cabins are strictly circular in cross-section. Since this may not always permit

an efficient seating arrangement, some cabins are combinations of *two* circular sections; with a waistline between them which is characteristic of many of the new ships.

In such a shape every bit of material is under stretching stresses; none under bending or squeezing stresses. Essentially, such a cabin would keep its shape, simply by internal pressure, even if it were tailored of limp fabric. Some cabins may even have three stories, with pressurized places for baggage masters and mail clerks to work in.

A pressure cabin is not an easy thing to engineer. Leaks are the least of your worries; your blowers can more than make up for them, and there has to be ventilation anyway. More serious is the compression-heating of air: at high altitude you need an intercooler even for the cabin air! The most serious problem—much more involved than it seems—is the control of cabin pressure. The Army built a pressure airplane in 1920, before the mathematics of the thing was quite developed: on its first take-off it promptly pumped itself so full that cabin pressure corresponded to 7,000 feet *below* sea-level. The pilot's eardrums almost burst, and the heat of compression, added to Midwest summer heat, almost baked him to death. He got down in the nick of time. A Frenchman tried it in 1935; his airplane blew up outright. Not until 1937 was a successful pressure airplane built—by Lockheed, to Army specifications. In 1939 the first such airline ship was built by Boeing—the Stratoliner, still flying for TWA. And Boeing's B-29, with "pressurized" crew-compartments, finally proved the idea on a large scale. Since then, the fascinating technology of precision instruments and automatically self-controlling devices has been further perfected—and perfection is needed. For if the "automatic brain" should allow the cabin pressure to fluctuate even only a little (the way a thermostat sometimes lets a house get alternately too hot and too cold), then the passengers' ears would click and their tempers would get ruffled. And *that* must not be.

That's where we are now. The heavily supercharged engine and the "pressurized" cabin solve the problem of commercial high-altitude cruising up to 30,000 feet.

Thirty thousand feet is pretty high. Most of the weather is below you, and the air is almost always smooth. Even on a clear day there are usually several layers of dust, smoke, and haze below you, and you don't have the usual view of the ground; you

are more like a ship on the high seas. The sky is very dark blue—almost the black of inter-stellar space. The sun is fiercely powerful, and its rays come hot through the windows. You won't see much detail, but with a view that reaches hundreds of miles, you will see strange things. Merrill and Fornasero, that evening they crossed from coast to coast, saw at the same time both the day and the night: the country behind them was still in sunlight while in the country ahead of them the cities were lit.

But 30,000 feet is not high enough. Almost no height will ever be high enough. The immediate next goal is the stratosphere itself —that layer of clear, smooth, dry air, always weatherless, in which we would have the smoothest sailing. So far, the expression "strato-" in airplane names and ads is still a bit wishful. The bottom of the stratosphere lies at 37,000 feet, on the average, in our latitudes, and on many days it lies higher. A true stratosphere airplane would probably have to be capable of cruising, load-carrying flight at 42,000. Beyond that, just for example, 65,000 feet looks nice: to take an airplane which lands at 100 and cruise it at 800 mph would be nice indeed. What obstacles keep us from it right now?

A pesky but very real one is the intense cold of the upper air. As Hitler found out in Russia, ordinary machinery simply quits working when the thermometer gets below the usual limits. But the *average* temperature at 37,000 feet is 60° below zero; on a cool day you might run into 100° below! That sort of cold makes ordinary oils and greases freeze solid. Rubber gets brittle; paint chips off. Metal contracts until the airplane's rudder-hinges jam and lock. The wiring of electric motors contracts until they quit, and thus fail dozens of important gadgets which are worked by such motors. Wings and tail actually get shorter with cold; at the same time the control cables, being of steel, contract less, so that the control system gets slack and the automatic pilot becomes wobbly. Propeller hubs, which must do that important job of twisting the propeller blades to the correct angle for altitude, speed, and power, quit working as the oil in them congeals. Not perhaps really tough engineering problems; but remember that they come to the test pilots in reverse order: something mysteriously goes wrong in flight, and to track the trouble down is dangerous work, bound to take time. And they bother a large, complicated airliner more than they would some small special record job. On the hopeful side—once you climb up into the actual stratosphere, the air does not get any colder (this being the defi-

nition of stratosphere, and the reason why it has no weather); at extreme altitudes—unthinkable ones by present standards—the atmosphere may be actually warm!

Absurdly enough, while the airplane freezes to death at high altitude the engines tend to overheat. One early strato-ship once had all four engines stop because of this, and had to come all the way down into a hay field, like a Cub. And there have also been disastrous engine fires. The high air is cold, sure enough, and should have much cooling-power; but it is also so thin, so lacking in real substance, that it has little capacity to soak up heat. The exact mathematics is complicated, but fundamentally it works out like this: at 40,000 feet you are flying through air of one-fourth the usual density at twice the usual speed: this means that your airscoops and cowlings catch only half as many actual *pounds* of cooling air per minute. At the same time you are flying with twice the usual power, so that your engines put out twice the heat! Only the intense cold keeps you from burning out your engines. And in *this* respect, the peculiarities of the actual stratosphere are unfavorable: as you climb higher into it, the air does not get any colder, but keeps getting thinner, and so the problem rapidly gets worse until it finally becomes a fundamental limitation on commercial high flight: cooling becomes impossible, not technically but economically. For if you somehow force more cooling air over your engine and through your inter-coolers, you increase the drag. Even when cruising at 30,000 feet, the Stratocruiser wastes 12 per cent of its power on dragging its own cooling devices through the air. If it were to cruise at 40,000 its engines would have to develop an extra 30 per cent of additional power (over and above what the simple bicycle-at-high-altitude formula calls for) merely to overcome the extra drag of the extra cooling necessary at such height. And from there on up it rapidly gets much worse. Thus "cooling drag" constitutes a tax which progressively detracts from the economy of high flight and finally destroys it.

All these troubles have been under attack ever since 1935, when TWA started its "over-weather" flight research program, "Tommy" Tomlinson piloting, and found the stratosphere full of tough nuts. Here is another: the thin air above, say, 40,000 lacks the electrically insulating properties of ordinary air; it is more like a vacuum. Hence the ignition may short-circuit itself with giant sparks that jump across the outside of the engine, instead of going inside across the spark-plugs, as they should. For a while

early in this war, some of our best fighter planes threatened to remain quite useless because their engines would quit at high altitude: Weird radiations which by sea-level rights should occur only in vacuum tubes and neon lights surround all high-tension wires in such air, turning oxygen into ozone which then corrodes the insulating materials. Thus even the ignition wires actually had to be pressurized—surrounded by tubes blown full of pressure-air by the supercharger; little pressure-cabins had to be built around the magnetos. Even batteries have been "pressurized." And as for radio—!

But even that isn't all: owing to lack of atmospheric pressure the gasoline boils furiously in the tanks and fuel lines; thus the engine gets blobs of vapor instead of fuel, and quits. An ordinary fuel pump, trying to suck fuel toward the engine, gets nothing but vapor: pumps had to be re-designed. Even the oil goes crazy with altitude: agitated by the engine, it is usually full of air bubbles, and as the airplane climbs it turns into useless foam. Hence even fuel and oil tanks may have to be pressurized on high-flying liners, as they already are on high fighters.

For the immediate future the passengers' breathing problem also still limits commercial altitudes—in some of the new ships down to 20,000 feet. There is a limit to the pressure-difference which can well be maintained between the cabin's inside and the outside. If we wanted to fly at 43,000 feet, for example, with low-level conditions inside, the cabin would have to be built of heavier-gauge material, boiler-like; that would cut into the pay-load. It may, however, eventually become worth while. There is also still the thought that the cabin pressure system might fail. At 25,000 feet the sudden decompression would mean nothing. It has been tried, and the passengers felt merely as if they had taken a strong drink on an empty stomach. Before more serious anoxia symptoms could set in, the airplane had descended to a comfortable level. But a pressure failure at, say, 43,000 feet would be more nearly like a leak in a submarine and at the blood-boiling 65,000-feet level it would mean disaster. Cabin pressure systems seem trouble-free now; but before we dare carry pay passengers in the stratosphere, we shall need large-scale statistical *proof* that they are.

Nor is the engine's breathing problem quite solved yet for the ultra-high altitudes. Above 45,000 feet, the air becomes so rarefied that more and bigger blowers are needed to catch enough

of it. Such blowers are less efficient; and the waste-energy of the exhaust blast no longer suffices to drive them. Thus if ultra-high, load-carrying flight were to be attempted with present-type engines, the engine itself would, after all, have to be taxed for power to run the blowers; and that tax, just like the cooling tax, would make high flight uneconomical.

But all that isn't going to hold us down.

High flight, commercially, up to 30,000 feet is an accomplished fact. It has started, and a tremendous expansion of it is plainly visible in the straight-line future. Just around the corner, and definitely coming, are the new power-plants—gasoline turbines and jets. And those have neither the supercharging nor the cooling problems of our present engines, and have ceilings which are as yet unknown. At the same time, in order to be efficient, the jets positively need speeds which are economically possible only in very thin air. Already the first jet liners are rumored to be in the works; with them should come true stratosphere flight. We shall then get speeds approaching or exceeding that of sound, and shall have to solve the "compressibility" problems of stability and control which such speeds present; but the outlook for that is getting better almost by the month now.

Even the jet engine has a ceiling—somewhere, way upstairs, the fire finally goes out for lack of oxygen. But then, in the more remote future, there is rocket-propulsion. A rocket has no ceiling; it works best in empty space. The thin-air trick is so overwhelmingly appealing that we shall almost certainly follow it to its logical conclusion and fly by rockets—not in projectile-like things that are shot off and eventually fall, but in regular winged airplanes that can take off and land as usual, but are *driven* by rocket-motors at extreme heights, say three *hundred* thousand feet, in air so thin as to be almost non-existent. And that is how in our lifetime we shall almost certainly cruise at 2,000 mph for better or worse.

ANTHROPOLOGY

IS MANKIND COHESIVE?

by CARYL P. HASKINS

ONLY two great groups of animals, men and ants, indulge in highly organized mass warfare—warfare on so wide a scale that the geographic configuration of the earth becomes a factor in their operations. When the little "harvesting" ant *Pheidole megacephala*, for instance, spread out from its original home in the equatorial deserts of the Old World on a campaign of world conquest, it soon reached Bermuda, traveling as an unbidden guest on the trading ships of man. In Bermuda its plan to extermine the native ants would have done credit to Pizarro or Cortes. Confining itself at first to the salt-sprayed regions of the coral beaches, where any native ant would have perished, *Pheidole* built up a solid ring of occupation about the island. Then, foot by foot and year by year, it narrowed the circle, battling its way into the cedar groves and the upland swarded hills, exterminating community after community of the native ants until its particular enemy, the large but primitive *Odontomachus,* has now all but disappeared and *Pheidole* is to be found everywhere the conqueror.

Somewhat earlier, in the middle of the last century, this same *Pheidole* invaded and conquered Madeira; and there, in every house, on every pavement, in every tree, its foraging files were to be seen. But *Pheidole* met its match on Madeira at the hands of another invasive horde—the apparently harmless New World genus *Iridomyrmex*. For *Iridomyrmex* too had plans of world conquest, and was better fitted than *Pheidole* to carry them out. Traveling northward from its original home on the west coast of southern South America, *Iridomyrmex* invaded Central America and Mexico, then spread eastward along our Gulf Coast and entered Florida, whence it is now slowly advancing up our eastern shoreline. In due time it reached Europe, invaded Portugal, spread to Spain and southern France, and has been reported more recently from South Africa.

From THE ATLANTIC MONTHLY, *Edward Weeks, Editor*
Copyright, 1946, by Caryl P. Haskins.

Madeira appears to have been its steppingstone to Portugal, but first it had to overcome *Pheidole*, which was dominant on the island. Far better coördinated than *Pheidole, Iridomyrmex* stretches out its victims and then attacks their exposed nerves with a poisonous secretion. Today it is the files of *Iridomyrmex*, not *Pheidole*, which course in endless processions up and down the pink-plastered houses of Funchal.

Only men and ants keep slaves, but the institution of slavery has been much more highly developed by ants than by men. Among the slave-makers of the genus *Polyergus*, for example, the mistresses are no longer able even to feed themselves without the assistance of the slaves, and will starve in the midst of plenty if the slaves are removed. The excavation and architecture of the nest, the care of the young, all the essential activities of colonial life, are left entirely to the slaves. The mistresses confine themselves to warfare and plunder, and in these functions they have become highly accomplished.

Only men and ants domesticate other animals on a wide scale and keep them for practical purposes or even, so far as we can judge, for the mere attractiveness of the association. Aphids or plant lice, plant scales, leaf-hoppers and brownie-bugs, the caterpillars of certain butterflies—all are nourished and assiduously tended by ants for the secretions which they produce, and certain of them are as carefully and widely cultivated as are our own cattle. More than two thousand other species of insects and related invertebrates are known to live habitually in the nests of various ants—some purely as parasites, like rats in human communities; some as indifferent cohabitants, like the street pigeons of our great cities; and some as carefully tended "pets."

Only certain social ants and bees, wasps, and termites exhibit the devotion to particular groups within the community that the people of absolute monarchies have characteristically bestowed upon their royalty. The queen honeybee, the queen Army ant, and the kings and queens of termite colonies are alike surrounded by hordes of attendants during every moment of their long lives, and are fed, cleaned, and guarded without cessation. At first glance there appear to be striking similarities between the communal life of highly social insects and that of man.

Yet in an evolutionary sense man can be only very remotely related to the social insects. The creatures which in evolution were to give rise to the mammals and finally to man must have parted

from the ancestral stem of all the insects long before the first primitive vertebrate appeared on earth, in ancient geological times. Even among the social insects—the bees, the wasps, and the ants—the relationship is not a close one, for the ancestral stocks of these creatures and those of the termites must have gone their separate ways before anything that we should recognize as an insect had been evolved.

In consequence of this long separation of the insects and our own ancestors, the very ground-plan of the insect body and brain is fundamentally different from that of man. In place of the closed circulatory system and the warm, red blood of man, the insect has an open body cavity through which courses a stream of colorless blood, pumped by a tubular heart and bathing the vital organs more or less haphazardly in its sluggish flow. In place of the internal supporting skeleton of man, the insects have a hard outer shell to which the muscles are attached, sensitive to the outside world only where it is pierced by special nerve-connected hairs.

In place of man's two eyes, the social insects have from two to five, but they are rigid structures, incapable of focusing, incapable of movement except as the head or body itself is moved also. Three of the five eyes operate on substantially the same principle as the vetebrate organ, but the remaining two, the large compound eyes which are the most important, operate quite differently. It is exceedingly doubtful if any of them, at least among the social insects, are capable of producing on the retina an image comparable with that produced by the eye of man. Yet, among the bees and the ants at least, the retinas appear to be sensitive to a range of wave lengths which we see as red and perhaps as orange.

In place of our largely degenerated olfactory sense, ants appear to have the most exquisite sense of smell, apparently combined and fused with a sense of touch through an intimate admixture of these sense organs on the antennae, to give a sort of "contact-odor" sensation of which we can have little conception.

The impressions which the senses of a social insect convey, so different from those of a man, must be made even more different by the brain that receives them. For the "thought processes" of the social insects, like those of insects in general, are clearly dominated by instinct patterns of a variety and richness which it is difficult to imagine. A digger wasp requires no training to duplicate the exact and intricate form of brood cell which its mother

made before it, or to find the prey to store in it, or to paralyze this prey, or to attach an egg to it safe from harm.

A honeybee requires no training to build a perfect comb, or to participate in the complex social activities of the nest. Not only does the bee instinctively function without training, but it is incapable of assimilating training in more than a limited sense. The ultimate action which the insect takes may be as complex as that of a man, but it is done in response to a psychical pattern of great stability which is not easily modified or readily lost.

It would be hard to imagine creatures more different in basic bodily structure, in senses, in quality of mentality, in background of experience, than man and the social insects. How could such different organisms fail to erect vastly divergent societies, especially when some of the consequences of these differences are borne in mind? How could the societies of man the mechanic, skilled in the use of tools, approach in any respect the communities of insects, only one of which, the solitary wasp *Ammophila*, is known customarily to use a tool at all, and this but a simple pebble to tamp the loose earth about a newly excavated burrow?

How could societies with no resources for the accumulation of experience through the generations except the slow processes of instinct, with only the most rudimentary and the most inflexible modes of communication, approach in any way the communities of man, close-knit by the spoken and the written word? The very difference in size of man and his communities, relative to the earth, would seem to make his situation not comparable with that of the social insects.

Yet the striking similarities are there, extending sometimes even to minute details of behavior. The communication systems of ants, for example, are remarkably like some of the simpler forms of sign language among men. The roadways which many harvesting ants build in radiating patterns from the mouths of their nests look so like a miniature edition of the footpaths about primitive villages that one can almost imagine oneself in a Lilliputian human community. Some ants even construct little clay way stations along these roads, in which they rest.

The solicitude of many ants for their "cattle" earns them the title of true shepherds. The insect charges are carried to new pastures as the old ones are depleted. They are taken underground in the fall and given winter protection, and brought out again to be pastured on fresh shoots in the spring. And when some

of them unexpectedly develop wings, it is usual for the attendants to clip these wings off to prevent undue straying.

It is clearly fallacious to assume that such close parallels in such fundamentally different societies will allow of reasoning from direct analogy. Rather, they are of great significance as indicators of the much deeper underlying common features characteristic of earthly life *per se*—potentialities for development which are common to men and bees and ants and termites, and which were common, too, to the simpler life-forms that in ancient times connected them in evolution. These similarities between animals that are merely the end-points of divergent evolutionary paths are the indicators—the tips of the floating iceberg, so to speak—from which we may guess at the hidden, binding bulk beneath. In order to get at the heart of the question, we must seek further, must search for our material in those characteristics common to all life.

In my observation of social living among the creatures of the earth, whether at the level of the single cell, like a bacterium, or of the colony of cells, like an elephant, or of a society of many-celled animals, like a colony of ants, I have been profoundly impressed with one thing above all: that life appears to be under constant pressure from two quite different and often opposing forces which largely determine the tortuous course of its evolution.

The first of these forces is manifest in a continuing tendency of life to evolve from simpler to more complex forms. I speak of it as a "force" or a "trend" simply for lack of anything better to call it or any clearer understanding of its nature. I have traced this trend, as we find it in bacteria, cellular colonies, and animal societies. It is difficult to see that this widespread evolutionary trend to complexity is governed in any way by the need of survival of the species exhibiting it.

The second influence which has molded the course of the evolution of societies is the trend to form well-integrated, highly coördinated, streamlined individuals from the primitive loose associations that are characteristic of early societies. This pressure to streamlining, to internal integration, would seem to follow from the action of conventional natural selection which tends to weed out the inept, the ill-coördinated, the unfit.

Examples of the first trend are of course legion. The evolution of bacteria and protozoa, the evolution of the colonial green flagel-

lates, the evolution of the social insects, are all vivid examples of the trend to complexity.

The second tendency is illustrated with equal clarity in the relative perfection of coördination of a *Volvox* colony compared with one of *Spondylomorum*, or in the integration of a community of fungus-growing ants compared with the "half-societies" of primitive Ponerines. This second tendency is worth further consideration.

As societies such as these develop in nature, there is inevitably very great loss of the individual independence of the components. Consider, for instance, the loss of individual independence and the immense advance in social specialization involved in the transition from a cell in a sixteen-celled, loosely organized *Spondylomorum* colony to the white blood-cell of an elephant. Or think of the decrease in individuality typified by the transition from a daughter of the semisocial bee *Allodape,* free at any time to leave its colony and to found a new community of its own, to the trammeled worker of the honeybee. Everywhere the trend seems to have been toward order and regimentation of the individual in the newly formed society, toward specialization and suppression of the part to the whole, of the individual to the state, until the state has become so streamlined and efficient in its operation that it can compete as an operating unit with the solitary creatures from which it sprang.

In the case of colonies of cells, that regimentation and suppression has been so complete that we have no hesitation in calling the resultant cell-state, such as an elephant or a man, an individual. In the case of societies of a higher order, composed of individual units which are themselves multicellular, the fusion is usually not so complete, although in some cases, such as the Portuguese Man-of-War, it may be. But everywhere the trend is unmistakable. Dominance of the whole over the part, suppression of the individual for the community, regimentation for all time, these are the keynotes.

It is a disturbing picture upon which to reflect in relation to man. For this, of course, is precisely the ideology of the totalitarian state; and for the totalitarian philosopher the picture I have drawn is ammunition of the most plausible and the most valuable kind. Throughout Nature, there is marked evidence that all social organizations at the beginning of their evolution were loose associations of individuals of a democratic character, and that such associations clearly fared badly in evolution and tended to change

over into the highly regimented form which is the successful type today. It is logical to conclude that people of democratic ideals are merely trying to halt the social evolution of man early on its road, and at a particularly unfavorable point, while the totalitarians are trying to speed it on to its natural and obviously happy conclusion. This is a serious reflection, indeed, for the biological evidence is weighty, and it must be answered.

One of the most interesting criteria for the classification of animal societies, and perhaps one of the most significant, involves the manner in which such societies arise. On this basis, all the societies which we have so far considered belong to a single class. All of them are formed at the start by one or more parents, and the society is actually a hugely enlarged family, composed of generation after generation of children and grandchildren and great-grandchildren which accumulate around the parents in a dependent status, instead of leading independent lives.

In the case of ants or bumblebees, for example, a solitary mother isolates herself and lays a small packet of eggs, which she rears to maturity with painstaking care. The resultant daughters remain with the mother as dependent workers. As the season advances, more and more workers accumulate and the community grows accordingly.

Similarly in the case of termites, a paired male and female, the "royal couple," found the community, and it is their dependent sons and daughters that build up the colony, which may ultimately number hundreds of thousands of individuals. We may call communities of this sort, in which all the members are closely related, *family* societies. The trend of evolution in family societies, as we have seen, is unmistakably toward the goal of high integration, with regimentation and suppression of the individual to the advantage of the state. If we except man, family societies include the most striking social organizations of the world.

We sometimes forget, however, that there is another great class of societies in the world, quite as important, in which the members, though bound together by ties often as close as those uniting the members of the family society, need not be in any way related to one another. They have not necessarily grown up from infancy in association, but are more likely to have come together after they were fully mature. For purposes of convenience, we may call these societies *associative*.

A school of minnows or of mackerel, a ball of hibernating

snakes among the rocks of a mountaintop, a wheeling flock of pigeons, the migrating hordes of European lemmings, the great winter herds of barren-ground caribou, the vast waves of migrating bison of former years, are all examples of this kind. So are the tropical communal spiders which spin webs sometimes twenty feet across, the masses of ladybird beetles which one may discover in December under stones or the bark of trees, the flocks of southward-migrating Monarch butterflies that are often so conspicuous in autumn, or the devastating hordes of locusts that plagued the Mormons.

Perhaps the most striking example of this kind of society, and of the close and universal social bondage to which it can lead, is to be found at the level of the single cell, among the curious slime molds, or *Mycetozoa*. The slime molds lie so nearly on the dividing line between the plant and animal kingdoms, and have so many characteristics of both great groups, that a satisfactory decision has never been reached as to whether they belong to the plants or the animals. Like true molds, they begin life as resting spores which may remain alive in the inert dried condition for a long time. On falling into a pool of water which offers it a suitable environment, however, the spore germinates, to produce what is to all intents and purposes an amoeba.

Like an amoeba this germling is active and predatory, and it begins at once to "flow" through its watery world in search of food particles to ingest. After several days in this form, the new-hatched organism goes through a change in shape and emerges as a typical flagellate. Like them, it now has a rigid body wall and is equipped with a rapidly flailing flagellum-whip for mobility. Like them, it leads a purely solitary existence and hunts its prey actively. It divides longitudinally to produce daughter cells which wander away as solitary organisms also, and it may go through one or more sexual phases.

Eventually, however, the solitary flagellate becomes gregarious. By twos and threes and fours the cells come together and adhere, until little knots are formed throughout the watery medium. Bit by bit these knots grow, and, as with coalescing water droplets on a rainy windshield, one "pool" finally dominates and the other groups flow into it. The "pool" may measure many inches in diameter. As each cell enters the collection of cells, its own body-wall is broken down and it is fused completely into the community, only its nucleus remaining intact.

Ultimately this body comes to consist of an immense, streaming

mass of protoplasm, studded with many nuclei. Then the "pool" comes to life, as it were, and flows off as an individual on its own, looking like a Brobdingnagian amoeba. There is no stranger spectacle in the woods than one of these giant *plasmodia* of the *Mycetozoa* creeping along the damp soil or over decayed logs, still in incessant search of food, and looking and behaving once again like a single cell, but a cell of unbelievably large proportions.

The Mycetozoan *plasmodium* may have a relatively long life in its amoeba-like form, and may even enter periods of inactivity in a dried condition, from which it will revive to resume its wandering life. But in the end the nomad comes to rest, attaches itself to some spot, and proceeds to turn into a sort of puffball. The free nuclei of the constituent cells are once again surrounded by walls, spore cases are formed, and the nuclei migrate into them, there to mature as true spores and finally to be broken off from the parent organism, to drift away on the winds and repeat the cycle of growth.

Viewed as a colony, the Mycetozoan *plasmodium* has all the characteristics which we consider typical of an associative society. Its members come together after much of their lives has already been spent, in a "voluntary" association of previously independent organisms. The constituent cells are not necessarily closely related in a genetic sense. During the time that they are in association, some evidence of their previously independent existence is preserved in their discrete nuclei. The communal bonds uniting them are strong but are not permanent.

We can, I think, make certain generalizations about associative societies. In sharp contrast to the situation among family societies, there are no highly specialized, highly integrated associative communities. All of them are primitive, flexible, generalized. In all of them the individual is important and is not very strictly regimented. In all of them, the endowment and the potentialities for independent living of the individual have remained at a high level. There is no specialization to leadership or to domination comparable to the development of a brain cell or of a king or queen termite, nothing more unalterable than the feeble leadership of the point-bird of a flying flock of Canada geese or the sentry of a flock of crows on vigilant watch against the farmer's gun.

Rarely if ever is the separation of an individual from an association of this sort fatal to the individual in the sense that it would be to the individual body-cell of a plant or animal or to a worker

honeybee. In fact, there are no associative societies known to me in which such a dissolution of the society does not normally occur periodically, releasing the individuals for periods of independent existence in greater or lesser degree before they are reunited.

At the same time, associative societies, in contrast to family ones, are both immortal and highly amorphous. They are immortal in the sense that they may persist year after year or decade after decade, forming, dividing, dissolving, reuniting again, without any signs of senescence. A flock of migrating robins may vary from year to year in size and form and composition, but in its essential elements the same robin flock will be traveling the same routes a generation or twenty generations from now as it did twenty generations ago. This continuity contrasts sharply with the senescence and death of a colony of wasps or bumblebees in the fall of the season in which it was founded, or with the dissolution of a colony of the harvesting ant *Pogonomyrmex* at the death of its queen.

Associative societies are amorphous in the sense that they can readily be divided into parts and later be reunited, or as readily combine with other associative aggregates to form larger communities. The Mycetozoan *plasmodium*, while it is developing, will accept additional members into its organization with the utmost tolerance, regardless of whether they are immediately related or not. A flock of birds or of Monarch butterflies, traveling southward, will freely augment its numbers with additions from day to day, and will welcome these newcomers into its midst with complete tolerance if they are of the same or even of different species, whether or not the new arrivals are known to it as individuals.

Contrast this with the utter intolerance of the members of a bee or an ant colony to individuals which are not by birth members of the same group, even though they are of the same species and so alike that the human eye has difficulty in distinguishing them. Contrast the impossibility of uniting two *Volvox* colonies with the ease of joining two Mycetozoan *plasmodia* at the appropriate time. The family society tends to build strong and impermeable walls about itself, whether those walls are the bark of a sequoia trunk or the intolerance of an ant colony to strangers. The associative society, by contrast, exhibits the capacity to divide, and, more important, to unite into larger groups. We shall have occasion later to recall this capacity.

So far as I know, there has never been a case of organized

warfare recorded between animal communities of the associative type. Indeed, the loose and ill-defined organization characteristic of such societies would make such organized warfare a virtual impossibility. Among family societies, on the other hand, highly organized warfare is not at all uncommon.

Associative societies are probably as common in Nature as family ones. There is certainly nothing to indicate that they are less ancient. We must therefore regard them as successful in evolution—quite as successful, presumably, as family societies. Yet they exhibit none of the trend toward specialization, none of the subordination of the component to the whole, none of the regimentation of the individual to the need of the state, characteristic of the family society. On the contrary, because of its loose organization, the continued existence of the associative society appears to depend upon the alertness, the independence, the individual competence in survival, of its members.

It would seem fair to conclude, then, that the maintenance of a very loose form of colonial organization, the retention of a high degree of individual flexibility and independence, can be as effective in the survival of communal life in natural selection as is the totalitarian-like road of the family societies.

So different are the family and the associative types of society in their general structure and in the manner of their operation that we should hardly expect to find them combined in Nature. Yet actually such combinations are not at all uncommon. They are well illustrated at the level of the community of single cells by certain of the Mycetozoan slime molds in which the *plasmodia* are built up partly by the inclusion of new cells and partly by the division of those already present.

Among communities of many-celled animals, mixtures of this sort are much more striking and better known and consist, usually, of collections of families of individuals, closely related within each group but virtually unrelated outside it, all more or less loosely fused together. Such mixtures are beautifully illustrated by various of the colony-nesting birds. The vast rookeries of noddies and terns, of albatrosses and frigate birds, on the sandy atolls of tropical seas, the colonies of gulls and cormorants, guillemots and puffins and gannets on the rocky isles and shores of more northerly oceans, the strange nesting "herds" of king and emperor penguins in Antarctica, are all examples of this sort of relationship.

It reaches the height of its expression among the birds, perhaps, in the African sociable grosbeak *Philetaerus,* where as many as two hundred pairs of the species may fuse their nests together into one gigantic mass which is protected from the rain by a communal roof-like structure.

Many similar examples are to be found among the mammals. The colonies of prairie dogs and ground squirrels, the permanent herds of wild horses and zebras, of musk oxen and antelopes, of giraffes and elephants, the communal flocks of flying foxes and of smaller bats, of the gibbons and perhaps of other primates not far away from the line of human descent, all exhibit this same combination of types, and seem to be composed of an amorphous mixture of closely related and essentially unrelated individuals.

Even among the semisocial wasps and bees, which are primarily family colonies, examples of mixtures of family and associative living can be found. Females of the wasp genus *Bembix*, for example, excavate individual earthen burrows, each terminated by a cell which is provisioned with paralyzed insect prey, on which an egg is placed. After the egg has hatched, the mother continues to bring food to the larva. This, of course, is the typical behavior-pattern of a solitary insect just entering the first stage of evolution to the family society.

Yet at the same time *Bembix* females show a strong proclivity to congregate as adults and to build their burrows in close proximity, occasionally even constructing a single communal entrance for them, though they resent actual intrusion on their privacy by their neighbors. This is the typical behavior of solitary creatures in the first stage of forming an associative union, and the colony-like collection of individual burrows which results is neither a purely family nor a purely associative society, but a most intimate mixture of the two.

Can we not consider human society as in essence a similar mixture of the family and the associative social forms, at base somewhat like a colony of sociable grosbeaks or a community-dwelling of *Bembix?* The family-society portion of this mixture will then be the family itself, and it will conform, in large measure, to the specifications which we laid down earlier to distinguish family-type societies among other animals. All members of the family are closely related. Even within the primitive family group there is some specialization of function, as between father and mother and offspring.

Within both the primitive and the modern family group the

ties of family loyalty are direct and strong and are not readily to be extended outside of it. This loyalty is well indicated by the persistent cohesiveness of the human family as a unit at every social level, and by the rarity with which alien adult members are adopted into families in all civilizations, unless powerful external motivations lead to such adoptions as a social custom, as was the case, for instance, among various distinguished families of ancient China. Even infants are comparatively rarely adopted into families in modern society.

This situation is indicative, too, of the existence of a rudimentary bounding "membrane," as it were, about the family society, walling it off to some extent from the similar social groups around it. It corresponds, perhaps, to the mutual hostility, the "territorial instinct," of pairs of even relatively highly socialized birds at nesting time.

In all these respects, the family society of man is comparable to the more primitive family-social organizations the world over. It seems vaguely to foreshadow most of the trends that are so well developed among the higher social insects, but it is incomparably primitive beside such structures.

It is notable that this human family unit has not advanced greatly in complexity, in degree of organization, or in subordination of the parts to the whole, since the time of earliest man, so far as we can tell. Furthermore, there seems no reason to suppose that the family of Piltdown or Java or Peking or Neanderthal or Cro-Magnon man was essentially different, or much more primitive, in structure than that of the modern human. It is not in this area of his communal living that the great social changes characteristic of modern man have come. This is perhaps the most cogent reason why the parallels between man and the social insects that we have drawn should not be looked upon as direct analogies.

On the other side, the picture is vastly different, and here man as a social organism is unique in the world. I know of no other animals living through a mixture of the family and the associative social forms in which the associative type of social evolution can compare in advancement to the family type. The colony of the grosbeak *Philetaerus* is a feeble social structure compared with that of the individual grosbeak family. The nesting associations of *Bembix* are amorphous and evanscent indeed beside the close-knit entity that is the individual female and her developing brood.

Even the Mycetozoan *plasmodium* is a temporary, shifting thing compared to the permanency of form of the single-cell nuclei which it contains and which will persist as recognizable entities into the spore and the resulting amoeboid organism and its flagellate successor, on into a new *plasmodium*, long after the older associative structure has vanished.

In man alone the associative social structure has become dominant in evolution over the familial form, and its evolution, totally unlike that of the family, is proceeding dynamically today. In man alone it is the associative society, the village or the tribe, the state or the nation, that is relatively more permanent and outlives the birth and the death of many of its component families. In man alone this larger social aggregate offers serious and often successful competition to the family society for the attention of the individual.

It is a common trick of primitive peoples to transplant, as it were, many of the forms and the ties which give coherence to the family to the larger associative tribal or village or national structure which they are ambitious to make a stable social entity. Again and again we are confronted with the highly personalized character of tribal rule, with the extent to which the bond between tribe leader and tribesman is really that between father and son.

The leadership of Massasoit and Osceola, of Red Jacket and Sees-the-Living Bull, of Chaka the Zulu, of the Tokugawas and earlier Japanese Shoguns, of the Inca Viracocha, of countless European feudal lords, of Clovis and Charlemagne and Robert the Bruce, all had many elements of this relationship. It has persisted into modern times in absolute monarchies with remarkably little change. What else can have inspired the significant comment, "L'état, c'est moi," which epitomizes the relation so well?

The associative social structure of man shows definite evidence of a number of qualities normally characteristic of the family form. They are intimately mingled in varying proportions with the opposite qualities which normally characterize the associative social form in other animals. Thus in man alone there is definite evidence of regimentation in the associative sphere, confining the individual to particular tasks with varying degrees of severity, restricting his normal radius of action. In man alone, moreover, the individual has developed well-marked specializations to fit him for undertaking certain special tasks in the associative society.

There is little doubt that mental specialization is already occur-

ring, manifested by the specialized sorts of talents which arise among us and which we count our most valuable social asset. The whole history of the development of human genius emphasizes how marked this biological mental specialization may be. And the pathetic obverse of the medal—the millions who have been tempted by evanescent social fashion and fleeting social rewards into types of activity for which they were not inherently psychically fitted—gives evidence quite as poignant.

In man alone the degree of internal organization of an associative society has progressed far enough to make highly organized warfare the nightmare that it is. And concomitantly, in man alone, the rigid "envelope" typical of the family society has often made its appearance, wrapping the associative society in the cloak of intensified nationalism and tribal or national or racial intolerance.

But the society of man is nevertheless still basically an associative one. The instincts of man are still deeply rooted in the basic characteristics of the associative structure—in relative freedom of the individual in the social fabric, in a low degree of internal organization, in low specialization of the component parts in tolerance of other groups and a readiness to include them in the commonweal. On this basic philosophy, however, has been superposed a whole gamut of opposite qualities and trends. As a result, human society is characterized by the most delicate, the most labile, equilibrium between a whole range of essentially contradictory characteristics. Not only is the point of balance between these opposing forces easily upset, but it varies in every group and nation of men. Opposite trends and the building material for opposite philosophies have been retained in the very fabric of our society.

These variations, however, cannot stray too far from a mean. It is precisely because the basic instincts of individual man are rooted in the associative form, that the totalitarian form of government which we have just fought a war to suppress was unacceptable to so many men. The totalitarian philosophy assumes that the instinctive nature of man is attuned wholly to the familial pattern of living, that the proper course of human evolution lies in an ever intensified drive toward the degree of regimentation and specialization of the brain cell or the leaf cell of an animal or a plant. Had that philosophy been correct, man would surely have lost no time, ages ago, in developing into a vertebrate ant as soon as his physiology and his mental endowment permitted it.

But that development has certainly failed to occur in evolution, and the failure is deeply significant.

It is not easy to set intermediate goals—goals that must flow and change, that cannot be defined simply, in which good must be balanced against evil. Yet it is clear that, in virtue of the basic biological nature of man, in view of the course which was apparently set from the very beginning of his social evolution, this goal of balance between two very different social evolutions is the only one through which, in the long run, he can achieve happiness—perhaps the only goal by which he can ultimately survive.

The lability of his situation is his greatest peril, but it is also his greatest asset, in the flexibility which it gives him, in the multiplicity of solutions which it may make possible within the limits that his basic nature will permit. For our own people, of course, the finding of this point of equilibrium, the testing of it, the constant redetermination of its nature, must be the tasks of an eternally inquiring, eternally vigilant, eternally democratic body politic.

The maintenance of this point of equilibrium, however vital it may be, is not now the most important task before us. We have fought a war which, while it has undoubtedly failed to solve the problems of totalitarian ideology in a permanent way, has certainly laid the danger for a time. Now we are called upon to face a problem even larger and more vital, one which is even more significant in the social evolution of man. Is mankind cohesive? If so, can we evolve an entirely new level of human associative living—the world organization? This is truly the greatest evolutionary step which has faced mankind since the emergence of the modern nation.

ARCHITECTURE

THE DIRECTION OF ARCHITECTURE

by RICHARD M. BENNETT

ARCHITECTURE is a mirror, though not a passive one, reflecting the forces and ideas of a time. Its images are active, sometimes willful, seeking to form a beautiful, tangible design from intangible forces, conflicting ideas, and daring dreams. Although concern with its future direction must begin with the social and economic forces that activate our time, the final considerations that seem most provocative today are: (1) change in the architect's scope and methods; (2) greater concern on the part of architects with city and regional planning; (3) a more organic relation to nature; (4) new materials and technologies; and (5) a search for an esthetic expressive of these forces to replace design based on historic precedent.

An examination of architectural journals reveals fundamental changes in architectural thinking which have taken place since World War I. Only two themes seem the same: discussion of factory design and the problem of the War Memorial. Twenty-five years ago the architects thought that they should be doing the work instead of the engineers. Today, cooperation between the two professions is stressed, and the number of new architect-engineer firms is notable.

The writing on war memorials is very much the same. The question still stands: should war memorials be useful, or timeless functionless monuments? The debate continues with great vigor and will probably remain undecided. If the partisans for memorial playgrounds and parks seem slightly in the majority, it should be pointed out that an economy of abundance has room for kindergartens as well as for monuments.

Twenty years ago there were no fears expressed in abstract diagrams of population peaks, measured obsolescence, forecasts of unemployed, and make-work projects. The economic chart and projection of trends had not reached the profession of archi-

From the AMERICAN SCIENTIST, *George A. Baitsell, Editor*

Copyright, 1946, by the American Scientist. Reprinted by permission.

tecture. The statistical graph—time and motion study—the reduction of a man from craftsman to a hand and a wrist was only an experiment of men like Ford in Dearborn, Michigan. In 1919 the high cost of living was taken for granted; was, in fact, mistaken for prosperity—a prosperity that exploded in 1929.

By 1931, the magazines had responded to the change. Travel articles, measured drawings of past glories, and the complacency of the gentleman's profession were replaced by detailed analyses of the return on investments in remodeled apartments, or editorials written to convince the public that the architect was not a rich man's luxury but the essential element in any building operation. The magazines that survived, and many did not, soon embraced the new philosophy of architecture called "modern." Modern architecture is not meant to be a search for a new style, another arbitrary decorative vocabulary to apply to structure, but a solution to the problem of synthesizing structure and purpose in the most direct manner. This changing attitude toward design is well illustrated in the covers of the magazines themselves—the change from egg-and-dart moldings to abstract compositions of the mechanical and structural elements repays study. The later covers reveal the inspiration of the painter, the affirmation that the ultimate element of architecture is the space the designer encloses or conditions, and the impact of the machine. Indeed, buildings can now be considered as machines made by machines.

Though the magazines still cater to the architect's love of pictures, the architectural press knows that reporting on the news of bankers, loan agencies, material manufacturers, realtors, and builders is also vital to the architect. Congressional action on mortgage interest, a new fluorescent tube, underpasses, and cloverleaf parkway intersections find themselves side by side as important news for architects. The trend of the magazines is very plain. The architect is taking stock of the world *around* him as well as behind him. He is becoming interested in the tools of the economists, the action of politicians, and a clearer expression of mechanical and structural problems.

Another sign-post of changing architectural thought is the work of students. The prediction of architecture-to-be from student work is a study yet to be made, but changes in problems and solutions parallel the course of the magazines. Certainly the fact that the majority of schools have abandoned the detailed study of classical and romantic styles means that in less than a generation there will be no trained body of men capable of executing the

type of building considered without peer a few years ago. In spite of this change, there is probably greater *respect* for the work of past ages—a desire to know the principles underlying it—though less inclination to copy its form. The greatest promise of school work today is that students are looking at architectural problems with an open mind. From their group may well come architects who will make late twentieth century architecture one of the great periods of all times.

The future of architecture is going to see a continuing battle between the architect who is a government employee in Federal, State or Municipal civil service bureaus and the private practitioner. It is safe to predict that these city, state and federal offices will not grow smaller, but it is equally certain that the private office will not disappear. There is justification for the government bureau as opposed to commissioning a succession of private architects to do public buildings. Certainly the cost can be less and the enforcement of structural standards made more efficient. The necessary red tape and legal procedure of public building, which must admit any contractor posting a bond, confounds the average private architect accustomed to direct dealing and to making adjustments during the course of building.

Unfortunately, the private architect can make out a good case against bureau design which inevitably and quickly lapses into formula and lifelessness. Some cities have tried the expedient of hiring private architects as designers, while execution drawings are made in the municipal bureaus. This works with some success, but too often the architects are chosen from "panels" and, though the panel may have scores of names, somehow certain firms are apt to get repeat commissions and other panel firms never be favored at all. In Northern Europe, where the quality of work is high, the design of nearly all buildings of importance is opened to competition. Many successful architects say that this is wasteful, but it does lead to a greater striving for excellence in design.

As further example of the changes in bureau architecture, the Federal Housing Authorities have stringently conditioned design in this field by their work on "standards." While housing was a new experiment for American architects, standards were badly needed to protect the minimum quality of the work. Today, well-qualified architects with great experience complain that these standards are now a hindrance to progress in the housing field.

It is hard for a bureau to consider their standards as a floor below which the designer must not go, but they are certainly not meant to be a ceiling preventing new ideas and improvements. Besides the government bureau, more and more large corporations, both industrial and commercial, are building up large architectural offices as a permanent part of their organizations. Here, too, standards will be necessary, but, once established, may act as a deterrent for architectural advance.

It must be admitted that business firms are well aware that large organizations develop dead wood and slow action. They solve this problem by hiring consultants to spark their own thinking. Time will show that the so-called industrial designer, by not limiting his activity to industrial products, has actually had a liberating effect on architecture.

The coming period will see an ever-rising need for administrators—men sensitive to design, understanding in production and suave politically, who can see the great building projects through. Men must be trained to coordinate and trust the specialists in order to insure progress toward the promises of industrialized architecture. No one man can hope to follow, or even know, all the complexities of contemporary design.

This brings up the problem of the relationship of the architect, interior decorator, industrial designer and the planners. At one time all of these domains were considered the natural sphere of the architect. His increasing concern with the building proper, fostered by ever more specialized training in building design, have left these facets to be developed by others—commercial artists, engineers, promoters. Amateurs, the trained and untrained, have successfully moved in. They have had, however, to rely more and more on architecturally trained personnel to carry out the projects they initiate. There is a basic interrelationship between the designer of the parts of buildings, those charged with the placement of buildings, and those responsible for the designing of the buildings themselves. That some men should be able to operate in all of these fields would be most desirable, and that is what is happening. At least one of the great industrial design firms, now employing hundreds of designers, does city planning, store planning, architectural, package, advertising and product designing, and is not only willing but has salesmen out selling the idea of its capability to solve *any* type of design problem. This great industrialized organization is more truly an architectural firm in its

wider meaning than the architectural offices specializing in buildings. A closer understanding and relationship between the practitioners in these different fields should be effected, perhaps by a single professional organization to take the places of the five or six which now exist, each for a separately labelled but often competitive field.

In any case the integration of architecture as *buildings* and architecture as *placement* of buildings, their relation to each other and to the city as a whole is rapidly coming into being. Planning is a fashionable word right now, but city planning is not a new thing. Vitruvius began his books on architecture with the choosing of the city site, two thousand years ago. In 1639, before there was such a thing as a professional architect in this country, New Haven was started with a plan. Chicago in the nineties had one of the world's best known plans. It was possible to get the facade of that plan built—Chicago's magnificent lake front—but the fundamental, and more important, part has yet to be achieved. The failure of Chicago and New Haven to be successful as cities lies with their citizens. Cities will change when the citizens will back a course of action. When cities become desperately inconvenient to use, when people have fled to the outskirts to the extent that the tax structure breaks down, then will city planning come into its own.

It is possible to underrate the influence of the planner on architecture if it is considered to be merely a two-dimensional proposal. Actually the planner deals in mass and volume too. Zoning laws and zoning envelopes defining allowable heights and areas at various levels have profoundly affected building design. At the moment, New York is drawing its zoning restrictions even more tightly and the planner will be conditioning a new architectural form. The much admired sculptural forms of New York's sky line are conditioned as much by planners as by architects.

The failure of the American city is vividly illustrated by the blight on its inner ring of growth and the phenomenal building in suburbs and satellite small towns. The auto, bus, and cheap clean commuter trains make it possible for the city worker to rear his family in a preferred environment, even though the cost to him may be to spend an eighth of his conscious life in travel. Moreover, almost every American city faces economic crisis as the breadth and cost of its public services increase while the value of taxable real estate declines. What city does not have run-down,

empty buildings or vacant lots where structures have been razed to escape taxes? Meanwhile the auto, which gives escape from the city, adds to its discomfort and inefficiency by snarling traffic and creating parking problems.

The unplanned growth and death of city buildings is responsible for unbalanced communities or neighborhoods. School districts which encompass extremes in economic groups create educational problems for an increasing number of families and provide one more reason for parents to seek more homogeneous neighborhoods.

The fact that the city dweller escapes for air, peace and privacy should remind our designers that the same motives activated the ancient Greek and Roman. Their city houses, by building around gardens and facing inward from the street, used solid walls to achieve privacy and views through to gardens beyond to create an illusion of the spaciousness of nature. Certainly our designers have been insensitive for several generations to the problem of adapting their designs to nature. Everywhere there are signs pointing toward a return to the fundamentals of designing with nature rather than in spite of it.

While new discoveries and changing attitudes are obviously taking place in all the fields of knowledge and behavior, architectural expression will not always follow events. For instance, at the same time international forces symbolized by the League of Nations were breaking down into a militant nationalism, the vanguard of architects was preaching an international architecture. Though these men were only too aware of actual happenings, they still asserted that buildings all over the world should look alike, with smooth white walls, continuous ribbon windows and cubist forms which we now identify as the clichés of the International Style. Today, with the world more united than ever in favor of an international order or design, the architect has become insistent on solving and expressing regional problems that demand different architectural expression.

Within our own country this is already resulting in a definite "California" type of architecture—low, spread out, simple in finish, relaxed and natural in character. In the Midwest there are indications of a trend toward a slightly more compact home—a story-and-a-half scheme on two levels, obviously aiming at the convenience and spaciousness of the California type but working within the limitations of a more rigorous climate and perhaps higher land costs. It is safe to predict even more differentiated

regional types, further refinement of regional, not nationalistic, differences. Might this not reflect a social and political belief that the exploitation of *differences* between regions, the specialization and advantageous use of local skills will lead to greater trade between regions, that greater regional interdependence of peoples is more to be desired than sectional and nationalistic self-sufficiency, independence, and wars?

In the layout of roads and streets it is apparent that the geometric rectangular gridiron has given way to curved streets and irregularly shaped lots. Where contours dictate, this is entirely justified, though there are many instances of "free" planning for its own sake. The future should see some discipline in this desire for variety but there is little indication of where it is to come from.

An example of designing with an understanding of natural forces is the Longfellow Building in Washington where William Lescaze uses balcony-like overhangs at each floor to shade western windows from the heat of the sun. The cost of such construction is quickly repaid in the reduction in size and operating cost of the air-conditioning system! How much better to build a permanent part of the building to keep it cool than to install machinery subject to wear and to maintenance and operating costs.

It is worthwhile to note that the objection to large glass areas is not so much the cold let in during the winter as the heat let in during the summer. It has been pointed out that in the northern part of the United States more heat comes in through glass on a south facade from the daytime sun than escapes at night, and that thus a glass wall on the south is as economical as a brick wall, as far as heat loss is concerned.

Probably the most publicized examples based on this fact are the Solar Houses designed by George Fred Keck. An overhang projecting to a carefully determined distance allows the low winter sun's rays to warm the house yet shields the window glass and interior from the high summer sun. Another feature is its flat roof on which several inches of water are allowed to stand, acting as insulation against conducted heat by its mass and against radiant heat by its reflecting surface.

Radiant heat is used to warm the house artificially. Hot air is forced through ducts beneath the floor in a modern version of the principle employed by the Romans. The entire surface of the floor becomes the radiator and comfort is maintained not by convection but by radiation. Of course, many other variations of this principle are and will be used, the most popular method

being the forcing of hot water through pipes embedded in the concrete floor slab. The trend to floor heating will affect our use of rugs and carpets. At one time tapestries and hangings were fastened to walls where they have been regarded as decorations, though their more important function began as insulation for the cold stone walls. Now that floors may become warm, resilient composition floors easily cleaned will be improved and the trend to hard surfaced flooring will be accelerated.

A final point on the increasing concern with nature is the architect's desire to make the inside and outside of a house flow together. By using walls of glass and extending opaque walls cleanly past them, by projecting eaves, by bringing exterior terrace surfacing and planting into the interior, even by mirrors, the illusion of continuous space is created. People have always accepted natural forms as undisputed beauty, using floral designs on fabrics and wallpaper, stencilling and transferring flowers on almost every type of painted surface or object. How much better to have a wall made of real living beauty than the man-made replica!

In talking about future architecture, materials are perhaps the most exciting subject. For, added to stone, wood and steel, we now have fascinating new light-weight metals, an unexplored world of plastics, new kinds of glass and all sorts of synthetics: materials to be made as man prescribes them, not as he finds them.

Plywood is the most common of the materials that will shape the future, either used as a weather-resistant skin, or bent into shapes and forms for structural or functional purposes. The idea of slicing wood and recombining it so that it has greater strength than it had in its original form is made possible by the plastic which is used to weld the laminated sheets together. This prosaic use of plastic as a glue is probably one of its most important tasks.

True plastics—cheap, strong as steel, finer than silk—have apparently unlimited possibilities, but at present many positive qualities are offset by definite drawbacks. Plastics are too often brittle, easily scratched or practical only when formed in very expensive moulds. The manufacturers who were promising a fantastic new postwar world have been allowing their copywriters less leeway of late in forecasting marvels. A little examination shows that the most exciting predictions are made as a headline for beverage advertisements, much less exciting ones by the makers of the raw materials of plastics—and almost complete silence comes from responsible manufacturers who might be ex-

pected to *make* these Utopian plastic products. This is not to say there will not be many new uses for plastics, but the future will not be an all-plastic world.

For example, today light-weight stamped metal possesses many advantages over plastic for appliances. The trend of forms made from these light materials, often in sheet form, is toward the parts of airplanes and locomotives. The compound curved shapes of auto bodies and fenders have been widely hailed as streamlined, but while lessened wind resistance is a factor in design, the rounded shapes have a more important origin in the fact that they have great structural strength. Spherical gas tanks have suggested homes to be made in igloo forms. Prefabricated metal houses based on this principle are being studied. Besides having great structural strength, the round shape encloses the greatest volume for the least expenditure of material. Buckminster Fuller has been retained to develop houses following this principle for a western industry. He has also promoted a stamped one-piece metal bathroom, to say nothing of the suspended octagonal Dymaxion House, a design justified on the grounds that steel is stronger in tension than compression. While these shapes may be cheap because of their adaptation to materials, the argument may well be taken that such forms are not so readily adapted to people.

The prefabricated house will come, but before the packaged house dominates the building industry, we can expect greater standardization of the *parts* of houses. For example, the kitchen and bath are the most technically advanced spots in our houses; they are far from being harmoniously designed or mechanically integrated. Unfortunately these working appliances are at present sold piece by piece and the merchandisers insist that each piece be designed so that it looks impressive by itself on the sales floor. Consequently, when the kitchen is assembled with one manufacturer's range, another's refrigerator and another's sink, we must waste space between them and create cracks in this manner that are difficult to clean. Modular design could prevent this.

There is a movement to fabricate the structural elements of building to a four-inch module. This would insure various manufacturers' products fitting together, but as yet it has insufficient backing. Everyone acknowledges that the building industry is chaotic, and the first step toward order will be standard, interchangeable parts. There is a long way to go before we can have a standard whole.

Quite aside from the new materials, there are still great changes to be expected in the use of old materials. For example, and perhaps as a relief from the machine-smooth surfaces of early modern architecture, rough rubble stone walls have become very fashionable. Wood, that most useful of materials, has achieved miracles during the war. By the design of new wood connectors (as well as glues) great trusses have been fabricated—the greatest of them for a Navy hangar with a clear span of two hundred and thirty-five feet. In combination with chemicals, wood has been made highly flame resistant, termite-proof and, most recently, preshrunk and made as inert and dimensionally stable as metal.

The list could be continued, but enough has been suggested to make it clear that the future will see a great Battle of Materials. Suppliers of conventional materials and manufacturers of new synthetic ones are going to great lengths to protect their old markets and seize new ones. The increasing breadth of choice of materials, the growing complexity of methods of shipping and fabricating them and lack of time-demonstrated durability factors are making the architect's task of specifying materials bewildering.

At present each architect must base his choice on his own experience or on the often conflicting claims of material suppliers. He cannot be certain whether apparently comparative data was derived from similarly controlled test studies. With time he can track down some information, but today there is no one place to which the architect can appeal for truly scientific evaluation of all materials. Research laboratories are carrying on important tests, many of them standardized by the American Society of Testing Materials, but there is no central clearing house for up-to-the-minute factual and comparative data on those materials. As new materials continue to broaden the choice, a situation complicated by the fact that each manufacturer puts his new trade name on the same more or less basic formula, the greatest need for architectural progress is a scientific foundation to classify materials and create order out of the increasing chaos.

Changes in materials, recognition of new social forces, and the complex organizational problems of industries are tangible, and readily controlled and measured in comparison to the quality called design. Design synthesizes all the forces moulding a building, emphasizes taste and fashion, superimposes one of the styles, or expresses the fundamental purposes of the building within the

limits of its means. Beauty, rightness of design, the refinement of the choices left the designer after the practical limits have been established, continue to defy rational formulas. It is possible, however, to review the recent history of design.

American ideas of beauty reached a crisis in 1893. The Victorian esthetic had failed to contain the dynamic forces of industrialization. The power-driven jigsaw and lathe spewed out more and more decorative elements, but not beauty. The Chicago's World Fair of 1893 unfolded as a vision for the people of America. Aware, perhaps for the first time, of the productive power and the unlimited resources of the continent, they could not but associate themselves with the empires of antiquity. It was inevitable that the classic proportion and ordered rhythm of columns which most of them saw for the first time should become a desired symbol of beauty and mature culture.

The plaster facades hid iron trusses of greater imagination that more truly signified the inquiring mind of man, the builder, but at Chicago a people decided to import their ideas of beauty. For two generations our industrial triumphs were covered with shells whose outward forms proclaimed the strength of ages, shells which were monumental untruths. The untruths covered not weakness—but far, far greater strength than the false forms, when true, had ever had. Looking back, the decision was probably not so bad as most modern designers once thought. The fact is that there were not enough trained men in 1893 to utilize the new structural and mechanical advances and develop creative design at the same time. A new skeleton and circulation as well as nervous system could develop in old carcasses.

Sullivan, the greatest architect of the day, immediately saw that the Fair had put a stop to his own clear-visioned work. He predicted then that it would take fifty years for the American people to get over the Chicago Exposition.

In 1943, just fifty years after the Fair, a consumer survey on home furnishings was started by a national magazine, and this survey proves how truly Sullivan spoke. Scientifically polled, over 50 per cent of those who voted were in favor of a contemporary, modern environment. Another magazine, this time one of the country's most conservative, has just closed a contest for the best houses now in blueprint form which are to be built after the war. Ninety-six per cent of the entries could be classed as modern design. These and other consumer testing studies indicate that new values are being evolved for our design. Where only a few

years ago superficial appearance was stressed, now usefulness and workability are accepted as first principles.

Today there is a sufficient number of people seeking contemporary design to encourage the designer once again to go forward. It is significant, now that the influence of the Fair has run its course, that there is increasing interest in and admiration for Victorian design. We are again about to create a truly new design. Modern architecture resumes the tradition that brought forth Early American, Greek Revival, and Victorian. With the great new tools and the limitless possibilities that lie before us, Professor Labatut's name for our era is very apt; he calls us the Cave Men of the Industrial Age.

ART

ART AND CIVILIZATION

by MATHURIN DONDO

ONE OF the most pernicious errors of modern times is the belief in the goodness of nature, considered as the origin and fount of all physical, moral and aesthetic perfection. Through a singular perversion of thought, modern man has even fallen into a most reprehensive idolatry in his deification of nature, which he worships as the all-powerful, the all-helpful, the all-merciful, the all-bountiful Mother.

The germs of this fallacy were first scattered on the soil of European culture by the hand of the Renaissance, but it was not until the eighteenth century that the Rousseauistic cult of nature spread with all its devastating consequences: the return to nature, the eulogy of primitive man, the glorification of the noble savage, the propaganda of natural religion, the attribution to nature of all poetry and beauty.

Christian tradition has rightly considered nature as the origin of evil, the source of material and moral turpitude, the prime mover of sin. All things and beings in their natural state were deemed afflicted with malice, malignity, and malevolence. Nature was man's greatest enemy, to be feared and fought and mastered with the help of a superior and spiritual force, the power of divine grace.

The fundamental truth of the perversity of nature does not require elaborate theological or philosophical demonstration. Common experience is enough to convince even the most ignorant of how little good, if any, there is in the so-called Mother Nature. The only positive benefit we may grant her is that she teaches us to eat, drink, sleep, reproduce, and take shelter, as best we can, from her perils and inclemencies. But it is the same Mother that urges man to rape and rob, torture and kill his fellow creatures. It is nature that engenders drought and flood and storm, war, famine, and pestilence.

From THE NEW MEXICO QUARTERLY REVIEW, *Dudley Wynn, Editor*

Reprinted by arrangement with The New Mexico Quarterly Review (The University of New Mexico). Copyright, 1945.

The noble savage invented by the imagination of the philosophers was addicted to cannibalism, infanticide, and parricide. The gorilla and the chimpanzee may be regarded as models of innocence and virtue with as much justification as was primitive man. His portrait has been painted by Lucretius, in lines which are none too flattering:

> During thousands of revolutions of the sun, men dragged along their existence in the manner of wild beasts. . . . What . . . the earth produced by itself was their sole subsistence . . . they did not know yet how to tame things with fire, nor to make use of animal skins for clothing their bodies . . . they lived in the forests and in the mountain caves . . . ignorant of laws, and of social order. With their powerful hands and agile feet, they hunted the beasts of the woods, overpowering some, hiding from others. At night, like wild boars, they stretched their naked bodies on the ground, covering themselves with branches and foliage. (*De Rerum Natura,* Liber V)

The law of the jungle is natural.

Crime, cruelty, brutality are natural.

The good is artificial. Virtue is artificial.

Goodness, orderliness, moral and social virtues do not exist per se, nor do they spring full grown from the womb of Mother Nature. Like all human values, they are the fruit of man's efforts and achievements, the result of his immemorial fight against nature, of his perpetual desire to master her savage ferocity.

The very word "virtue" implies the idea of strength and power, necessary to resist the natural impulses and oppose the innate inclinations. The good is so far remote from nature that in all times and in all countries, gods and priests and prophets have been needed to teach it, legislators have had to formulate it, policemen have been maintained to enforce it, jails and gallows to punish its infractions. But evil is done without effort, without struggle, without instruction. Evil is innate, instinctive, natural. The long and arduous efforts of man to overcome nature are what is properly called civilization.

Civilization is artificial, the work of the artificer, the priest, the teacher, the poet, the artist, all of whom are engaged in the endless battle against the natural. Were it not for all his arts and artifacts, man would have remained on the same level as the brute, in whose kingdom he was born, whose mode of existence he has shared for millions of years, and to whose habits he is still bound by nature.

Civilization is that which sets off man from all other animals.

But civilization is little understood and appreciated, because we are immersed in it from birth and take it as our legitimate heritage. Let it be remarked in parenthesis that by civilization is not meant the European or American mode of life, nor the superiority of any race or country that calls itself civilized. It is difficult for us to imagine man without built shelter, which is artificial; without made clothing, which is artificial; without speech, which is artificial; without fire or tools or implements, all of which are artificial.

It is even more difficult for us to go farther back in time and picture man without mind or spirit or soul. And yet mind and spirit and soul are not an original part of man's equipment. They are not natural. They were painfully acquired and are carefully nurtured and transmitted by an ever-vigilant education.

Of all the manifestations of the human mind, the greatest accomplishment is language. Speech is undoubtedly the supreme art of man. But speech is not an expression of thought or the conveyance of ideas as philosophers teach us. Words are deeds. Words are wonder-working acts. Words create things which otherwise could not exist. By virtue of the miraculous power of words, man has created for himself another world, entirely aside from the natural world. With words man has created his gods, his religious and social intercourse, his conception of family, of country, of good and evil. All these, which are of man's making and imagining, constitute his own kingdom, his artificial world, which he has peopled with his dreams and visions, his gods and his heroes, his exemplars, his ideals. For man conceived his gods and demigods in the shape of magnified, idealized, non-natural men, superior to him, whom he believed more capable than himself of directing the course of nature in his favor. And he gave them semblance and substance by fashioning images and symbols, and for their worship he built temples and churches and mosques and cathedrals. And he peopled these shrines with statues and ornaments. And in joy or sorrow, in contentment or wrath, he praised and lamented, he danced and sang and interceded, imposing upon the intonations of his voice and the movements of his body the same laws of rhythm, cadence, and harmony which he had conferred on the volumes and the masses, on the lines and the colors of his sacred fanes. He thereby introduced into his spiritual life that sense of order, balance, and discipline by which he strove to govern his social activities.

Thus, to serve and please and placate his gods, man created

the arts, which, in the course of time, were also directed to his pure enjoyment. But art was not originated in view of aesthetic pleasure. Art was the necessary medium of converse between man and his gods. Religion was not an abstraction, but the whole of life, the consecration of life, the stimulation of the will to live and to do. And art was the great stimulant through which man was capable of generating a new, an inexhaustible source of power, of spiritual energy. It was this power which enabled man to rise above his natural level, above the brute and the beast of the jungle.

The preceding remarks on man and nature may help to formulate certain propositions in regard to art. It has already become evident that art begins where the artist departs from nature, that art is born whenever man imposes upon volumes and planes and sounds and colors a law, a discipline, an order of his own volition.

The *Pastoral Symphony* of Beethoven, far from being an imitation of the sounds of nature, is composed of sounds dictated by the will of the musician and subjected to a rhythm of his own invention. But this rhythm, with its purposeful designs and controlled movements, remains a pure abstraction, a mere concept of the mind, without concrete substances, without relation to the material world: it is not natural.

The Venus of Milo, the "Last Supper" of da Vinci, sculpture and painting are less abstract arts than music, but only in appearance. Fundamentally they are based on the same qualities as music is, the difference being the medium. Our ears are trained to be susceptible to the rhythmic combination of sounds and to accept the musical work of art without probing into the representational meaning of these sounds. On the other hand, the aesthetic education of our eyes has been much neglected and more often perverted. To the average onlooker the associations of the subject matter are apt to blind him to the essential qualities of a work of art. He makes of verisimilitude the criterion of artistic excellence, disregarding the prerequisite factors, the balanced relation, the rhythm, the harmony of color and mass and plane. And yet by these abstract qualities alone is a work of art to be distinguished from a work of nature.

Mass, form, color, sound are in fact attributes of matter, but in themselves they are void of any artistic quality. They enter into the composition of the work of art only from the moment they are submitted to the laws of man. In obedience to the will of man, matter is raised to a higher degree, transmuted into a finer sub-

stance, transported from a world of accident into a world of permanence. Art is not a figuration, but a transfiguration of matter.

The balanced planes of the Egyptian statue, the controlled arabesque of a Botticelli painting, the rational composition of a Claude landscape, the architectonic ordonnance of a Cézanne still life, these are the significant qualities of all works of art. They are to be sought, not in nature, but in the mind of man. And they constitute what, by convention, we call beauty.

Beauty also is itself an abstraction, without reality outside the mind of man. No beauty exists in nature, in natural objects, things, or beings. Nothing in nature is either beautiful or ugly, for beauty and ugliness are not positive elements of matter. Beauty exists only in the work of art and is revealed to man through his art. We become aware of beauty through art, and acquire the habit of transferring it from the work of art to the various aspects of nature. We learn from the artist to see beauty in a tree, a mountain, a landscape, a sunset. Before the artist had opened our eyes to their aesthetic significance, the diverse accidents and elements of nature left us either indifferent, or interested only in their practical use.

It is extremely doubtful whether the highly cultured but anthropocentric Greek mind was capable of discerning beauty in the inanimate world. In the whole of Greek literature there is not a single known reference to man's aesthetic reaction to the outside world.

In the time of the European Renaissance the beauty of mountain scenery was a closed book to even the most sensitive mind. Petrarch relates, in a ten-page printed letter, his ascension of a mountain in the Provençal Alps. This was an eccentricity for which the poet pleads as an excuse the example of Philip of Macedonia, who had ascended Mount Haenus in a similar spirit of enterprise. But in his long narration, which contains much information about the hardships, dangers, and fatigue of the expedition, there is no hint of emotional response to nature in her most majestic mood, no word of aesthetic appreciation by the foremost poet of the time.

Even objects which repulse us, scenes which avert our sympathy may become attractive when recreated by the artist's skill. A toothless old hag is rendered beautiful by Rembrandt's magic. Whistler gives charm to a dingy London fog. A banal tablecloth is glorified by the witchery of Cézanne. No throne of king or

potentate was ever bedecked with such splendor as a drab kitchen chair metamorphosed by the enchantment of Van Gogh.

Beauty therefore is not an inherent attribute of things, but an effect of art or, more precisely, a conception of the artist's mind. If nature were the source and essence of beauty, the beautiful would be immutable, not subject to change and constant mutations. But the ideal of beauty changes with successive generations; it varies with race and country; it differs with individuals; it even fluctuates in the mind of the same person. On the other hand, the fundamental qualities, the essential values set up by art are constant. They alone are universal and permanent. However, they are far from being natural to man, far from being inborn. Appreciation and enjoyment of those qualities are strictly a matter of education and development.

Without education man is incapable of aesthetic feeling in regard to nature as well as in regard to art. The degree of our enjoyment of a landscape, for example, is in direct relation to our capacity of composing the natural site in terms of pictorial values. The average tourist becomes aware of scenic interest when he perceives by the highway the sign: *Picture. Kodak.* Thousands of people view Niagara Falls or Yosemite with the same curiosity as they would admire the fat woman and the monkeys of the circus. The circus attraction leads the crowd to the art museum, where they listen open-mouthed to the professional guide quoting the price of a painting or the antiquity of a statue. The circus attraction brought countless visitors to the first exhibit of Cubist art in New York City. The circus attraction caused the schools of San Francisco to be closed on the occasion of an exhibit of Van Gogh's works, so that high-school adolescents and kindergarten infants might be regaled with the melodrama of the artist's life and death.

Besides this vulgar curiosity, there is, however, on the part of the average spectator, a nobler attitude toward nature, which commands respect and attention. Scenic grandeur awakens in the minds of most of us some sort of religious emotion, some stirring of the sense of the divine. The religious reaction to natural spectacles is so deeply ingrained and so persistent that it affects and determines to a large degree our sense of appreciation. Awed by the immensity of the ocean, we direct our thoughts toward the Infinite. The fury of the storm echoes the voice of the divine avenger. The glory of God is manifested by the magnificence of

the setting sun. Wherever nature shows a lavish display of color or some unusual combination of forms, one is apt to hear a bystander exclaim, "No artist can paint that!" And by such a remark he defies man to emulate the work of the Creator.

However, aesthetically speaking, the most remarkable scenery would remain meaningless to us if our sensibility had not been attuned to its equivalent pictorial qualities. We would show but indifference to a spectacular sunset had not a Claude Lorrain, a Turner, a Monet revealed to us its symphonic values, even though our familiarity with the work of these artists were limited to a chromolithograph on our kitchen wall.

To what degree, then, of refinement, of cultured taste a person must reach in order to be thrilled by the shadow of a twig on a wall, by the pattern of a barren tree against the twilight, by the curve of a reed over stagnant waters!

Nevertheless the beauty of nature in all its stages and nuances and infinite gradations cannot be other than the aesthetic qualities which our minds attribute to material objects. The beauty of nature is conceived by us and remains our own creation, and possesses that degree of excellence which we are capable of appreciating.

Such a statement appears so obvious that one is liable to forget its fundamental value in solving some of the most interesting problems in aesthetics. One of these problems, which presents itself to our attention, is to decide whether our enjoyment of nature can equal our enjoyment of a correspondent pictorial representation, and whether in both cases our sensation is of the same order and of the same quality.

Before a solution can be proposed it is necessary to restate the fundamental point under discussion. Our delight in any display of nature, let us say in a sunset, is in proportion to our ability to compose an artistic figuration of the spectacle, to analyze the juxtaposition of colors in the sky, to appreciate the values of their reflection in the water, to judge the tonality of their luminous effects on the land. This process, in most cases unconscious, enables us to form a pictorial image which pleases our eye and moves our sensibility according to our artistic development and in conformity with our present mood. It is obvious that the picture we have just created is purely mental, and a mere abstraction. It is not, therefore, nor can it be a work of art, since by definition art is of necessity an objective figuration, a material

visualization, a perceptible exteriorization of our mental image, by means of skill, technique, or learned process of one kind or another.

The contemplation of the natural spectacle may procure us pleasure of a high order. However, the feelings we experience in the presence of a work of art belong to a totally different category. To define them simply as a mode of aesthetic pleasure seems quite inadequate, if not erroneous. Art is to man much more than pleasure. Art is the source of a unique sensation which escapes analysis and which we may only attempt to explain by some analogy. We may venture to say that it is an emotion, or rather a commotion which, if not akin, is at least comparable to love rapture or religious transport. It is an uplift of our spiritual self, not different from the kinetic exultation of our whole being under the rhythmic spell of music and of dance.

Art is one of the greatest means of generating human energy, of creating a surplus of power which not only enables man to continue living, but to aim at a higher mode of existence. From the caves of Les Eyzies to the friezes of the Parthenon, from the dolmen of Carnac to the glory of Chartres, from the illumined medieval parchment to a canvas of Renoir, the artist has played no less a part than the priest, the legislator, or the philosopher in the building of civilization.

Civilization, by which is meant the rise of man above his natural level, has been a slow and devious and painful achievement. If for the sake of illustration we reduce the time of man's history to an imaginary period of fifty years, this is the picture that comes within the reach of our vision:

Of those fifty years, forty-nine were spent in the hunting or savage period. Only in the first half of the fiftieth year appeared the art of writing. Greek civilization would be three months old. The Christian era, two months old. Printing, two weeks old. The steam engine, one week old. Present conditions would begin at the dawn of December 31 of the fiftieth year; that is to say, what we call the "modern" world is one incomplete day old.

Is it any wonder, then, that the majority of human beings are still very close to the state of nature? Like his Cro-Magnon ancestors, man is still a rapacious and predatory animal, bent on war and rapine and pillage. But to assert that human nature does not change is to deny one's faith in the miraculous power of the mind. To claim that human nature cannot be improved is to deny the possibility of man to rise above the pure animal and bestial stage.

The most evident manifestations of progress are not so much the artifacts, the tools and industries and mechanical gadgets devised by man to insure his livelihood. Civilization is much more than material gain and physical satisfaction. Civilization is chiefly made up of the spiritual elements of law and order, of discipline and harmony; it is made of the very elements which govern the arts, which were created by the arts, and which are preserved and propagated by the arts of man.

It has been said that in our time art has grown neglectful of its main function, that it no longer seems to fit into the structure of the community. The reproach may be well founded. But a tremendous social revolution is taking place under our eyes. The whole world is rapidly moving toward a unified community of spiritual as well as of material interests. In such cataclysmic change, it is doubtful whether art can remain a mere individual pursuit. One may seriously question whether art has no higher role than the titillation of the sensibility of a few aesthetics. In spite of the present savagery and perversity of the human race, it is even permissible to nourish the hope that art will again play a vital part in human destiny, that art will once more be the great spiritual stimulant, the dynamic power in the endless fight of man against nature.

BIOLOGY

PHYSIOLOGY PSYCHOLOGY

THE BIOLOGICAL BASIS OF IMAGINATION

by RALPH W. GERARD

IMAGINATION is more than bringing images into consciousness; that is imagery or at most hallucination. Imagination, creative imagination, is an action of the mind that produces a new idea or insight. "Out of chaos the imagination frames a thing of beauty" (Lowe's *The Road to Xanadu*) or of truth. The thing comes unheralded, as a flash, full-formed.

Imagination is to social inheritance what mutation is to biological inheritance; it accounts for the arrival of the fittest. Reason or logic, applied when judgment indicates that the new is promising, acts like natural selection to pan the gold grains from the sand. Imagination supplies the premises and asks the questions from which reason grinds out the conclusions as a calculating machine supplies answers.

Many have insisted that the imaginative process is different in art and in science. I see no basis for such a position. On the contrary, the creative act of the mind is alike in both cases, as later considerations fully evidence. Rather, the criteria for sifting may differ. Both art and science demand meaningful relations; but the one is satisfied more by pleasing structure, the other by logical validity.

It deserves mention that imagination re-enters at all stages of intellectual endeavor; it does not merely deliver a mental foundling to the care of other faculties of mind. In science, as an example, imagination enters into the devising of experiments or of apparatus or of mathematical manipulations and into the interpretation of the results so obtained. But these are likely to be minor miracles compared with the major insight achieved in the initial working hypothesis.

Imagination is not encompassed in reason. True, reason gives "the truths no mind is free to reject," and logic is an index,

From THE SCIENTIFIC MONTHLY, *F. L. Campbell, Editor*

Copyright, 1946, by the American Association for the Advancement of Science.

through function, of how the brain machine is constructed. But logic can never reveal all the laws of thought. For, in mathematics or symbolic logic, reason can crank out the answer from the symboled equations—even a calculating machine can often do so—but it cannot alone set up the equations. Imagination resides in the words which define and connect the symbols—subtract them from the most aridly rigorous mathematical treatise and all meaning vanishes. Was it Eddington who said that we once thought if we understood 1 we understood 2, for 1 and 1 are 2, but we have since found we must learn a deal more about "and"?

Imagination is one manifestation or index of how the brain machine works, which in turn depends on how it is built. And since sensory data are shaped by such reworking, imagination pervades all thought and knowledge. This is far from saying, as some do, that imagination offers a separate avenue to truth or reality, one alternative to sensation and depending on some act of spiritual apprehension or revelation or of ancestral or racial insight. What is denied our senses (or their instrumental extension) and what escapes through the meshes of "the *a priori* net of the mind" is lost to us. On the other hand, since the properties of nerve fibers and nerve cells clearly determine the character of sensation and, only less clearly with present knowledge, determine the character of imagination and reason, and since these last are called into action directly or indirectly by sensory nerve impulses set up by receptors which probe the surroundings, it is not surprising that sensing and thinking do jibe with each other and have some degree of valid correspondence with a real universe.

Now, returning to the attributes of imagination, since its product enters consciousness abruptly, its workings are at the unconscious or uncritical level.

Simple imagination is observable in a pure and untrammeled state in dreams, in the hallucinations of drugs and other agents, in those hypnagogic states which interpose between wake and sleep or in the slightly fettered daydreaming while awake, in the free fancies of the child and the less free fancies of the amateur. For ideas, like mutations, are mostly bad by the criteria of judgment, and experience or expertness suppresses them—unless imaginings get out of hand and displace reality, as in the insanities. But the imaginative hopper is fed from and feeds back to

the conscious and critical level. There the heat of mental work transforms the soft ingots of fancy into the hard steel of finished creations.

Clearly, then, pursuit of imagination leads us into the unconscious and its mechanisms. Nor is this any longer a completely uncharted wilderness, for psychoanalysis especially has even now developed a usable body of knowledge to guide the explorer. It has recognized and isolated such unconscious mechanisms as condensation, displacement, projection, and identification—as well as repression, sublimation, substitution, rejection, denial, introjection, suppression, and conversion, to extend the list—which often enable the student not only to see further into the how of imagining but even to account for what is imagined. This is true for the normal and perhaps more strikingly for the disturbed; the previously meaningless chatter of the schizophrenic patient, for example, is quite intelligible in terms of known dynamics.

Form, structure, relationship, organism, part-whole systems, gestalt, or closure is basic for the product of imagination and for its process. To see star groups, constellations, instead of unrelated stars is the gist of closure, of a confluence of elements. Since imagination only regroups sensory material, there is truly nothing new under the sun.

Perception is really a harder problem, for red rays and green rays, even falling on separate eyes, do give the "new" sensation of yellow; but imagination cannot conjure a hue for ultraviolet. A mermaid, griffin, or centaur, as Lucretius recognized, are only recombinations of familiar elements. Yet when we recall that a single inning of a chess game may offer some four hundred choices, that all literature is built from the same words and these of the same letters, as all material is of the same elements and their handful of subatomic particles, novelty in combination does not seem too barren. A new and fertile pattern of thought may come from a conceptual reslicing of the universe into fresh classes and the making of new combinations of them. A good insight is likely to recognize the universal in the particular and in the strange.

It also generalizes progressively, as is so well illustrated by the growth of mathematics and the formulation of ever more inclusive and freer equations (e.g., the Pythagorian theorem) which can then be applied to an increasing range of particular cases. Finally, a good insight sees (or foresees) in a welter of impres-

sions that which is relevant to the goal earlier indicated by reason; it winnows the important facts from the unimportant.

The gestalt school of psychologists, especially, has emphasized the importance of closure or structuring—of "considering"—in insight. Insight is an imaginative way of learning or problem solving, in contrast to the blind and buffeted way of trial and error, often called "at-sight" for contrast. Beyond sensation and even simple perception, involving the correlation of current sense data and of past experience, closure is a basic property of mind. It is the ability to separate a figure from its ground, to formulate a gestalt, or form, to identify an entity. From this flows the setting up of classes and the recognition of spatial—or temporal—relations. Thus Conrad notes the ability to combine parts or elements into a whole, to integrate systems; and also the converse ability to identify parts or elements in the whole, to fragment or differentiate systems. And Wertheimer further recognizes the ability to shift from one whole to another one, to restructure a system.

These activities may seem tautological restatements and are certainly closely related intuitively; yet they enjoy considerable independence and can be separately measured. Most immediately exemplifying imagination would seem to be the last, flexibility of structure; for Wertheimer correctly says, "Creative thinking is the process of destroying one gestalt in favor of a better one." It is the highest imaginative achievement to be able to restructure in useful ways the basic propositions or axioms on which our great logical thought edifices have been erected. And, as an indirect sign that even such intangible mind work may still be sharply tied to the properties of the brain, there is the observation that stimulation of just one particular small region of the exposed human brain is able to arrest movement in thought.

If imagination is a definable property of the mind it should also be measurable; and as the definition progresses from the vague impressions of ordinary human dealings to that offered by standardized situations, so the measure moves from the subjective judgment of a person, as having a good or poor imagination, to a fairly quantitative statement about performance. Thurstone, especially, has pressed forward the analysis of mental abilities. By extensive testing with a rich variety of problems he has shown at least seven such abilities which are independent of each other. Thus, individual A may outperform individual B by ten- or a

hundredfold on tests which utilize ability 1, while B may similarly outperform A on tests involving ability 2. A similar analysis has revealed some ten perceptual abilities, and others surely remain to be uncovered. Some abilities, such as those of word fluency or verbal understanding, depend for their exercise on learned language, and so performance improves over much of the life-span. But others, such as space visualization, show little improvement in their use after the age of six to eight years; in fact, performance may actually decline. The case for inborn capacities, of particular degrees for each capacity in each person, is thus strong.

Is imagination some one or several of these separable abilities or some common "power factor" underlying them? The answer is not yet available, but it is within easy grasp when persons of outstanding talents of various sorts are measured by such standardized tests. Meanwhile, some interesting guesses may be made. At least four of Thurstone's factors might be involved in imagination, and one of these seems almost to define it. The I, or induction, factor is the ability to see logical patterns or relations (and so would be less related to imagination than to reason). A convenient test for it is to have the subject supply the next item of a series. A very elementary series is: O X X O X X O X ?. A more severe demand is made by: 1, 7, 3, 6, 5, 5, 7, 4, 9, ?. The K factor, measured by the Rorschach "ink-blot" test, is almost at the other end of the mental spectrum and, far from impinging on logic, plumbs the unconscious. It is of the free completion type; the subject is given an amorphous stimulus and allowed to react with no restraints—as when a person gazes into the flames playing over a fire or at clouds drifting in the sky and "sees" castles or bears or witches acting out untold stories.

Two other factors rather specifically deal with closure. The A factor is the ability to make a closure or complete a gestalt and is measured, for example, by having the subject identify partially erased pictures or words. The E factor is the ability to replace one closure by another and is tested by the Gottschalt figures (Fig. 1), or by "hidden faces" in a picture of different manifest content. The two abilities, especially E, are rather precisely those considered earlier in defining the act of creative imagination. It is impressive that two independent factors can in fact be isolated for such intuitively equivalent actions as making or remaking a closure! When such primary abilities have been measured in our Einsteins, Edisons, Toscaninis, Van Goghs, Masefields, and Lincolns we shall be far along the way.

The inheritance of imagination will be ever more easily studied as identification becomes more precise. Even now the comparison of the mental abilities in twins and in siblings is in progress. Pending such finer analysis, I may mention evidence that a strong hereditary element is present for "averaged" intelligence and for particular talents. There is, for example, an average difference in I.Q. of 5.9 for identical twins raised together and this value increases only to 7.7 for those raised apart. In contrast, fraternal twins raised together differ by 8.4, and sibs by 14.5 if raised together, 15.5 if raised apart. Orphan pairs differ by 17.7, whether apart or together.

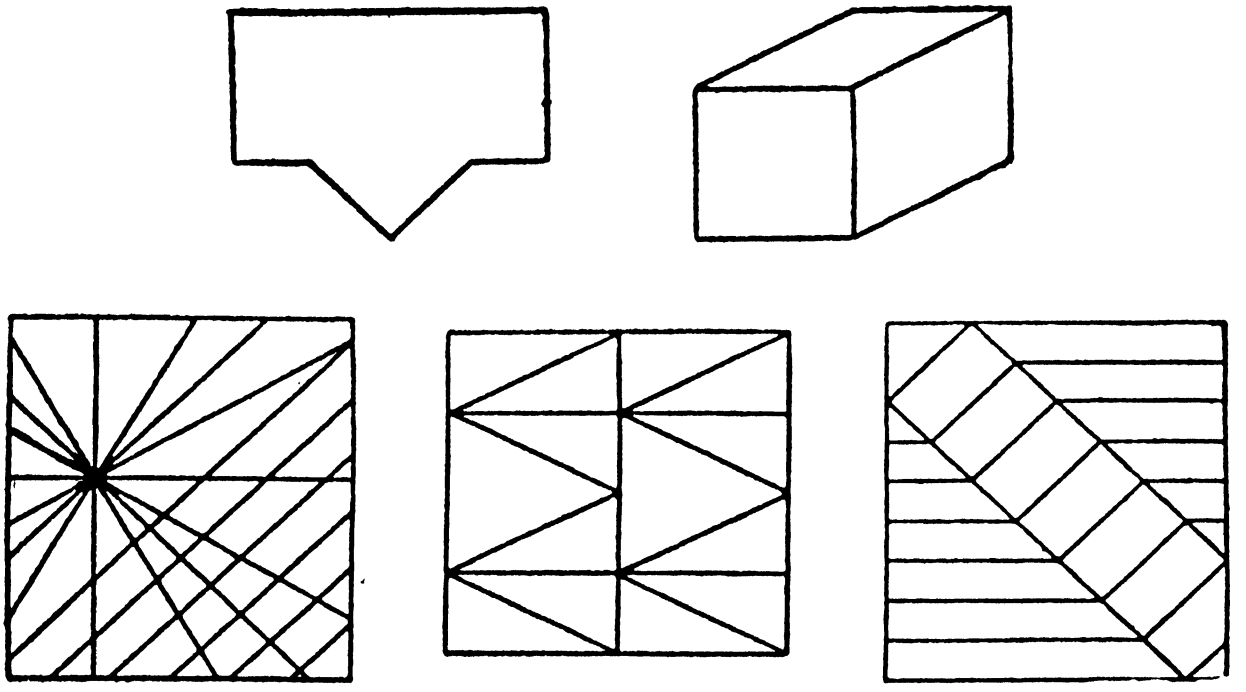


FIG. 1. GOTTSCHALT FIGURES

The instructions read as follows: One of the two upper figures is contained in each of the three lower drawings. Only one figure in each drawing should be outlined.

A study of outstanding contemporary virtuosi and singers shows that two-thirds of the parents of these artists possessed high musical talent. Conversely, in families with both parents talented, two-thirds of the children also were gifted, whereas in those in which neither parent showed talent (but of course one child was outstanding) only one-fourth of the offspring were gifted. The minimal genetic interpretation of these facts is that musical talent demands the presence of at least two dominant genes. The importance of the hereditary factor is further attested by the age at which these outstanding musicians had clearly manifested unmistakable talent—an age under six years!

Mathematicians achieve their star at the average age of twenty-

nine, with physicists close behind; botanists and geologists wait until they are fifty-two for the same kudos. And will probably agree that sheer imagination and intellectual power, as compared with experience and learning, are relatively more important in the former fields than in the latter. That the growth of mental *capacity* is more a matter of biological maturation than of life experience is suggested by all these findings.

A final comment in this area, on the evolution of mental abilities. Several men have attempted to construct a scale of comparative intelligence of animals in terms of such learning criteria as the maximum time over which a trace-conditioned reflex could be established, but without convincing success. That man's abilities differ in degree more than in kind from those of his slower-witted biological relatives is nonetheless probable. Apes show learning by insight as well as by trial and error, and have even been taught to work for money as industriously as do their gifted cousins. Wolfe has trained chimpanzees to put counters into the slot of a vending machine to obtain food, different amounts for different colors. Having learned the purchasing value of these colored bits, the animals will do "chores" to obtain them and will work harder for the more valuable ones.

Since the gross and microscopic structure and the chemical and electrical functioning of the brain are measurably comparable in all vertebrates, reasonably alike in all mammals, and strikingly similar in the higher primates, where enormously detailed parallels have been demonstrated, a likeness in mental capacity is not surprising. The gray cortex of the cerebrum has swelled out from the primitive nerve cell groups to which came messages from nose, ear, and eye. These "distance receptors," sensitive to changes in the world at a distance from their possessor and so posing problems to the animal for *a priori* solution, somehow whipped into existence a brain capable of solving them. It is the same cerebrum in man and monkey; but man has a deal more of it, which permits rich additional permutations.

Pathology. It remains sadly true that most of our present understanding of mind would remain as valid and useful if, for all we knew, the cranium were stuffed with cotton wadding. In time, the detailed correlation of psychic phenomena and neural processes will surely come; but today we are hardly beyond the stage of unequivocal evidence that the correlation does exist. The neuro-anatomist and physiologist are still crudely deciphering the

architecture and operation of the organ of mind; the psychologist and psychiatrist are concerned with nuances in the overtones it plays. Yet the gap is narrowing, and a primitive bridge is offered by the grosser disturbances of brain and mind. Perhaps most dramatic are the aphasias, a group of disturbances in the ability to handle "meaning," associated with more or less sharply delimited regions of brain damage. Since disease or accident rarely destroys an exact division of the cerebrum and since different divisions have unique functions, the symptoms are commonly mixed and vary from case to case.

There is commonly a disturbance in the use of language, but this is too limited a view of the defect. Language is man's main symbolic system, and aphasia has been considered as a disturbance in symbolism or in propositional expression. But formal symbols are still but one avenue to meaning, and the others may also be disturbed in aphasia. A patient may fail to recognize familiar tunes, or may be unable to identify by touch a common object placed in his hand, such as a key or knife or pencil, although he recognizes well enough that some object is there and may name it at once on sight. Similarly on the motor side, a man could not at will move his tongue over his lip on instructions, which he understood, but could do so to remove a crumb placed there.

Thus meaning, in its widest sense, is imperiled by such brain insults, and the gestalt psychologists have not failed to point out that the very ability to create closures is damaged in aphasics. But, in man, language (with mathematics as one form of language) remains an especial index to the workings of mind; and Pick, combining philological study with his clinical observations, has formulated a series of stages in language use, which may be interrupted anywhere by the aphasic slash. On the sensory or receptive side there is, first, the perception of speech as distinct from mere sound. There follows the recognition of words as separate entities and then of the "musical" parts of speech, cadence, and intonation. Only then comes an awareness of meaning, followed by full understanding of sentences with their proper word relations and emphases. Turning now to the motor or expressive sides, the sequence is intuitive thought (also called verbalizing or inner speech), which becomes structured thought, and is then cast into the schema of a sentence, only after which are the actual words chosen and the result articulated. Aphasia may thus prevent sensation from emerging into meaning, mean-

ing from eventuating in behavior, or meaning itself from coming clear. The last would be a disturbance in closure or structuring. This represents, perhaps, the basic disintegration of imagination. Imagination may be the word for that all-important no man's land between the end of the receptive process and the start of the expressive one.

The future is parturient with the answers. For the advance of neurosurgery is offering to study clean-cut cases of brain defects; patients with local brain amputations or incisions for tumors or infections or even, rather less soundly, for mental disturbances. And the advance of psychological measuring is supplying better precision tools with which to make the study. Thus, at the receptive levels, superficial damage to a region (17) of the visual cortex destroys color sensations but preserves pattern; more profound damage destroys pattern recognition as well while leaving (as in the monkey) light sensitivity. Comparably, direct stimulation of area 17 in a conscious patient produces an awareness of lights; when the next area, 18, is stimulated, the lights move about; and, if the next brain region is excited, complete pictures flash into consciousness—as of a man somersaulting toward the observer.

And at the integrative or imaginative levels of meaningfulness, we need only the results of applying the tests for primary abilities, especially for Thurstone's A, E, I, and K factors, to patients with specific brain operations to make a great step forward.

Anatomy. The introspective psychologists have distinguished between crude sensation, organized perception, and full-formed imagery on the sensory side; reason, will, and action on the motor side. The boundaries are not sharp, to be sure, yet one can almost follow the one into the other on moving with nerve messages along the nervous system. From the single receptor, or sense organ —tactile corpuscle of the skin, eye, ear, etc.—comes but one modality of sensation—touch, light, sound. This has the attribute of intensity, given by the frequency or closeness with which impulses follow each other in each nerve fiber and, less, by the number of fibers activated. When the message reaches appropriate regions of the nervous system, the sensation also has its particular quality of touch, or pitch, and this much of pattern that a "local sign" is attached, so that the region of the body (touch) or receptor (eye) from which the messages come remains identifiable. As nerve fibers from receptors gather into nerve bundles (along with motor

fibers for much of the way, but separating at the ends, especially where they join the central nervous system), sensory messages are grouped together either by modality, in special cases like those of seeing in the optic nerve and those of hearing in the auditory nerve, or more generally by region, as all the skin and other sensations from one finger in a particular nerve or nerve branch.

Yet as soon as these latter nerves enter the nervous system, mainly along the spinal cord, the relay fibers are shuffled about so that they also become grouped by modality. Thus, if a nerve to the leg is cut, some portion of the leg skin (and muscle) will have lost all sensation of touch, pressure, temperature, pain, position, vibration, etc. But if one of the relay bundles in the spinal cord is damaged, the entire limb will lose only the sense of touch or of pain or of position, as examples, depending on which part of the cross section of the cord is injured, while retaining the other senses unimpaired. When these second relay fibers pass on their messages to the third member of the team, in the thalamus at the base of the great cerebral hemispheres, there is another reshuffling so that region again enters strongly into the arrangement. And from here the nerve wires fan out to reach the cerebral cortex, each to its own particular spot.

Optic fibers run to the occipital lobe and are there ordered so that each region of the retina is represented at a roughly comparable position on the cortex. Fibers from the skin carry all the cutaneous sense messages, remixed as to modality, to the parietal lobe just behind the great Rolandic fissure, where the various body regions are neatly arranged in order; from the foot at the vertex of the brain to the head well down the lateral surface—as if a tiny and rather grotesque manikin of the body lay upside down (and right side left) on this region of the brain. Sound, smell, balance, hearing are similarly "placed" in given parts of the cerebral cortex, and, on the motor side, the body muscles are represented just in front of the cutaneous area across the Rolandic fissure, and are ordered as a manikin in like fashion. Muscle sense, which tells us limb position, for example, overlaps the cutaneous and motor areas, again in the same order from foot to head. The spatial arrangement of entering nerve fibers in the auditory cortex is in terms of pitch, rather than of position and, just discovered, there is a double location for hearing—two distinct brain areas in each hemisphere.

These cortical areas to which sensory nerve messages are projected from the thalamus, or from which motor messages project

through the thalamus, are called the projection areas. They occupy but a small portion of the cerebral cortex, being surrounded by various association areas; and indeed both the microscopic characteristics and arrangements of the nerve cells and the functional influences that have been traced between them show that some half a hundred individual and distinctive areas are present in the cortex of man. Some of the association areas, in close relation to projection areas, are primary and concerned directly with an elaboration of the particular projected messages. More of them, the secondary association areas, are concerned with the most general interrelation and reworking of the elaborated sensory clues, present and past. Thus, referring again to the aphasias, destruction of the visual projection area (17) causes blindness; of the visual primary association area (18), a pure sensory aphasia (agnosia) for seen objects or symbols—inability to give meaning to written words; of secondary association areas, a greater or lesser loss in meaningfulness in general, an integrative aphasia (aconia). A pure motor aphasia (apraxia), like the pure sensory one, would involve a primary association area related to the motor area for, say, speech. Stimulation, conversely, gives lights (17), moving lights (18), and moving pictures, respectively, as described earlier.

Now what of sensation, perception, and the like, and especially imagination, in relation to this sketched-in organization of the nervous system? Clearly, a knowledge of structure and localization of function is not enough; for a single nerve impulse running in a single nerve fiber in one or another part of the brain is much the same thing, and a billion of them simply added together are only a billion of the same things. But nerve impulses are not simply added. Messages set up from a single hair on a cat's paw—by touching it with a hair on the observer's hand so lightly that the observer feels nothing—run up a sensory nerve fiber to the spinal cord and there "explode" into many impulses running up to the brain in many fibers, which further interact along the way. A person listening to a watch tick hears it as louder while a light is being looked at; and experiments on cats show a similar enhancement of messages in the auditory sensory paths when the nearby optic paths are simultaneously active. The point is that as sensory messages ascend toward and into the cerebrum they are not merely relayed and regrouped, they are also reorganized and reworked; in fact, we shall see they even reverberate.

What may be the conscious concomitants of these various

stages of neural work is not known; but all the evidence suggests that they would rise in richness along with the intricacy of activity patterns in the nervous system. If awareness is the internal view of events or systems which are material to the external view, as many hold, then some protoconsciousness (probably not self-consciousness, or an awareness of being conscious) must exist in the simplest blob of living protoplasm or, for that matter, even in all substance. But just as behavioral capacity leaps upward when a nervous system is present and again as each major improvement in it evolves, especially as the great cerebral cortex comes to flower, so subjective awareness does likewise. Some consciousness of sensation may exist in the spinal cord, as does some ability to recombine and learn, but this would be difficult to prove and is surely of negligible degree compared to what is experienced by man's brain. Nevertheless, the sensory messages from receptor through sensory nerve and spinal bundles probably represent pretty pure and raw (but unsensed) "sensation"—as suggested by some of the facts on the results of damage. And if they reach projection areas without much interaction with other activity patterns they will result in simple consciously recognized sensation. There is even some evidence that the most primitive undiscriminated "feelings," such vague discomfort as accompanies mild bowel cramps, may depend on older subcortical brain regions, such as part of the thalamus. If, however, they interact with other current sensory messages, and with the memory traces of past ones, then they are probably more of the character of perceptions, after moving on from the thalamus and into the projection areas. By the time the primary association areas are engaged, with their added complexity, imagery is probably also present.

A comparable but reverse sequence exists on the motor side, with drive or willing or maybe intuitive speech at the start and particular muscle contractions at the end; with the same possibilities of interruption along the way, grading from the aphasias to the out-and-out paralyses. Volition may be disengaged from motor expression in less drastic ways than by anatomical damage: a person recovering from the stupor due to inhaling concentrated carbon dioxide "wills" to move his hand in response to a request, but nothing happens for a minute or more when, to his surprise, the hands moves "of itself." The leaden limbs of a nightmare, when the dreamer cannot run for his very life, may be a comparable neural block; at least in deep sleep the toe reflex from

scratching the sole behaves just as it does when the motor pathways of the nervous system have been injured.

Between perception and imagery on the one hand and volition on the other lie the great mental territories of imagination and reason. It might be useful to consider imagination as the culmination of sensory events, reason as the origin of the motor ones. Or perhaps reason, with its attendant logic, verbalization, decision, and willing, is more properly the start of motor events, and imagination is the more pervasive and encompassing mind work which is the keystone of the sensory-motor arch. Men with moderately severe brain injuries may perform well on the usual intelligence tests, while falling down on those which sample imagination. Indeed, imagination may include a "power" factor of intelligence underlying the others and depending on the mass functioning of the whole brain.

Certainly, as earlier outlined, imagination depends on sensory information. Man cannot see the world other than as it unfolds itself within the sensory projection areas of his brain. These determine his basic orientation to externality. In the very spatial arrangement of the areas of vision, skin, and muscle sense is embedded an unformulated geometry. The basic units of physical science are distilled from these areas: space (centimeters) from vision, touch, muscle sense, and the vestibular system (the balance organs located within the ear); substance (mass, grams) from smell, taste, touch, muscle sense, and, secondarily, vision; and perhaps, even, the notion of force comes from touch and muscle sense, of matter more from taste and smell; and time (seconds) most directly from hearing. Moreover, one's subjective judgment of time certainly depends on a brain clock, which runs fast in fever according to a precise mathematical function of the brain temperature.

From space, mass, and time comes, in turn, the notion of entity—the basic gestalt of all and the first flutter of imagination. And, in supplying the substratum for thought, vision in man is surely of overwhelming importance. Our thought words are almost all of visual reference, although we do "apprehend" a meaning and refer to a "tangible suggestion" or a "weighty problem," and we may say of something, "it looks heavy or hard," but never that "it feels red."

The distinguished art critic Ivens has made the provocative suggestion that Greek art and architecture and mathematics are distinctly inferior to those of more modern times (a critical judg-

ment which he supports in considerable detail) because the classic Greeks were essentially hand-minded (touch and muscle sense), and modern man, eye-minded. The former, he urges, gave the finite, discrete, and particulate; the latter, the infinite and graded. Aside from such historical evidence as the continuity implied in Zeno's paradoxes, this view seems unsound on a biological basis. Greek brains were built like ours, of the same human race; and an earlier race, Neanderthal man, had, if anything, a more emphasized vision than our own—at least the occipital lobe of his brain, with its visual areas, was mightily developed. True, individuals vary in the degree to which their imagery is visual, auditory, tactile, and the like; but this variation almost surely follows the chromosomes, alike in old or new Greeks.

No, the more static constructs of the classical period are to be understood rather as an earlier phase of imaginative creativity. In all human thought, the constant is adumbrated before the variable (mathematics), statics before dynamics (physics), structure before function, and classification before relationship or evolution (biology). It is not surprising that this is so, for thus does the brain create imaginings: remember that stimulation of the visual projection area generates static lights; of the first association area, dynamic ones; and of the second association area, moving pictures!

Physiology. What, then, of the mechanisms of brain functioning, of the generation of thought? Granting, again, that the exact relation between neural processes and conscious events remains unknown, it is still possible to recognize some striking parallels. Are closure and patterning basic to imagination? They are simply shot through the entire felt-work of the nervous system! Not only in the large-scale organization we have already noted but in the small-scale one no less. True, particular nerve fiber bundles connect each of the separate areas of the cortex with all; many directly, the others by relays. True, some of the bundles carry messages which excite the nerve cells they reach, so that when cells in area X fire messages to area Y the cells in Y become active. But it is also true that comparable nerve bundles connect cortical areas with thalamus, with spinal cord, with all parts of the nervous system; so that a nerve impulse entering the central mass along any fiber path could, in principle, find its way by one route or another to every part of the nervous system. And it is further true that the nerve impulses running from area X may not excite

but inhibit or suppress the cells in area Y so that these stop their current action and cannot be re-excited for a time. Thus, stimulating the arm region of the motor area (4) will cause arm movements; but stimulating a region (4-S) only a few millimeters forward will stop arm movements and even prevent further stimulation of area 4 from starting them. Surprisingly, although 4 and 4-S lie next to each other on the cerebral cortex, this suppressor action depends on a distant locus of interaction; and part of the interplay is via a complex relay path, from 4-S to deep cells in the cerebrum (basal nucleus) and from there to the thalamus and from there back up to 4.

Each nerve cell is so richly supplied by nerve fibers reaching it from all sorts of local and distant neural regions, reaching it and making functional connection (synapse) with it, that it is rather like an egg packed in sticky excelsior. Messages bombard it along these many paths, some pushing it to action and some to quietude, some perhaps powerful enough to tip the balance individually but most surely requiring the help of their like fellows. Further, the nerve cell is being influenced by the blood passing it, by the oxygen and sugar it receives, the salts that bathe it, the electric currents from its neighbors, the temperature at which it finds itself, by drugs which reach it. And from this welter of influences —its state of health, the condition of the environment in which it is living, and, particularly, the clamor of allied and opposed messages reaching it—from all this comes a single result: the cell fires messages along its own fiber to still other cells, or it does not fire. There is, to be sure, some gradation in number and frequency of impulses sent or in duration of inactivity and depth of inactivability, but essentially the balance is between action or no action. It is the collective and patterned actions of the several billion nerve cells of our brains that determine our behavior and accompany our thoughts. We must explore further this neural patterning.

A few years back, the only well-recognized pattern was the reflex arc. A message entered along a sensory nerve, continued through the nervous system along direct or relayed connections, and finally emerged in a motor nerve. Except as messages were in transit, the nervous system was presumably quiet. Today we know, largely from the electrical pulses of the "brain waves," that nerve cells are continuously active in wake or sleep, and many beat on like the heart. In part, this beat depends on the chemical and physical state of the cell and its surrounding fluid;

in part, on the nerve messages playing upon it. Suppose cell *A* sends its fiber to connect, among others, with cell *B*, *B* with *C*, *C* with *D*, and *D* with *A*. If *A* were once activated by a message from *X* it would excite *B*, and so through *C* and *D* be re-excited itself. Another branch from *D* might excite *Y*. Then, once started, such a circuit might continue active, with excitation going round and round like a pinwheel and throwing off regular sparks of activity on each cycle. Of course this picture is too simple—the circuit would not be set off so singly, it would vary in its path and speed of spinning, it would have to stop by cell fatigue or other impulse interference, it would involve many more cells and connections, were it to accord with the actual behavior of the brain. But what is important is that just such circuit patterns, with all the needed complexities, have been shown to exist and function in this manner. Closure in mental processes, did we say? Here is closure woven into the very fabric of the nervous system!

These closed circuits are mostly over minute distances, in single centers of the nervous system, but comparable ones exist on a gross scale. In many cases, also, a nerve cell cannot be made to fire by impulses reaching it along a single fiber but requires a nudge from two or several arriving at the same time (the main effect of a single impulse is expended in a few ten-thousandths of a second) and even from different regions. Again, what a beautiful basis for making new gestalts or recombinations of sensory material! As one example, recall that light can make sounds seem louder; as another, how association areas rework and embroider the activity of projection areas. A further instance shows that messages from the frontal lobe of the brain, as well as from the optic nerve and thalamus, must reach the visual centers for them to become fully active; for after injury to the front of the cerebrum the field of vision is narrowed, even though the retina and its immediate brain connections to the optic brain areas remain intact.

Several important interactions occur between the cerebrum and thalamus, besides those already mentioned. Through the latter pass all sensory messages on their way to the projection areas and to full consciousness; and in another part of the thalamus are coordinated the bodily responses and perhaps the subjective aspects of emotion and other primitive feeling. When the cerebrum of an animal is removed, affective behavior is grotesquely exaggerated; so nerve paths from the cerebrum hold the thalamus in check. Other fibers from the cortex can activate the

thalamus, and, indeed, even as sensory messages relay up through this part of the brain, other messages coming down to it from the cortex can block or enhance their passage. Perhaps what we call attention is in action through these paths which functionally open or close the gates of the thalamus and allow now one, now another group of sensory messages access to the cortex and full consciousness while relegating the others to the fringe of awareness or even to the unconscious. (This is not to say that all cortical activity is conscious or self-conscious, for such is not the case.) And, a final example, certain paths from the thalamus radiate out to much of the cerebral cortex and, when stimulated, set the whole cortical sheet into vigorous electrical beating. Perhaps this mechanism is responsible for the overactive mind work that follows an emotional shock. And surely here again is a neural basis for closure.

Besides such provocative nerve messages, able to influence the action of millions of nerve cells, other integrating mechanisms exist in the brain. Waves of action can be made to travel slowly over the cerebrum, for example, even when all anatomical connecting paths have been severed. Electric currents are probably involved here, and, indeed, these are a major factor in that environment which influences the discharge of the single nerve cell and the coordination of the many. Electrical fields have been richly demonstrated in brains; have been shown to vary their pattern with state of activity, chemical environment, drug action, and the like; and have even been successfully invoked to explain in detail a variety of optical illusions in man. By such various mechanisms, then, great masses of nerve cells—the brain as a great unity—act together; and not merely do two or a billion units sum their separate contributions, but each is part of a dynamic fluctuating activity pattern of the whole. This is the orchestra which plays thoughts of truth and beauty, which creates creative imagination.

Plenty of problems remain; some demand attention. Most urgent to our present theme is how novel neural patterns originate, since they must accompany novel thoughts or learning in general. Much attention has been given to the phenomena of learning: by "at sight," the slow cumulation of a new "correct" response in the course of conditioning experience, the conditioned reflex; and by insight, the sudden grasp of a solution and abrupt performance of the correct response, the gestalt or closure or imaginative act. They seem very different, and conditioning serves

admirably to explain stupid behavior; gestalts, intelligent behavior. The mechanisms may indeed be quite different, but it is possible, perhaps probable, that they are basically quite similar. In both cases new functional connections must be established in the brain; and this process may be more gradual and cumulative in the case of insight than appears. For here, also, much brain work precedes the imaginative flash—the theory of gravitation may result only when the metaphorical apple falls on the prepared mind—and only when the process has progressed to some threshold level does it overflow into a conscious (self-conscious) insight.

So long as our picture of the nervous system was that of the telephone exchange, with reflex plugs all set and each sense organ subscriber connected with, and able to call to action, its allotted muscles, the appearance of new responses seemed to demand the presence in the brain of rather mysterious telephone operators to shift the plugs. Now, with our discovery of a far more fluid nervous system, one unceasingly active and with neural and electrical messages rippling the whole into dynamic patterns, which flow from one contour to another as present influences play upon the condition left by past ones—with such a picture the arrival of new neural relationships is no great problem. Schemata have been offered—in terms of nerve impulse balance, electrical fields, fiber growth—which at least indicate reasonable avenues for further exploration. More difficult still is the question of whether the new closures come to occupy particular neural regions, whether experience is parceled out in brain cubbyholes from which memory can withdraw and examine one package or another.

The answer seems to be mainly No, but with considerable reserve. A conditioned reflex established exclusively via one eye or executed by one hand can be at once elicited through the other eye or with the other hand; a learned response to a particular figure will be given unhesitatingly when the figure is changed in size, color, intensity, position, and even, within narrower limits, contour. Yet in each of the shifts indicated, different particular nerve fibers and connections are involved, at least in part. Further, it has been shown that the learning ability of rats parallels the total brain mass and is decreased as the brain is whittled away by operations. But the loss is not greater when any one region is destroyed as compared to another nor even when extensive thin cuts are made rather than removing a compact lump. Yet even

here there begins to appear some suggestion of localization, for, though removal of the visual cortex does not prevent a rat from learning a light-discrimination problem, it does wash out a previously learned problem of this sort. And recent work on animals like the dog, with more elaborated brains, suggests some striking localizations.

Thus Culler established a conditioned leg flexion by sounding a given tone when an electric shock was administered to the paw. The tone alone then led to flexion, unless this conditioned response was elicited for a number of times without being "reinforced" with the shock, in which case the response was temporarily "extinguished." This is all routine; what is startling is his report that he found a region of the cortex only two millimeters in size and lying in association areas well away from cutaneous, hearing, or motor areas, which, on direct stimulation, caused leg flexion in animals with an active conditioned reflex but which was inactive in animals in whom the reflex was extinguished or had never been established. Another report, by Martino, is perhaps even more dramatic. He performed his conditioning so that the right eyelid blinked when red light was shown, the left eyelid with violet light. He then put strychnine locally on the optic cortex of either the right hemisphere (connected to the left field of vision) or the left one. With the left side rendered overactive by the drug, red (but not violet) light led to eye spasms and convulsions; with the right side drugged, only violet light produced the response.

If such indications hold up, a rapid advance in understanding in this field is imminent. Perhaps learning is initially a function of the whole brain and as ephemeral as a pattern of activity. But even activity leaves some more permanent change in the active part. And brain regions which are most active in particular patterns might well acquire, with repetition of these patterns, alterations which are both more local and more enduring than the initiating disturbance. With such regions located it will become practicable to look for the kind of change which endures; change in chemical composition or metabolism, electric potential or resistance, cell structure or connection, or whatever it turns out to be when found.

A final problem before coming to the implications of our analysis: What is the neural basis for the striking quantitative differences between man and man in intelligence or in the several abilities which constitute intelligence or its component, imagina-

tion? Surely brain size as such is not the answer, as many studies have demonstrated. Perhaps absolute or relative size of the association areas would show better correlation with intelligence; or perhaps the richness of fiber connections and the architectural intricacy—as the more elaborate circuits make the better radios, large or small. And the factor of activity level is almost surely involved; not only the size and number of nerve cells but their rates of beat, maintained potentials, irritabilities; their functional vigor. This, in turn, depends on the blood supply and the amount of oxygen and sugar it brings, on the salt and acid and other components of the tissue fluids, on particular stimulants or depressants, as the thyroid hormone or anesthetic drugs, and the like. The influences of caffeine, alcohol, strychnine, cocaine, morphine, hashish, absinthe, and mescaline on brain metabolism and activity are being steadily worked out; their dramatic effects on the mind, especially on hallucinations and imaginings, are commonly enough known and are also being further studied. As the sets of facts are brought together new understanding will arise. Possibly from this direction we shall get a clue as to the finer differential between brains: what gives one man a vivid imagination but a poor memory, another an encyclopedic memory but dull imagination. And when that answer is at hand science will indeed have established the biological basis of imagination.

The ideas tossed into consciousness by imagination are, we have seen, overwhelmingly bad—untrue or unbeautiful—and must be curbed and ruddered by reason. Here, surely, lies a difference between the more imaginative initiator and the more rational critic. Formal education is directed to our conscious reason, which can at least be supplied with content and practice; if the more intuitive and unconscious imagination can be cultivated we have yet to learn the secret. There is the danger of reason stifling imagination, that "enterprises of great pith and moment" will be "sicklied o'er with the pale cast of thought." From the young, the naive, the dreaming, the drug users comes a great spate of fresh imaginings, overwhelmingly dross but with those rare grains of great insight yet more common than from the old, the critical, the staid, or the sophisticated. To teach rigor while preserving imagination is an unsolved challenge to education.

Again, each important advance in form, in structured truth or beauty, is the result of a new closure, of a fresh set of axioms; a better set, resulting from the greater knowledge and under-

standing built with the aid of those dying. The forming mind of the young can use the new as comfortably as the old, but the formed mind of the teacher cannot readily run along the new-gauge tracks. The concepts of infinity, relativity, indeterminism in the physical realm, as evolution in the biological, were difficult for the established generation, simple for the oncoming one. Yet unless we forever question the basic imaginative constructs of our predecessors we condemn ourselves to working at progressively more detailed and trivial levels, to filling in further digits past the decimal point.

In ethical and religious attitudes, even more, the axioms are set at childhood. Even in aesthetics we learn our particular values; the dissonances of a mere generation ago are consonances to ears of today. To preserve open-mindedness while teaching current systems is another unsolved problem of education.

A final word on creative imagination. Besides the intellectual factors, certain emotional ones are demanded. The unconscious work goes on only over problems that are important to the waking mind, only when the mind's possessor worries about them, only when he cares, passionately. As Pavlov wrote shortly before his death at 87, advising young men on the requisites for effective pursuit of science: "Third, Passion. Remember that science demands from a man all his life. If you had two lives that would not be enough for you. Be passionate in your work and your searchings." This is related to the conscious work recognized by Poincaré as preceding the unconscious work of imagination; another emotional factor is involved with the second period of conscious work which follows: courage. It takes courage to face the unfamiliar, to espouse the different; courage to fight one's own prejudices only less than those of others. Was it not a little child who first dared call the emperor naked? It took great fortitude for Kepler to adhere to his new notion of infinity (as the second focus of a parabola), for, as he said, "The idea seems absurd, but I can find no flaw in it"; just as it did for Galileo to murmur among his inquisitors, "Yet the world does move."

Somehow "this power of human thinking . . . seems in times of emergency or conflict to leap ahead to new truth." Sometime, when research in this "constructive power of the unconscious" has increased our understanding of insight, man will more effectively guide his onward movement.

DOMESTIC SCENE

OKLAHOMA

by GEORGE MILBURN

IT MAY seem needless to explain that Oklahoma is one of the forty-eight United States of America. But as a proud native of Oklahoma, born in the Indian Territory before statehood, I have found this less a matter of common knowledge than might be supposed. When I visit such distant Babylons as New York, or London, I have learned to go braced for people, well-informed otherwise, who have only the vaguest notions of what Oklahoma (without the exclamation point) is, much less any idea of where it is.

The faint air of disbelief with which my earnest definitions of Oklahoma often have been met places me under some constraint even now. There was a time when confusion of Oklahoma with a new nervous disorder, or a patent breakfast food, or a Japanese seaport, could be shrugged off as gross ignorance. Lately, however, it has been difficult to cope with a growing tendency to identify the State as the fictitious setting of a current comic opera.

Many people seem to have got the idea that Oklahoma is like one of those Balkan kingdoms where musical comedies used to be set in the good old care-free days. This is a sorry misconception. Oklahoma is a real place. Here I am setting down a few facts about Oklahoma, and I cross-my-heart-and-hope-to-die if I say anything untrue about the place where I was born and raised.

Oklahoma, in spite of skeptics, is easy to find on up-to-date maps of America. The official state guidebook says that its outline is that of "a butcher's cleaver: the Panhandle of the west representing the handle, the north line its straight-back edges, the east line its square-cut end, the Red River on the south its irregular cutting edge." A more prosaic description of Oklahoma's outline would be hard to think up. The same stretch of fancy might have discerned the shape of a sawed-off shotgun, or a

From THE YALE REVIEW, *Helen MacAfee, Managing Editor*

Copyright, 1946, by The Yale Review.

chewed-up tomahawk. Either of these blunt instruments is more symbolic of Oklahoma than a dull meat ax.

As a matter of fact, an outline map of Oklahoma looks like an index fist (☛), that arbitrary sign printers use to mark items worthy of special note. The finger of Oklahoma points in the other direction. That, too, is worthy of special note.

Oklahoma always has been wayward. Nestled close to the geographic centre of the United States, it has little in common with its neighbors. Kansas on its north is a typical Middle-Western farm State, a Republican stronghold. Arkansas on its east is a typical Southern State—where any white man who has paid his poll tax is free to vote as he likes, just so he votes the straight Democratic ticket. Colorado, New Mexico, and Missouri merely touch its corners. Texas, the largest State in the Union, borders the other two sides of Oklahoma. Texas strives to be another country, and succeeds only in being typically Southwestern. But the regional tag to fit Oklahoma has not been made.

Oklahoma is to sociology as Australia is to zoölogy. It is a place where the trials and errors of men, instead of nature, have been made only yesterday, and the results are as egregious as a duckbill, or a kangaroo. Oklahoma is filled with man-made contradictions, perversities and monstrosities.

Oklahoma has scarcely any history beyond the memory of living man, and yet it has a vein of well-documented history which dates back farther than that of the original thirteen colonies. Sevillian archives prove that Spanish prospectors were working Oklahoma mines while the Plymouth Rock was still a pebble. Coronado left his trail across Oklahoma before the Pilgrim Fathers were so much as conceived.

A hundred years ago Oklahoma was turned into a vast concentration camp for Red Indians, because it was such worthless land. Fifty years ago white people from every State in the Union swarmed in to dispossess the banished Indians, because Oklahoma was such valuable land. Land was free for the taking in Oklahoma a generation ago. So today Oklahoma has a greater percentage of white farm-tenancy than any other State in the Union.

Politically Oklahoma is fickle—just when Democratic candidates are counting on it most strongly, it goes Republican. Once it polled more socialist votes than any other State except Wisconsin. Nowadays it is almost as reactionary as Mississippi. It is a criminal offense, for example, in Oklahoma, to have a copy of Karl Marx's "Das Kapital" in one's library, and anyone suspected

of possessing seditious literature is liable to search, seizure, and arrest. Indeed, certain scholarly citizens have been prosecuted criminally and faced with penitentiary sentences because sober political treatises, regarded as classics elsewhere, in Oklahoma are even more illicit than a bottle of bootleg booze. But the whole subject of Oklahoma politics is so complex and bizarre that it would require a separate study.

Many white people who settled in Oklahoma were decent home-seekers. Most white people who came to Oklahoma were, perforce, either scoundrels or transient paupers. Oklahoma was the Dust Bowl. And yet no spot on earth has more verdant scenic beauty than Oklahoma. The western plains of Oklahoma are so high above sea level that they make its rugged eastern hills seem like holes in the ground.

Oklahomans are an irascible, humorless breed, set wild by the mildest criticism. Contradictory to this, Oklahomans have a peculiar wit, and the late Will Rogers is a popular prototype.

The first settlers of Oklahoma did not come there through any choice of their own. Although by legal technicality they were Indians, many had more Scotch-Irish and English than they had aboriginal ancestry. It was an apt historian who said that first the colonists fell on their knees, then they fell on the aborigines. Members of the Five Civilized Tribes (distinct from the nomadic predatory Plains Indians) often bore such stout patronymics as McIntosh, Porter, McCurtain, LeFlore, Childers, Rogers, Ross, Colbert, Logan, and McGillivray. Some had been educated in New England colleges. They were as deeply attached to their ancestral homes as any Boston Brahmin was to his. They owned Negro slaves and prosperous plantations. They were torn from their villages and farms to be transported a thousand miles overland to the wilderness of Oklahoma. This forcible resettlement of a minority people was as ruthless as anything in modern times. Hundreds died on the road of disease and starvation. The routes taken by the "emigrating companies" still may be traced by graves. Many were brought in irons. The forlorn "Indians" sowed flower seeds to mark the way, and they called it "The Trail of Tears."

The name Oklahoma is a combination of two Choctaw words—*okla,* people; *humma,* red. It should be understood that *red* has the same connotations to a Choctaw that *white* has to an Anglo-Saxon. "Oklahoma" was a title of honor the Choctaws had conferred on their chieftains for hundreds of years. "Oklahoma"

figuratively means honorable, square-dealing, or distinguished. The irony of its being applied to stolen territory just being parcelled out to the offscourings of white civilization must have been deliberate.

By way of contrast, the white settlers of Oklahoma proudly adopted the nickname of "Sooner." Oklahoma became "the Sooner State." The current edition of Webster's Dictionary defines a *sooner* as "one who settles on government land before it is legally open to settlement; hence, one who does a thing prematurely or anticipates another in acting, in order to get an unfair advantage." In other words, a kind of sneaking crook. Then Oklahomans anticipated a basic American advertising principle. This is to pick out the weakest part of your product and make a virtue of it. Oklahoma's official state guidebook points out that "for a long time the term *Sooner* was one of reproach, but with the passing of years the word began to lose its original connotations. As its origin was gradually forgotten, it eventually came to mean merely one who is alert, ambitious, and enterprising, or one who gets up earlier than others, always takes the lead, and strives to excel."

Thus it might appear that Oklahoma is populated with people who scarcely go to bed at all, so eager is everyone to get up earlier than the other fellow. This is hardly true. Although Oklahoma is one of the wealthiest States in the Union, at the same time it is one of the most poverty-stricken. Although education is a fetish in Oklahoma, its illiteracy rating is twice that of the national average.

Each of these statements shows, like an index finger pointed the wrong way, that Oklahoma can be a controversial subject even to people who know the place well. It is difficult to set down the solemn facts about Oklahoma without their reading like something copied out of an insane encyclopaedia—Baedeker gone berserker. (Standard reference works get around such inconsistencies by leaving much to be said.) Bearing in mind that Oklahomans are a proud and touchy people—and the more disreputable their past, the more opulent their present, the more proud and touchy they are apt to be—the reader should appreciate that writing a brief informative piece about Oklahoma is a delicate task, to be approached with trepidation, even by a native son.

Once, while I was a perennial sophomore at the University of Oklahoma, I wrote a magazine article about Oklahoma that almost got me lynched. The campus auxiliary of the Ku Klux

Klan, doing business under the mystic initials D.D.M.C., regularly kidnapped and flogged students who incurred its displeasure. Its secret councils decided that nothing short of mayhem would do for my offense. I had characterized my Alma Mater as a "'college comic' college in a comic-opera State." (A college comic is, of course, a student periodical which burlesques school life with cartoons, jokes, doggerel, and such.) Even my professors took a dim view of my youthful perspicacity.

That was over fifteen years ago. Two years later, having eluded mob violence, to say nothing of formal education, at Oklahoma's outstanding seat of higher learning, I was emboldened to write another magazine piece about my native State. Published in "Vanity Fair," this began: "Miss Edna Ferber, the lady novelist, wrote by way of preface to her novel 'Cimarron': 'Anything can happen in Oklahoma. Practically everything has.' Miss Ferber's statement, obviously, is extravagant, but it is true that some unusual things do happen in Oklahoma. However, any reasonably accurate narrative based on the State's history would not resemble Miss Ferber's super-spectacle scenario so much as it would the plot for a hilarious comic opera . . ." Whereupon the daily newspapers of Oklahoma burst into a frenzy of denunciation.

My early recommendation was, nevertheless, sound. One of the most popular shows in New York is a musical play called "Oklahoma!" As everyone knows, this has been crowding theatres there and elsewhere for years. Some optimists say that it will go on forever. Not to be compared with "Tobacco Road," another regional play which enjoyed a long run without being set to music, "Oklahoma!" is an authentic portrayal of rural manners and speech lingering in Oklahoma to this day, even though the time is tactfully set as just before statehood, some forty years ago.

But are Oklahomans outraged by such a happy realization of my modest proposal, made a few years before? Not at all. No one is more highly pleased by the success of "Oklahoma!" than the people who cried for my scalp when I said that Oklahoma was an ideal subject for a comic opera. Believe it or not, there was a movement to have the legislature adopt the finale of "Oklahoma!" as the official state anthem. The Governor of Oklahoma, the Honorable Robert S. Kerr—a large man who holds the distinction of being the first native-born Oklahoman ever elected to that high office, not to mention his having escaped impeachment proceedings which have routed several predecessors—boasts that he has "gone to see 'Oklahoma!' about umpteen times, both in New

York and Chicago." Furthermore, Governor Kerr has published with impunity a popular magazine commentary, illustrated by colored scenes from "Oklahoma!" which makes some of the same observations that aroused such furious editorial resentment against me a few years ago.

This is given as proof of how quickly attitudes may change in Oklahoma. Attitudes in Oklahoma are almost as unpredictable as the weather. And Oklahoma is a place where a man comes home in the evening with a fringe of icicles on his straw hat.

Miss Edna Ferber has written an enlightening passage in her autobiography. She owns to a clairvoyant power which lets her project herself "into any age, environment, condition, situation, character, or emotion." She says she doesn't expect anyone to believe this, but that it's nevertheless true. She adduces proof by reporting that she wrote "Cimarron," her widely read novel about the State, "after spending exactly ten days in Oklahoma." As soon as "Cimarron" was published, Miss Ferber goes on to say, "Oklahoma read the book, stood up on its hind legs, and howled."

Miss Ferber's faith in her oracle was not shaken for an instant. "By now I had realized that an American regional novel always is resented by the people of its locale, unless, of course, all descriptions and background are sweetness and light. Oklahoma had all the self-consciousness and inferiority feeling of the new and unsure. A flood of letters poured in upon me. They ranged from remonstrance to vilification."

In Oklahoma, oddly enough for a place populated with failures, nothing succeeds like success. When Miss Ferber's novel had sold a quarter of a million copies and had been made into a highly successful motion picture, she was startled to find that she had suddenly become Oklahoma's darling.

At least Miss Ferber was conscientious enough to spend ten days in Oklahoma. John Steinbeck, who wrote "The Grapes of Wrath" a few years later, was content, it would seem, to get his information from a road map, with ludicrous results. It is evident that Mr. Steinbeck wrote his book without ever having set foot in the State. The eastern part of Oklahoma, which Mr. Steinbeck, using real place names, describes as a vast Dust Bowl created by mechanized farming, is actually a region of wooded hills, broad lakes and beautiful streams flowing through high bluffs. There is no more beautiful scenery in all America than that of eastern Oklahoma. Nor do people anywhere dwell more serene in the ways of their ancestors. The so-called Dust Bowl was in the more

up-and-coming western part of the State. Really the Dust Bowl lay, for the most part, in Texas and Kansas, and was touched only by the extreme western finger of Oklahoma.

The pathetic Okies about whom John Steinbeck wrote in "The Grapes of Wrath" were seldom, if ever, natives of Oklahoma. Although the name Okies is a contraction of the word Oklahoman, and is contemptuously applied to any transient laborer, most Okies, in saying that they are from Oklahoma, are merely giving their most recent place of residence.

I must add as a first-hand witness that the exodus of Okies from Oklahoma to California began long before there was a Dust Bowl. A contemporary observer noted that the land lotteries which opened the region to settlement between 1889 and 1903 attracted "a large class of farmers who had met with failure in other parts of the country. . . . It was one of this class who had as his motto painted on the canvas side of his prairie schooner: 'Chinch-bugged in Illinois, Bald-nobbed in Mizzouri, Prohibited in Kansas, Oklihommy or Bust.' " So, many people who came to Oklahoma in covered wagons took to the roads again a few years later in battered flivvers. These failures, called "Okies," at least had the courage to move on when they knew they were licked. The tenant farmers who stayed in Oklahoma are another story.

Even the Indians, who are the real aristocrats of Oklahoma, regard the State as alien soil. There are some thirty tribes of them there, comprising thirty-six per cent of the entire Indian population of the United States, and they range in culture from the Five Civilized Tribes, who were much less migratory than the white people who uprooted them, to the once wild, now tamed but unregenerate, Comanches and Apaches of the plains.

It is difficult to make clear, even to Americans in adjoining States, the peculiar social status Indians enjoy in Oklahoma today. Often the most refined white girl there feels that she has made a lucky catch if she can win a man with Indian blood, and there are Oklahomans of pure "Aryan" ancestry who like to boast that they have "a sixteenth Cherokee." This is all the more confusing when it is observed that Oklahoma draws a strict color line against the Negro, who forms only a small percentage of the population, in spite of the fact that the slave-owning tribes usually regarded an admixture of Negro blood with somewhat less disfavor than they did white miscegenation. Oklahoma, nevertheless, harshly enforces its Jim Crow law (full-blood Indians often carry credentials to prove their right to ride in the train coaches forbidden

to Negroes), and its history has been smirched by numerous sanguinary race riots "to keep the nigger in his place." On the other hand, several all-Negro communities in Oklahoma assert their right to prohibit any white man from staying overnight in their towns.

It should not be assumed that wealth is all that makes Indians matrimonially attractive to white people. The riches of the Oklahoma Indians have been greatly exaggerated by inspired news stories, which seek to show how generous the white invader has been towards the Indians, and how foolishly the Indians make use of their money. (No Oklahoman, for example, has ever seen a wealthy Indian sitting in a rocking chair, riding in a plate-glass motor hearse he has just bought for his pleasure. This is a familiar newspaper myth, and my investigations have prepared me to challenge that it has any basis in fact.) Actually, many of the Indians in Oklahoma, perhaps the majority, are desperately poor. Their congenital opposition to manual labor and to engaging in trade for profit is not being erased by time. It is true that the Osage tribe, numbering about 3,000 head, enjoyed an income of $22,000,000 as recently as 1926, which they divided under a communal system, but even the income of this tribe, once said to be the wealthiest people per capita in the world, has been reduced almost to the vanishing point by the outrageous exploitation and waste of the mineral wealth beneath their land.

Oklahoma is a combination of two Choctaw words meaning red people. *Oka-homa* is a combination of two Choctaw words meaning whisky (red water). One word is about as applicable to the State as the other—even though Oklahoma is one of the few States in the Union now enjoying state-wide prohibition of the sale and manufacture of intoxicating liquors. There is, nevertheless, a considerable traffic in potables. Some of these are revenue-paid brands smuggled in from Arkansas, Texas, and Missouri. (Bootlegging—indeed, both the word and the profession—was invented in Oklahoma.) Also there are local products, a distillation of about 150 proof, pure white, euphemistically called "panther sweat," and a brew known as Choctaw beer, made of water and corn meal, sometimes spiced with a native berry, once used by the Indians to poison fish, which provides a narcotic ingredient in lieu of alcohol.

Oklahoma exceeds New England in size by about 4,000 square miles, ranking seventeenth among the forty-eight States in area. It ranks twenty-second in population among the States with

2,336,434 people, white, red, and black. Even today the majority of Oklahomans are natives of other States, although few of them are foreign-born. In 1940 it had 43 towns and cities of more than 5,000 population, the largest of which are Oklahoma City, the capital (204,424), Tulsa (142,157), Muskogee (32,332), and Enid (28,118). But recently it is said to have lost population.

Visitors are often impressed by the cleanliness of cities in Oklahoma, because natural gas is used as fuel, and there is no soot. Both Oklahoma City and Tulsa, which calls itself the "oil capital of the world," are model cities, little replicas of New York, boasting skyscrapers and smart shops. Muskogee, a fine old Territory town, is more sedate. It may seem odd to a stranger approaching these cities when he sees a cluster of twenty-story buildings rising suddenly out of the wide open spaces—for no reason at all.

Oklahoma has been kept as an agricultural State, partly through vicious, discriminatory freight rates that were imposed by the very railroads which were such a powerful force in opening the Territory to white ownership. Its main crops are cotton in the southern part of the State, wheat in the north, and cattle-raising in the west. In normal times, the only manufacturing industries worth mentioning are petroleum refineries (oil is the main source of wealth), lead and zinc smelters, flour mills, and broom factories.

It is no longer possible to write of Oklahoma's industry in the manner of a decade ago. The State's eastern terrain, which differs from that of its west as much as Scotland does from England, always had been conducive to brigandage, and once enjoyed the reputation of being the most lawless part of the United States. But bank-robbing, which for many years was a profitable occupation there, now has become obsolete. Times have changed since 1933, when I noted for publication:

"Oklahoma has, in addition to its prohibition statute, a law against bank-robberies, but it is all to no avail. Every other bank cashier in Oklahoma has his coat sleeves pulled out at the armpits from reaching up. The outlaws conduct their interviews with all the gallantry and swagger of frontier days.

"Lately one 'Pretty Boy' Floyd and his band have been getting the blame for nearly everything. 'Pretty Boy's' whereabouts are usually known, and the officers have been talking about attending to him, but he has such a dreadful reputation, they hesitate. The bankers and bonding companies, of course, are pretty indignant, and they pass resolutions and things when they have their con-

ventions. But the citizens are not much aroused, since there is a feeling current among them that when thieves and robbers fall out, then honest men will get their due."

"Pretty Boy" Floyd made the choice that many another Okie had made before him. He wandered elsewhere—and unsympathetic G-men mowed him down. His home town of Sallisaw put on for him one of the grandest funerals that any community ever gave a homecoming hero. Other Oklahoma outlaws, broadening their scope, met the same fate. Since then the State has become almost as law-abiding as Iowa or Kansas.

Indeed, Oklahoma has changed so much within the last few years it seems too bad that those choleric editors who so roundly denounced me a few years ago cannot see the place now. It is a matter of sincere regret to me that so few of these men have survived apoplexy since I first called attention to Oklahoma as a comic-opera State.

Nowadays, when music on the radio inevitably goes into a medley from the musical comedy "Oklahoma!" I'm sorry I ever said that Oklahoma was the ideal comic-opera State. The oddities and complexities of my native heath, as years have gone by, do not seem as funny to me as they did in my youth. It would be well if one of the endowed foundations with which America is blessed could send a party of disinterested sociologists to look at Oklahoma. Sober explorations might have discovered how such a commonwealth, starting new with every natural advantage, could run the gamut of "free enterprise" within the first four decades of the twentieth century.

Of course, Oklahoma is still on the map. And even if its history is not a subject for schoolboys, it is still a good one for political scientists because, in my opinion, no other place in the world offers a more gruesome study of democracy in the raw—nor of how thoroughly it can be cooked.

ECONOMICS

LAW

INTERNATIONAL AFFAIRS

"NO!" TO INTERNATIONAL CARTELS

by BEN W. LEWIS

A FAMILIAR FIGURE—"The Trusts"—is back again on Washington's agitated front porch; this time wearing a jaunty overseas cap (where the top hat used to rest) and an academic hood, along with the old striped trousers, cutaway coat and figured vest that still adorn his ample form. His bearing is one of power, but his charming manner suggests restraint. He discourses glibly, in at least a dozen languages besides English, of "orderly competition" and "co-ordination of production and consumption." His business card reads, "International Cartels." But the figures on his vest are still dollar signs.

The government of the United States accorded left-handed recognition to the visitor in the form of *Proposals for the Expansion of World Trade and Employment,* published by the State Department on December 6, 1945. Proposition Number Six calls for *joint international action to prevent cartels and combines from restricting the commerce of the world.* This proposal—almost naively simple in its terms—is no casual tidbit tossed off to stimulate conversation over cocktails; it represents consideration and analysis as intensive and as mature as have ever been devoted to the development of any line of American economic policy. American delegates will press for adoption of the proposal by the nations of the world at the approaching UN economic conference, and in the meantime the State Department may be expected to urge its acceptance by particular nations in individual negotiations. In short, official American cartel policy, which has been simmering on the back of the stove since the Webb-Pomerene Act of 1918, has finally jelled. It is still an open question whether in the months just ahead American public opinion on cartels will harden in the same mold and in the degree necessary to enable the State Department to sell its program to a world which at best

From THE ANTIOCH REVIEW, *Paul Bixler, Editor*

Copyright, 1946, by The Antioch Review Incorporated.

is probably apathetic, and, under a less optimistic interpretation, is actively pro-cartel in sentiment and in practice.

What is an "International Cartel"? Strictly speaking, cartels are *associations* formed by agreements entered into by, and designed to limit competition among, independent business firms engaged in producing and selling similar commodities. In common usage, however, the term "cartel" is applied not only to such associations, but to formal *combines* of similar firms under the same ownership or management, and also to *patent-license agreements.*

Thus business enterprises, located in different countries and owned by quite different sets of stockholders, may agree among themselves to produce only certain stipulated amounts of goods, or to sell only at or above certain stipulated prices, or to confine the sales of each to named sales territories or markets. This is a straight out-and-out *cartel arrangement.*

An international cartel may be set up or strengthened where the individual firms enjoy world-wide monopolistic rights in the production of certain products or in the use of certain processes by virtue of patents issued by the government of each affected country. Firms owning patents may grant licenses to, or exchange licenses with, other firms in the arrangement; licenses conveying exclusive right to use the patents in particular countries or areas. These licenses, then, are coupled with restrictive agreements by the participating parties, covering production, prices, and markets. In this way the agreements (of the usual restrictive cartel type) are reinforced by the laws governing the granting and licensing of patents in each country. Patent-license agreements of this kind were employed with increasing frequency in the years between the two World Wars, and resulted in much stronger and more stable arrangements than could have been secured through simple cartel associations.

Finally, a single large firm enjoying a monopolistic or dominant position within its own country may, through purchase of properties or exchange of stocks, come to own the properties of or the controlling interest in monopolistic or dominant firms in other countries. Such combines, of course, attain the firmest possible grasp upon the production, price, and marketing policies of the individual units in the organization.

The Purpose of Cartels. The point to be emphasized is that, irrespective of the form of the arrangement, the intended result of cartelization is, through the elimination or control of com-

petition, to maintain or raise prices, to limit output, or to divide markets.

The ultimate purpose of cartels, according to those who are opposed to such arrangements, is to maximize profits at the expense of consumers, and the inevitable effect, they assert, is to promote the under-use and the wasteful use of society's valuable natural and human resources.

The proponents of cartels, on the other hand, claim that competition in the international sphere is blind, wasteful, and destructive, and that cartels represent only a reasonable and orderly attempt to adjust production to the effective demands of consumers, and to stabilize output, employment, prices, and incomes.

Without identifying actual firms or associations, it may be said that the range of cartel activities now openly admitted or officially disclosed includes controls exercised over members with reference to every significant phase of production, marketing, and pricing. Thus an international commodity or material cartel may have divided the world market by reserving the United States and its possessions and, say, China for American producers, the British Empire for British producers, and the rest of the world, including a lucrative Latin American market, for German producers. There may have been, as well, agreements on processes to be used, amounts to be produced, and prices to be charged. In addition, the arrangements may have provided for the establishment of elaborate systems for pooling profits (or losses), for interchange of technical information, for maintaining secrecy, for dealing with recalcitrant outsiders, and for protecting the continuing interests of the members in the event of wartime disruptions of markets.

Competition is deeply ingrained in American economic thought and somewhat less firmly embedded in American economic practice. The organization and processes of American economic life have always been conceived of very largely in terms of individual initiative and free markets, with each person fully at liberty, within the range of his abilities, to go into any lawful business or employment, and there to work and produce according to his capacity and inclination, and to sell his labor or his wares at the best prices they will command upon the open market. But the market is supposed to be a *competitive* market. Buyers are free to choose from the offerings of competing sellers. The individual may work and produce and sell as he pleases; but since he is competing for trade or employment with other free individuals, he

will be economically successful just to the extent that he brings to the market the kinds, amounts, and qualities of goods or services that buyers want to purchase, and at prices which they are willing and able to pay. And since other sellers are seeking the same customers, he is under the most effective pressure possible, in his own interest, to produce wisely and fully, and to offer only his best.

Competition, thus, is at once a spur to productive and marketing efficiency—to invention and progress—and a regulator of economic choices and conduct. Any person not required by laws and regulations to behave otherwise is under constant temptation to give as little and to demand as much as he can possibly get away with; competition serves as an "automatic" regulatory mechanism to insure that he does not get away with any more than the rest of society wants him to have, as measured on the open market.

Competition is presumed to operate at all stages—in the markets for labor, for capital and money, for materials, farm products, machinery, tools and buildings, and for the thousands of kinds and varieties of consumer goods. When shortages develop, competition among buyers seeking to obtain scarce goods drives prices upward, thus providing a brake on wasteful consumption and an incentive to increased production. Overproduction in particular lines leads, through competition among sellers trying to "get out from under" with the least loss, to falling prices, increased consumption, and a diversion of production to lines more in demand.

By pitting people generally against each other in the earning of incomes, it is believed that society tends to achieve the best and fullest use of its stock of natural and human resources, and to gain for itself the greatest total of continuing economic satisfactions.

The competitive tradition has found expression in American law from the earliest days. Courts have always refused to enforce private agreements which directly and unduly restrain competition. In 1890, in order positively to stem the growth of monopolies and monopolistic arrangements which were then developing rapidly on a grand scale, Congress passed the Sherman Antitrust Law. This statute made it a federal criminal offense, carrying heavy penalties, for anyone to enter into a "contract, combination in the form of trust or otherwise, or conspiracy, in [unreasonable] restraint of [interstate or international] trade or commerce" or to "monopolize, or attempt to monopolize, or combine or conspire

with any other person or persons, to monopolize, any part" of interstate or international commerce.

But the situation actually prevailing in our American economy, both factually and as a matter of economic thinking, is not quite so clearly and strongly "pro-competition" as might be suggested by the unadorned words of the Sherman Act. In certain major areas of industry, the need has been recognized for the organization of economic activity on the basis of monopoly. This is true, for instance, in the case of our patent laws, in the field of public utilities, and, in a somewhat lesser degree, in the railroad and motor transport industries. Again, special considerations have prompted Congress to exempt organizations of laborers and of farmers from the full operation of the federal laws against monopoly.

Finally, and of more importance than the foregoing for the problem of international cartels, there have been rumblings of discontent over the insistence upon competition in the great field of industrial manufacturing and in the extractive industries; and economic developments in these fields have been such as to prompt very serious reconsideration of our traditional policy. The great depression of the early '30's, with its tragic record of underutilization of productive facilities and unemployment of labor, produced such an intensification of competition that the federal government established, under the so-called National Recovery Administration, a vast framework of "codes of fair competition" designed to set limits beyond which sellers might not go in their competitive drive for trade. Whatever may have been the effect of and the justification for the NRA, there certainly was a widespread feeling during the decade preceding World War II that a national policy of enforced competition could easily be carried to extremes, and that unrestrained competition, whatever its purpose, was apt to misdirect economic activity and to be destructive in its effect.

The argument against competition runs along these lines: competition has a chance to work effectively where identical goods are produced and sold by large numbers of small, individual producers (farm products, for example); but where, as in the case of industrial manufacturing, production and marketing of differentiated trade-marked goods are carried on by huge corporations, competition is present only in name. Big business calls for tremendous investments of capital in fixed assets—costly, specialized machinery and facilities; the men responsible for the

direction of big business cannot afford to allow destructive, competitive price wars to develop; they are compelled to curb competition either by simple "understandings," by carefully concealed agreements, or by mergers. Competition can function as a regulator of economic conduct with only partial success anyway, because the markets in which it operates are, at best, highly imperfect, and people are quite unable, even though they were so disposed, to respond quickly and accurately to competitive guides and stimuli. This means that production and consumption, forced to rely upon partial and imperfect competition for their guidance, are constantly misdirected. It means that overproduction in certain lines and at certain times, and underproduction in certain lines and at certain times, all entirely unpredictable, are chronic maladies of our economic system. It means that in our day we shall witness the replacement of economic order by economic chaos to the extent that we adhere blindly to a theory of competition which is wholly unsuited to and untenable under modern conditions.

The upshot of these questionings and assertions is the growth of a considerable body of opinion hostile on grounds of fact and philosophy to the continuance of the effort to enforce competition by law. It is receptive, on the contrary, to the idea of open and enforcible agreements among producers of similar goods—agreements covering and governing the amounts each is to produce, the markets in which the products of each is to be offered for sale, and the prices below which each will undertake not to sell. It is believed that, thus, knowledge will be substituted for ignorance in economic affairs; certainty will take the place of guesswork; the "right" amounts will be produced, and will be sold to the "right" customers at the "right" prices; and order and security will prevail in the place of confusion and chaos.

The fact of participation by certain American firms in international cartels, despite our long tradition and legal position in opposition to domestic trusts, requires a word of explanation. Antitrust law as applied to international cartel arrangements, possibly reflecting an uncertain public opinion on the subject, has not yet taken definite form. The Webb-Pomerene Act of 1918 provides that the Sherman Act shall not make it unlawful for American exporters to join in associations whose sole purpose is to engage in export trade and whose sole activity is in such trade, provided only that the associations do not restrain trade within the United States, and do not restrain the export trade of any

American competitor of the association. The law was intended to make it easier for American firms to compete in export markets with foreign firms and cartels. The exact extent of the freedom which the 1918 legislation gives to American firms in the matter of international cartel relationships has not been finally determined by the courts, and until the last few years the government has not seen fit to press the issues to trial. Much the same thing can be said of the government's attitude toward patent-licensing agreements. America has enjoyed a patent system made to order for the establishment and operation of international patent-license agreements. Patents, by their very nature, convey monopoly rights, but the exact content of those rights and the extent to which they can be employed to give validity and vitality to agreements which without their support would be open to serious question is still to be authoritatively determined.

Suits instituted by the Department of Justice since 1940 and now in the process of being adjudicated may hasten the settlement of these issues, and bring more certainty and order into the present confused situation. Up to January 1, 1945, the department had begun 52 cases involving international cartels. As of that date, 2 cases had been lost, in 16 cases pleas of *nolo contendere* had been accepted, in 15 cases consent decrees had been negotiated, 12 cases were awaiting trial, and 7 had been postponed until after the close of the war. Anything like an exact pattern of what is permissible and what is not permissible under the law has not yet emerged from the cases, but it is difficult to avoid the impression that unless existing antitrust statutes are modified by Congress, American firms will experience more legal difficulties in their international cartel operations in the future than they encountered in the period 1918–1940.

Despite a substantial undercurrent of critical opinion, American attitude is still largely in opposition to agreements to restrain competition in domestic commerce. In most foreign countries, on the other hand, public opinion is quite receptive, if not indeed cordial, to restrictive arrangements in industry. In no European country—and it is with Europe that the United States will be most concerned in working out an understanding on international cartels—has it been an offense against the law for producers to enter agreements with each other to restrain competition in either domestic or international commerce. Associations or cartels composed of members of an industry producing and selling what would otherwise be competing commodities, and which under

take quite openly to limit output, divide markets, and set prices, are regular features of the economies of all European nations which still embrace the capitalistic system. Further, such cartels, many with international affiliations, are encouraged and promoted and in some instances actually required by their governments. In some but not in all countries, cartels must register with the government. They may be subjected to very general government supervision designed to safeguard the general public interest, but in no instance are the governmental controls positive or detailed.

England has no antitrust statute of any kind, and throughout the decade preceding World War II the British government was working actively, by inducements, pressures, and even by legislation, to reconstruct the organization of British industry, internally and in its foreign relations, along cartel or semicartel lines. Private contracts fixing prices and restricting production and sales are enforcible in the British courts, and the courts will enforce penalty and boycott provisions applied by associations to "recalcitrant" firms even outside their membership. Such major industries as steel, coal, and cotton textiles were almost completely cartelized at the outbreak of the war.

Cartel development and activity within Germany have, of course, been notorious for many decades; in fact, over the years German cartels have served as the core of the whole international cartel movement. It seems certain that German participation in international cartels will be strictly controlled, if not completely forbidden, by the Allied powers in the months ahead. Russia should probably be regarded as a neutral force in the cartel controversy. Through her state trading organizations, Russia has participated in a few international cartels, and there is no evidence that she would be unwilling to do so in the future. On the other hand, semiofficial statements attacking the whole institution of international cartels have come from Russia, and there is no reason to believe that she would be distressed by a complete disappearance of cartels from the economy of the rest of the world.

The basic argument in favor of international cartels rests on an appeal to "realities." The issue "cartels versus competition" is wholly artificial, it is asserted, because competition in world markets is even more illusory than in domestic markets, and what passes for competition under modern conditions is hopelessly incapable of regulating and guiding international economic conduct either correctly or effectively. Huge corporations, such as

those in the steel and chemicals industries, for example, with heavy fixed costs and specialized equipment and labor, do not in fact respond to prices freely determined in competitive markets, and if they did the result would be chaotic. Competitive prices are highly sensitive and flexible; large-scale industry cannot permit or follow such prices without leaving a trail of business failures and widespread unemployment. Even in the absence of formal cartels, present-day industry does not follow competitive prices. The real issue is not "cartels versus competition," but, rather, "cartels versus chaos."

Along the same line, it is argued that the industrial and raw materials situations generated by World War II are such that orderly, agreed-upon processes will be required for their unraveling if international economic and political catastrophes are to be avoided. War necessarily stimulates investments in particular industries to an extent quite unwarranted by the peacetime trade which follows. This is true not only of industries producing direct instruments of warfare, but also of those producing basic materials and semiprocessed goods and of industries manufacturing consumer goods for markets which, since the war, can be supplied from sources nearer at hand. Excess productive capacities in particular lines have already begun to emerge as an aftermath of the war. Just as conversion to war purposes required central direction, so the adjustment back to peacetime production cannot proceed speedily and without hardships in the absence of unified industry controls. Rubber and shipbuilding are cases in point. Shall we allow the presence of excess capacity, once needed and demanded to win the war, to breed cutthroat competition, failures, stagnation, unemployment, and international ill will, when all this might be avoided by over-all industry plans and agreements? Billions of dollars of investment and the welfare of hundreds of thousands of workers are at stake; an adjustment attained by a "survival of the fittest" struggle is unthinkable; a carefully planned adjustment, in which each firm is allotted its fair share of the business, is the only "civilized" course to take.

World prosperity requires world trade. World trade cannot develop on a full and healthy basis if major segments of industry are putting out their wares at cutthroat prices while other segments of industry are paralyzed and, because they cannot produce and sell, are unable to buy and consume. This argument admits that in a struggle for existence between American and foreign

members of an industry whose total capacity has been swollen by the war far beyond the possibility of full, profitable peacetime use, particular American firms might win out. It points out, however, that to sell in world markets America must have foreign customers, and that foreign countries ravaged by postwar depression and unemployment will not be able to participate either as producers or consumers in international commerce. We must not exert our tremendous economic power ruthlessly if world trade and world friendship are to be enjoyed on a secure and lasting basis. Rather, our industries, together with those of other nations, must settle their trade rivalries and work out their common problems by peaceful industry agreements. Economic warfare in uncontrolled markets can be as devastating as military warfare, and each industry should negotiate its own treaties (possibly under UN supervision) to forestall such a catastrophe.

This latter argument gains strength when it is applied to the position in world trade of "single-industry" countries, such as Bolivia and her tin industry. If these countries are to find a permanent place in a prosperous and peaceful world, they must be able to sell the products of their major industries in world markets at remunerative prices. They cannot buy abroad if they are denied both basic purchasing power and "exchange," and they cannot live on the output of their single industries locally consumed. If world markets are pre-empted by the products of powerful producers from other nations, sold at cutthroat prices induced by world-wide overcapacity, not only individual industries and a few firms are threatened, but the economic structures of entire countries are endangered, the world trade of even the more fortunate nations is impaired, and a breeding place for international dissension is created.

On a somewhat different tack, it is contended that international patent-license agreements operate to free foreign-owned patents, secret information, and "know how" for the use of American industry. A foreign firm may take out American patents as a protective measure, not intending to produce in this country, and being quite possibly unable or unwilling to export to us goods made under the patents in its own country. It will license the use of its American patents to an American firm only if the license is coupled with covenants which restrain competition. Such agreements preclude competition, of course, but if they are outlawed the people of the United States will be denied the use of the patented products completely. *As long as we have patent laws,*

it will behoove us to permit foreign owners of American patents to place any restrictions they please upon the use of their inventions by American licensees, if by such permission we can enjoy the benefit of use rather than suppression. Goods made and sold to us under tight monopoly controls are still better for us than goods not made at all.

Incidentally, the possibility of making patent-license agreements wholly satisfactory both to the foreign patent-holder and the American licensee makes it much less likely that patent controversies and litigation will arise. The production of goods is to be preferred to the production of lawsuits.

Finally, it is argued that whether or not we like cartels for their own sake, America must recognize that they are an accepted part of the way of doing business in foreign countries, and that they are being reconstituted and continued in foreign countries with the explicit and powerful support of foreign governments. Foreign businessmen and foreign governments will insist upon cartel membership for firms which expect to export goods to their local markets; and even where uncartelized and competitive American firms are technically free to go into markets abroad, they will be unable to cope successfully with powerful government-supported foreign cartel organizations. If the United States expects her export firms to have a chance in world markets, she must not hide her head in the sand; she must play the game and allow her firms to take their proper part in international cartelization.

The Case Against International Cartels. The case against international cartels takes the primary form of a positive case in favor of competition: competition in international trade as fully as in domestic trade conduces to the fullest, best directed, and most efficient use of the world's valuable resources; competition alone is consistent with progress, widening markets, and an economy of plenty. An acceptance of cartels reflects an attitude of defeatism and resignation to industrial stagnation and an economy of scarcity. Whatever rationalizations may be advanced, cartels mean the cutting down of production, the placing of monopoly props under prices, and the protection of the vested interests of closed groups of producers.

Cartels are quite incapable of providing a permanent over-all solution for the problems of postwar industrial overcapacity. They can, of course, serve as a stopgap in individual instances, and bring temporary relief to particular industries and interests, but only at the expense of the rest of society. "Planned" produc-

tion under the leadership of private cartels means the discarding or destruction of valuable resources, and while it may result in employment at good wages for certain laborers, it will cast others aside to flood the labor markets of uncartelized industries. World prosperity can never be gained by the production of fewer goods; and it is only by forcing the rest of society to pay higher prices for fewer goods that any group within society can gain by restricting output. To the extent that cartels serve to cushion and render more palatable the effects of wartime maladjustments for their members they deaden the incentive for the institution of private or public corrective measures. The problems of postwar industrial overcapacity call for a direct frontal attack by the governments of all nations; and the economic solutions must run in terms of international monetary reforms, direct governmental aid for the redirection of industry and the relocation of populations, an increase in total world production, and an elimination of barriers to full and free commerce throughout the world—*all* barriers, both governmental and private (cartels). And the economic solutions, to be successful, must be grounded upon international political understanding and measures which will promise peace and security, and which will render less compelling the forces making for nationalistic suspicions and defenses. Private cartels have no part in this program except as a threat to its fulfillment and, hence, as an object of attack.

Far from serving as instruments for the preservation of peace, cartels are much more likely to encourage international discord and strife. Private economic interests clash even within the framework of cartel agreements, and internal dissension over price and production policies and shares of the market are bound to lead to retaliatory trade wars between powerful international economic factions. Governments will be called in to push the claims and protect the trade interests of their nationals. Resort will be had to the full arsenal of economic warfare: tariffs, subsidies, embargoes, export and import quotas—the very negation of world trade and the full employment of resources. This very result is said to have been implicit, for instance, in the case of the "Düsseldorf Agreement," signed in March, 1939, by representatives of the Federation of British Industries and of the Reichsgruppe Industrie of Germany—an agreement to promote restrictive arrangements between British and German industries, with the proviso that if the arrangements should be threatened by the refusal of the industry in a third country (the United States?)

to adhere to its terms, each association was to obtain the help of its government.

It is contended that international cartels bring all of the evils of domestic monopolies in their train, because it is out of the question to establish an effective international cartel if there is competition in the domestic markets of the countries involved. Any domestic competition which may prevail in particular instances will quickly be curbed by the power and prestige of the international organization.

In answer to the proposition that patent-license agreements actually increase the use of inventions, it is pointed out that such agreements typically go far beyond the assurances which any foreign holder of an American patent has a right to demand in the way of protection, and which our industries have any right, in the public interest, to convey. The agreements frequently result in the accumulation under one control of a vast array of competing patents; they provide for an exchange within the monopoly group of all future inventions; they regulate imports; they provide restrictions even upon unpatented goods sold by the members; and they force observance of restrictive provisions even upon customers to whom the products are sold. The monopolies in competing patents afforded by these agreements are more effective than outright purchase of a competitor's physical plant in restraining competition, because patents cannot be reproduced whereas newcomers could invade the field if only physical property were involved.

Further on this same issue, it is said that if the more restrictive features of patent-license contracts (those which make it a genuine cartel agreement) were outlawed, and if governmental restrictions on exports and imports were broken down generally throughout the world, not only would all countries tend quickly to get the benefits of all inventions, but the incentives to invention, now somewhat dulled by the agreements, would be materially strengthened.

But it is principally in their political aspects that cartels have come in for condemnation during the past four or five years. Cartels are "private treaties," quite capable of nullifying the trade and political policies of the national governments of their members. The United States, for example, may lower its tariffs in order to encourage imports and broaden the area of its export trade, but if under a cartel arrangement foreign firms undertake not to send goods into the American market in return for the

promise of the American member not to export into foreign territory, the government's trade policy is a dead letter. The government may desire, as a step in its "Good Neighbor" policy, to promote an export trade in drugs and chemicals to Latin America. Our firms, however, may be under cartel obligations to stay out of the Latin American market, and the way is open (as, indeed, it *was* open during the '30's) for the exploitation of the whole of Latin America by the trade representatives of another nation. When (as was the case) the other nation is Nazi Germany, and its trade representatives are its political and military representatives as well, the implications are plain—and quite unsavory. Incidentally, the people of Latin America may properly resent having their whole industrial present and future turn upon the vagaries of agreements between foreign industrialists completely free from responsible control.

During the course of a war between foreign powers the American government may be actively sympathetic to the aims of one of the belligerents and, within the limits imposed by the law of neutrality, may desire to give assistance to its cause. The government may, for instance, desire its manufacturers to export certain strategic goods to the nation in question, and it may quite understandably be dismayed to find that our manufacturers are under cartel restrictions, still in effect, not to export to that nation. It may be equally dismayed to find that some of our firms are under a duty imposed by a cartel to send goods into neutral markets formerly served by exports from the other belligerent, in order to protect the postwar business of that nation—thus defeating completely an otherwise effective blockade laid down by our friends. Indeed, in preparation for its own defense the government may want certain goods supplied to it by American firms; and may find these firms obligated by cartel agreements not to comply with the request.

The proposition that if the United States is to do business in international markets it must proceed on a basis satisfactory to foreigners, and hence that the American people must subordinate any anticartel views to foreign procartel attitudes and practices, is met head on by American advocates of competitive business. In the first place, they say, it is by no means certain that foreigners will be eager to build the structure of postwar international commerce around a core of cartels. Indeed, statements from British industrialists and publicists indicate that the people of Great Britain are deliberating on the issue in much the same manner

and degree as are the people of this country. Secondly, international trade means fully as much to foreign countries as it does to us, and they must be as prepared as we to make concessions on issues of policy. The United States is the world's most powerful trading nation—not a weak and pleading suppliant—and there is no reason why we should permit our basic international economic policy (and, by indirection, our basic domestic trading policy) to be dictated by the wishes of others. In a showdown, if it should come, American firms can more than hold their own in world markets against any foreign firms or combination of foreign firms.

What possible courses of action lie ahead? One thing is certain: the courses will not be simple, because neither those who favor cartels nor those who favor competition as the proper policy for meeting the grave problems of postwar trade, think of advocating either of these alone and unaccompanied by other measures. Very few would argue for a system of private cartels wholly unsupervised by some kind of governmental authority, and the most ardent advocates of competition concede the necessity of complementary measures.

The United States could, of course, recognize and accept cartels as desirable, but require that they register with the government and file true copies of all contracts and agreements involving restrictive practices (however defined) together with statements setting out the details of any unwritten "understandings" between the members. This approach could be supplemented by the requirement that such contracts and understandings must be approved by the government before they can go into effect, and before American members can take any action under their provisions. There might be established, in addition, a continuing administrative supervision of cartel activities, under which members could be warned if their actual operating practices were judged by the authorities to go beyond the limits set forth in the original approval, or were deemed otherwise to run counter to the public interest. Failure to heed the warning should lead, presumably, to punitive action by the government. This supervision might be carried even to the point of governmental review of substantive cartel decisions on matters of membership, output, quotas, market areas, and prices. Government control to this extent would certainly be looked at askance, not only by cartel members, but also by anyone familiar with the difficulties encountered by such government control agencies as the National

Recovery Administration, the Office of Price Administration, and the War Production Board. On the other hand, to authorize the operation of private organizations endowed with the immense powers inherent in cartels, without close, continuing governmental supervision, would seem to many to be quite unthinkable.

Another approach to the problem is to attach public supervisory functions not to a single American governmental department, which presumably could act with reference only to the activities of American members of international cartels, but to an international control authority to be integrated with a United Nations International Trade Organization. Such an authority might be set up by an international governmental agreement under which the respective governments would pledge themselves not to permit their nationals to engage in cartel activities until the cartel in question had been approved by the authority. They might agree, as well, to discipline any member under their respective jurisdiction, at the behest of the authority, after investigation and hearing. Or, the duties of the authority might be purely investigatory and advisory. Conceivably, it might be given a promotive function—to recommend the establishment of a cartel when in its judgment the economic situation calls for such a step in the public interest. Those who favor the establishment of such an authority should satisfy themselves that ways can be found to deal effectively with problems of organization and personnel, and with the technical difficulties and complications arising from conflicting national interests and jealousies involved in making acceptable decisions on matters of quotas and prices. They should be aware of some of the problems which have had to be faced in the establishment and operation of reciprocal trade agreements involving only two countries. It has been suggested that the interests of consuming as well as those of producing nations should be represented on such an authority, but those who know the fate typically suffered by consumer divisions in administrative boards will not be impressed.

A line of attack looking in quite the opposite direction is advocated by those who favor an international convention outlawing cartels, and pledging the best efforts of the signatory nations to the task of prosecuting vigorous anticartel actions against any of their nationals who engage in cartel programs. The success of such an anticartel organization (assuming the soundness of its purpose) would be largely conditioned by the extent and sincerity of its membership. Those who question its probable effec-

tiveness point to the not-too-distinguished record of our own antitrust program within the United States.

Finally as a possibility, Americans must consider whether or not the United States is in a position to pursue successfully by itself a program of enforced competition in a world indifferent or receptive to cartels. This would mean that American firms would be required by law to refrain from cartel membership and activity; and that they would be required to make their way in world markets on the basis solely of their ability to give superior values in competition with foreign firms and foreign cartels. Further, it would require the American government to permit foreign goods to enter American markets, and to use its full resources (other than military, of course) to break down any artificial barriers to foreign markets erected and maintained by, or with the acquiescence of, foreign governments.

Epilogue. What are we to do with the large, ingratiating gentleman in the overseas cap, the academic hood, the cutaway coat—and *the dollar sign vest?* The problems he poses are very real and his claims are persuasive; he has a winning way. But he must not be allowed to win. The economic case against his claims is stronger than the arguments he brings in their support—and the political realities stand arrayed in conclusive opposition.

World trade in the years ahead needs direction and drive. Competition is a directing and driving force and, although it may fall quite short of complete effectiveness, world trade cannot afford to countenance its open suppression in the absence of a more promising alternative force. Private cartel agreements alone are certainly not such a force, and none of the current proposals for international public supervision over their operation offers more than an illusory supplement.

Public regulation as we know it on a national level and at its very best provides a limiting, protective, facilitating framework for private economic activity. It is incapable, even in simple, local situations of contributing *positively* to expansion and progress—to *drive*. Projected on an international scale and complicated and confused by conflicting cultures and interests, it promises little more than complete frustration—no drive, no direction and considerably more protection to particular vested producer interests than to world trade and well-being as a whole.

The answer, then, to the question posed by international cartels is "no," preferably in chorus with other nations. But, in chorus or alone, "no!"

ECONOMICS

DOMESTIC SCENE

WAGES AND PRICES: THE BASIC ISSUE

by ALVIN H. HANSEN

RECENT wage demands have brought us face to face with the problem of what to do with wages and prices. We are compelled to think through the basic issues involved.

A little historical perspective may be helpful. Under the play of more or less automatic forces prior to World War I, how did wage and price movements work out? Roughly, if we take the seventy-five-year period (1840–1914), we discover these interesting facts:

(1) The long-run trend of prices was roughly stable.

(2) Money wages per worker rose from an index of 100 to about 250.

That money wages (and more generally money incomes of all classes) should have risen relative to prices follows inevitably as a result of ever-increasing productivity per man-hour. As output per capita increased, money incomes would necessarily have to rise in order to permit the purchase of an ever-growing volume of output at constant prices. And, assuming no great change (as in fact was the case) in the distribution of income, wages per worker could be expected to rise approximately at the average rate of growth of money income.

Now, of course, wages might have remained constant while increasing productivity expressed itself in ever-falling prices. Indeed, some economists argue that this course of events is to be preferred. This, in fact, was *not* what happened in the nineteenth century. Instead, wage and other money incomes rose approximately in proportion to increases in production. With substantially stable prices over the long run (we are here considering only the *trend*) more and more goods could be purchased as wages and other money incomes rose.

This development was, I think, a wholesome one. And now

From the NEW YORK TIMES MAGAZINE, *Lester Markel, Sunday Editor*

Copyright, 1946, by Alvin H. Hansen.

that we are compelled to adopt a conscious policy, through collective bargaining and Government mediation, with respect to wages and prices, I believe we can do no better than to strive for a result broadly similar to that reached in the nineteenth century.

Why should the gains of increasing productivity be taken out in higher wages and incomes and not in an ever-falling general price level?

To this there are several answers. In practice it is not easy under modern conditions to insure that prices will be lowered whenever increased productivity reduces unit costs. There is under modern conditions no automatic mechanism by which this can smoothly and easily be accomplished. There are too many monopolistic or quasi-monopolistic factors present in the modern world (including the condition of "monopolistic competition," widely discussed in recent years by economists). On the other hand, the machinery of collective bargaining is at hand to enforce wage increases. Moreover, wage increases represent tangible and clear evidence of progress to the wage-earner. Higher wages in the pay envelope are impressive; lower prices are only vaguely noticed if at all.

There is the further point that if increased productivity were not reflected in higher money earnings, serious frictions would develop in the labor market. In order to hold weekly earnings constant, piece rates would have to be lowered every time new machinery and new production methods were introduced. To be sure, new piece rates are continually being set, but unless they are so set as to yield higher earnings there is likely to be serious trouble. The worker will be convinced that he has been robbed of all the benefits of larger output. He is producing more and more pieces but he gets no more money. Such a wage policy would destroy all incentive to increase output. The same argument holds no less for time-rate wage systems.

But this is not all. Rising money incomes (as output rises) benefits the *active* groups (entrepreneurs and workers) in the community. This stimulates progress. Debt burdens decline, as income rises. The *active* elements gain while the passive elements (mortgage and bond holders) merely hold their own. Thus effort and enterprise are rewarded.

The problem of Government finance is greatly facilitated by a rising money income. Even though tax rates are left constant, revenues will not only rise, but will even rise more rapidly than

income if the rate structure is progressive. Thus tax burdens are eased.

Finally, the savings-investment problem—one of the most basic and fundamental confronting all advanced industrial communities—would be greatly accentuated if money incomes remained constant while prices declined. As prices fell, depreciation funds (gradually accumulated over the lifetime of the capital goods) would buy, when finally spent on new equipment, far more than the amount needed for replacement. Thus, the investment outlet for *net* saving would be diminished. Moreover, the fixed income class, whose real incomes would rise with falling prices, would tend to save more. In various ways, therefore, the savings-investment problem would be intensified.

Accordingly, there are good grounds for believing that the long-run movement of wages and prices actually experienced in the nineteenth century represents the most desirable pattern. This historical development, to be sure, did not take place smoothly, but rather by fits and starts.

Now for an over-all view of the current situation. Contrast it with that of 1919–23. During World War I we witnessed a sharp rise both in wage rates and prices. Both wage rates and prices more than doubled. In World War II, however, wage rates and prices remained comparatively stable. Following World War I there occurred a rapid rise (1919 to 1923) in real wages. Cost of living prices receded, but wages stayed at the wartime levels. In 1923 cost of living prices stood at 172 (1913—100), while the wage index was 220; wages had thus risen 28 per cent relative to living costs. The gain of wages over prices occurred mainly in three years from 1920 to 1923.

The discrepancy was still wider between wages and wholesale industrial prices—the sales prices of producers. In 1923 the industrial (nonagricultural) price index stood at 146. Wages (at 220) had therefore risen 50 per cent above industrial prices.

Over-all real wages thus rose sharply immediately after World War I. New methods of production, improved machinery, better organization (stimulated in part by the war) made this possible. This substantial gain in real wages provided a firm foundation for the high buying power of the Twenties. But as we moved into the late Twenties, wages failed to keep pace with increasing productivity, and we experienced in consequence a disastrous profits inflation. This created an unstable situation and contributed to

the stock market boom and collapse of 1929. There was, however, no price inflation.

As after World War I, we should now again seek to achieve a substantial rise in real wages compared with pre-war. Since we do not now wish in general to depress prices—prices both wholesale and cost of living are running currently at about the level of 1923–29—a rise in money wage rates is desirable in so far as this is economically feasible in view of: (1) Gains in man-hour productivity arising from improvements in technology, (2) more efficient labor force (the men and women returning from the armed services are far superior to the youngsters and old people employed during the war), (3) lower unit cost arising from larger sales volume than we had in the pre-war period.

Higher wages in place of excess profits taxes mean in effect a transfer of funds from the Government to wage-earners. This is as it should be. In the post-war period, the Government will spend far less, but consumers must spend more if we are to have full employment. But wages should not be permitted to rise (in relation to the pre-war wage-price ratio) higher than the increase in productivity. We must avoid both a *wage inflation* and a *profit inflation.*

This is the general over-all picture. But how does the matter stand industry by industry and firm by firm?

Wages in general should rise in accordance with *average* over-all gains in productivity. But some industries can make very exceptional gains, while others cannot. Even though the management is equally efficient, the special technical conditions in different industries will cause widely diverging movements in man-hour productivity. If wages in the efficient industries absorb all the gains of increased productivity, while the stagnant industries grant no wage increases, we should very soon reach a seriously distorted wage structure.

Thus the mere fact that industry X *can* pay a 50 per cent increase in wages is no proof that it should. On the contrary, if the over-all increase in productivity is, say, 20 per cent, industry X should raise wages, perhaps a little more than the average (say, 20 to 25 per cent) and pass on most of the remaining part of its exceptional gains to consumers in the form of lower prices. A highly progressive industry is indeed entitled to more than average profits. But the bulk of the gains must (or else the economic machine will soon be stalled) be passed on to workers and consumers in higher wages and lower prices.

If industry Y can make no gains in productivity, it will nevertheless be compelled to pay higher wages. Being a relatively stagnant industry, it could scarcely be expected to raise wages as soon, or even as far, as the progressive industries. But wages must go up, or else a violent distortion will occur in the wage structure. Since industry Y has enjoyed no gains in man-hour productivity, it must be permitted to charge higher prices.

Thus the exceptionally progressive industries will be able to *lower* prices. But the stagnant industries will need to raise prices. Industries enjoying *average* gains in productivity can raise wages without raising prices. The net effect is an all-around increase in wage rates, while the general level of prices remains stable. But while the *general level* of prices remains stable, the *structure* of prices is changing in accordance with changing technological conditions varying from industry to industry.

From what has been said, it is evident that under modern conditions we are compelled to take an over-all view of wages and prices. The facts laid on the collective bargaining table, industry by industry, must include the over-all picture of the economy as a whole, in addition to the facts relating to the industry in question.

This is only another way of saying that the consumers of the nation as a whole (including the workers in other industries) have a vital stake in each industry bargain. The collective bargain in each industry has become a matter of national concern. The public interest must be recognized in each agreement or the general welfare will suffer. Hence the need for comprehensive statistics bearing on the economy as a whole. These, no less than the specialized statistics of each industry, must become a part of the data controlling each piecemeal wage agreement.

EDUCATION

EDUCATION FOR VOCATION

by SIDNEY HOOK

The education of the future will, in the case of every child over a certain age, combine productive labor with education and athletics, not merely as one of the methods of raising social production but as the only method of producing fully developed human beings.—KARL MARX.

NOTHING is more familiar than the contrast drawn by modern educators between liberal education and vocational education. But as soon as we try to track down the specific differences between them we discover that no hard and fast lines can be drawn. Usually a liberal education is so defined that if it has any other end beyond itself, if it involves more than the joys of consummatory experience, it is illiberal. It thus automatically excludes any activity connected with "earning one's living." This conception reflects elements drawn from both the Greek and Hebraic traditions. In ancient Greek society most citizens did not have to earn their own living. The work of the world was performed by slaves, and concern with material *means* was the distinctive mark of the *menial* in spirit. According to the Hebraic legend, work in the sweat of his face is man's curse and punishment. With primitive tools or none at all it could hardly have been conceived differently. But it recognizes in a dim way that it is work which makes man human. The knowledge to which it is counterposed is not imperfect human knowledge, laboriously acquired by a body of clay, but divine. Man is expelled from the Garden of Eden because he has sought to become like unto God: his earthly career begins with the quest through *work* of human knowledge and happiness.

In the modern world liberal education has always been a serious enterprise despite the existence of some students who did not take it seriously, who regarded it as a personal adornment or a

From THE ANTIOCH REVIEW, *Paul Bixler, Editor*

Copyright, 1945, by The Antioch Review Incorporated.

badge of social superiority. It was always connected with earning one's living although the "livings" were of a highly selected sort. The notion that the opposite of the liberal arts was the useful arts and that therefore the liberal arts could be designated as useless, would have been dismissed as preposterous even by the most traditional of educators. For the curriculum of the liberal arts colleges of the past few centuries trained for vocations, too. The teachers, ministers, lawyers, physicians, and better-paid public servants were largely drawn from the ranks of the college educated. A liberal arts education was in fact a sufficient preparation for many kinds of careers. Like the great medieval universities, but in a lesser measure, they were really professional schools.

In the contemporary world this is still true. But it is often concealed by dubbing some careers "professions" and regarding the others as "vocations." Flatly to contrast the "professions," even when we prefix the adjective "liberal" to them, with "vocations," is to express an invidious distinction. It is derived from the scorn felt by those who imagine they use only their brain as an instrument in earning their living, toward those who seem to use only their hands. It is explained mainly by the fact that most "vocations"—in ordinary times—carry with them less power, less money, and less prestige in the eyes of the community, than most professions.

When does a "vocation" become a "profession"? Take the lowly street-cleaner on whom the health of our cities depends. Give him civil-service status after rigorous training and examinations, raise his income to that of college professors—the difference at present is not great—provide liberal pension and retirement allowances, give him the official title of "social physician," deck him out in a resplendent dress uniform, and before long his "vocation" will become a "profession," too.

A liberal education should do something more than prepare the student to earn his own living. But it should at least prepare him for it. The crucial question is *how* he should be prepared. No conception of liberal education is worth a second glance which professes to be unconcerned with the quality of the life a student will lead after he is through with his formal schooling—a life in which the fruits of his schooling first become apparent. All the great educators of the modern world, despite their differences as to what constitutes the best education, agree that it should be complete in the sense that it should fit men to grapple with their duties as citizens of the community. But a citizen of the com-

munity is not only a "political" entity. He is a producer, a consumer, a potential warrior, a critic, a teacher in some respects, a learner in others. He is sometimes more of one or another. But in the life of the citizen all are related. This thought was expressed long ago by John Milton whose conception of a "complete" education is a measure by which we may still judge what belongs to a desirable education and how it belongs. "A complete and generous education," he said, "is one that fits a man to perform skilfully, justly and magnanimously, all the acts, both public and private, of peace and war." Vocational education is part of a complete and generous education.

The fundamental problem of vocational education today is whether it should be considered as a form of vocational *training,* serving industry and government, or whether it should be considered as an aspect of liberal education in which preparation for careers in industry and government is justified *both* by the needs of a developing personality and the interests of the community. Here, as elsewhere, we can observe a meeting of extremes which in effect makes allies of the lily-pure academician and the tough-minded practical man. The first finds utterly distasteful the idea that vocational interests should obtrude on the course of study. In his heart he believes that students who study for any other reason save the sheer love of it degrade learning. They therewith prove themselves in his eyes to be no true students at all. The second regards liberal arts studies as initiating conventional preliminaries to useful subjects whose mastery has a cash value. Wherever possible, he seeks to give vocational courses a content that is directly relevant to the tasks that must be performed on the job. For all their opposition, both agree on sharply separating liberal from vocational study, although they differ in the grounds offered for the separation. Both are united in strong opposition to any plan to make vocational education integral to liberal education.

The type of education which today is specifically labeled "vocational" is largely job training. Despite the war of words raging against its narrowness, it is enjoying a mushroom growth, especially in the higher reaches of the educational process. It is easy to understand this growth. School is short, life is long, and no one enjoys an enforced leisure without comforts. The desire to prepare for a dignified and well remunerated calling is perfectly legitimate. Where it is absent, a society is in the last stages of

decay. The greater are the immediate opportunities for employment, the greater is the demand for special training from industry, and the greater is the interest in vocational subjects among students, particularly among those who are unhappy with the traditional course of liberal education and, as they quaintly put it, want something more "serious." Educational administrators responding to the needs created by the war have looked with marked favor upon plans for extension of vocational education. Returning veterans have voiced their intentions of concentrating on an education which will qualify them for new jobs in new industries and better jobs in old ones.

Vocational education conceived as job training represents the greatest threat to democratic education in our time. It is a threat to democracy because it tends to make the job-trained individual conscious only of his technological responsibilities but not of his social and moral responsibilities. He becomes a specialist in "means" but is indifferent to "ends" which are considered the province of another specialist. The main concern becomes with "getting a job" and after that with "doing a job" no matter what the political direction and moral implications of the job are. Social programs are judged simply by whether they promise to provide the jobs for which the technician is trained. If a democratic community can supply the opportunity for work, well and good; if it can't, and a totalitarian party or government offers the opportunity, why not? Observers have noted that the technically trained students in institutions of higher education in Germany and Italy have in the mass been much more susceptible to totalitarian propaganda than students whose education has primarily been in the pure sciences. An education that is narrowly vocational, without cultural perspective or social orientation, unillumined by knowledge of large scientific principles considered in a large way, undisciplined by a critical method that sets the range of relevance for methods of technical thinking, is even worse for democratic purposes than a narrow and pure scientific training which, as a special kind of professionalism, is bad in its own way. For the problems on the job are *application* of scientific knowledge in contexts of social values and human relationships. And it is these which conventional education persistently ignores.

The high incidence of interest in vocational training among youth today reflects the expectation that our economy will have a place for them. The underlying assumption is that the seller's

market for the vocationally trained will indefinitely continue in peace as well as in war. This is far from being a sure thing. The history of American capitalism does not provide grounds for great confidence. Vocationally trained talents rusted for almost a decade after the depression. Educators made desperate efforts to revamp curriculums so as to keep youth out of the labor market. We may witness the same thing again. Dearth of vocations may be the most powerful argument against vocational education of the present type. But it would be the weakest argument, and the wisdom it would enforce, besides being costly, would be limited. For even if prosperity were to continue unabated in years of peace, there is no reason why a truncated vocational education should be substituted for an integrated liberal one. We could well forego the difference in national wealth that would result from keeping young people out of the labor market for a few years, if it added to the immeasurable but more genuine wealth of a well-informed, critically minded youth.

Such a critically minded youth would think not only about jobs but about the economy as a whole which provided the jobs and sometimes took them away. Such a youth would not be educated to "adjust" themselves to an economic and social order as if it were as perennial as the course of the stars. They would be encouraged to view it in its historical development. They would be taught to recognize its present-day problems as *occasions for choices* which they, among others, had to make. They would adjust not to the present but to the future as if it were present. To adjust to the future as if it were present is never an automatic reaction in human beings. For it is the essence of reflection.

There is a paradox connected with vocational training. The more vocational it is, the narrower it is; the narrower it is, the less likely it is to serve usefully in earning a living. Techniques, know-hows, operative skills change so rapidly in industry that the student who has been trained to perform certain specific tasks runs the risk of suffering from what Veblen called "trained in capacity." This is particularly true for manual crafts. For all their previous vocational training, those who are muscle-bound, either physically or intellectually, must unlearn and relearn if they are to continue to earn their living. Proper vocational education stresses doing, of course. Its skills are largely practical, not abstract. But at the same time it must nourish and strengthen powers of flexibility which will enable students to breast the waves of vocational changes intelligently. To a certain extent this

is achieved in the kind of vocational education we call "professional," about which I shall have more to say later.

The indictment against vocational education summarized above would be signed with both hands by those who desire to keep liberal education uncontaminated by concern for earning a livelihood. They offer two distinct solutions to the problem. The first is a sharp separation between liberal arts education and vocational education. Liberal arts education above the elementary levels is to be open to anyone who can qualify for it. After it is completed, it may be followed by vocational education. The second solution is much more radical. It has the great merit of making the problem disappear from view. It proposes that vocational education be left to apprentice experience on the job, and that the schools abandon all vocational instruction. I shall discuss this proposal first.

"The thing to do with vocational education," says Mr. Robert Hutchins, "is to forget it. As the war training programs in industry have shown, industry can train its hands if it has to, and can do it at lightning speed." If one believes this and also holds, as Mr. Hutchins did a few years ago, that individuals may be divided into those who are "hand-minded" and those who are not and that the former cannot derive large benefits from a liberal education, the prospects of continued education beyond elementary levels for a large section of the population would appear bleak indeed. But even if we surrender the view that individuals can be segregated into the "hand-minded" and the verbal-minded, the reason offered for abandoning vocational education is far from convincing.

It is one thing to train men and women in a national emergency for jobs that are temporary, and whose temporary character is emphasized in order to draw people away from other pursuits, not needed in war, for which they may have inclination and capacity. The human costs are justified by national need and much of the economic costs are underwritten by the government. It is quite another thing to make the choice of a lifetime vocation dependent upon the happy chance that individuals who have completed their formal education without any conception of what they are qualified to do will stumble upon just the right thing. After all, the better part of one's waking hours is spent on earning a living, unless one is a man of leisure, a prizefighter, or a college president. The very fact that for many people life begins when

work is over is a sign that they may have been miscast in their occupation. An intelligent person can hardly give too much thought to the problem of discovering the type of work which will afford him an opportunity to bring his best talents into play and therewith get the sense of significant achievement. Plato's insight is still valid: as a rule most people are happiest doing the work for which they are best qualified. That is why a good education is one which helps the individual discover what he is best qualified to do—no easy task. And that is why—and here we go beyond Plato—a just state strives to help its citizens to realize their voluntary and intelligent choice of vocations by equalizing relevant educational opportunity.

Is it true that training-on-the-job and at "lightning speed," too, can be adequately substituted for vocational training? It would be hard to distinguish between skilled and unskilled work if this were so. There are two gross confusions in the recommendation that the main varieties of vocational activity should be learned on the job. The first is confusion between certain types of work which almost anyone can adequately do in two weeks of training or less, like punching a machine or doing nurse's aid, and other types of work which require years of preparation, like designing precision tools or medicine. Hazards to health and wealth would mount dangerously if all vocational education took place on the job.

The second confusion is between specific skills, knacks or tricks of the trade that are always learned best on the job because they change so rapidly, and basic principles whose mastery facilitates the acquisition of these skills. Professional education in medicine, engineering, and law is vocational, too. The schools cannot teach the things the physician learns at the bedside, the lawyer in court, the engineer when a particular dam gives way. But without an education in general principles, these practitioners would not know enough to learn from experience. Experience is the source of knowledge, not a guarantee of knowledge; not even total immersion in the stream of experience will fill an empty head.

Those who speak of vocational training on the job would never apply this piece of wisdom to the professions, because professions, forsooth, are not vocations. But they owe us a justification of the distinction. Some vocations demand for their most effective performance more theoretical education than others. But this is only a matter of degree. And as we shall see, there is some kind of

"theoretical" education which should be a *sine qua non* of all "vocational" education.

The more plausible solution presented by academic traditionalists who agree with our indictment of present-day vocational training is to recognize the legitimacy of education for a living but to separate it sharply from liberal education or "education for freedom." The individual is a citizen. He must therefore receive "education for freedom" which is identical for everyone. He is also a worker with a special job to do. He must therefore receive "training for a job" which will not be identical for all individuals. But the two kinds of education have nothing in common. As Alexander Meiklejohn puts it in answering the question how men can be free in modern industrial society:

> Now the American theory of freedom answers that question. It does so by distinguishing Education for Freedom from another kind of education. In a free society, we say, every citizen has two different parts to play. He must, therefore, have two different educations. *Unless we can sharply separate these two sets of learning, we cannot understand what the American doctrine of free institutions is.*

To some extent this is a description of the way in which much of vocational education actually functions today. At various levels students are given instruction in certain liberal arts, although the instruction lacks the content and uniformity Mr. Meiklejohn thinks desirable: and there then follows a purely vocational training.

But it is this very *separation* between the two kinds of education which is pedagogically defective. Vocational education is simply overlaid on liberal education. The bearings of the general ideas and philosophy acquired through liberal education are not integrated with the vocational subject matter at the points where they are the most important. Why a man works, the effects of his work, its relation to the tasks of the community are questions quite germane to his vocational activity. They are best studied in specific contexts. The worker remains a citizen while he is at his job. His knowledge of the fact ofttimes will make a difference to what he does and how he does it. What is called a liberal education should be a continuous process, and there is no reason except unfamiliarity with the idea why vocational education should not be liberalized to include the study of social, economic, historical, and ethical questions whenever relevant, instead of assuming, as in the existing practice, that education in these matters is something already gone through and forever done with.

Should liberal arts courses be given in addition to the practical courses in vocational education? Or should practical courses be taught in such a way as to introduce an historical and social awareness, knowledge of scientific method and sensitiveness to persons and ethical principles into consideration of concrete problems? Neither procedure can be laid down as a fixed principle to be followed, although the second is educationally preferable. It depends upon the type of course and the specific subject under study.

The greatest obstacle to this attempt to integrate vocational and liberal education flows from the suspicions of the specialist against introducing anything outside the narrow confines of his specialty. He regards cultural studies in professional schools as a kind of academic "boondoggling." It wastes time which in his eyes is already insufficient for the technical matters students should know. The specialist has a natural tendency to view the whole curriculum from the standpoint of his own professional concern. He recognizes how narrowing and educationally disastrous such a perspective is when it is drawn by *other* specialists. This recognition should serve as one of the checks upon his natural appetite. Even in liberal arts colleges, as we have already observed, many subjects, particularly the sciences, are taught from the specialist's point of view to the detriment of broader understanding and abiding interest on the part of students, most of whom, if they become specialists, will be specialists in something else.

Recent tendencies in our best vocational schools, viz., our professional schools, show a growing realization that vocational and liberal education cannot be sharply separated. A dawning perception is now manifest that the best specialist is not necessarily the man who has received the most vocational training. The work of the physician, the work of the lawyer, the work of the engineer in different ways demands a *continuing* familiarity with subjects that would seem to the specialist to be utterly irrelevant to his proper vocational tasks. Yet as the *Report of the Commission on Medical Education* made clear years ago, "the health" of the individual is as much a social concept as a biological one. It did not say this in so many words but it is unmistakably implied in the following key passage from its report:

> Medical education should emphasize to students the influence of urbanization, industrialization, and present-day conditions of living which are important in the causation, treatment, and prevention of

> disease. These factors must be appreciated if the physician is to perform his function of advising patients in regard to their health problems. The unit of practice, regardless of how medical services are organized or how social organization is changed, will continue to be the individual patient. If the individual is to obtain the most helpful counsel, it is important that the physician be acquainted with the social, economic, and other environmental factors which have an influence on the individual and his health.

These observations, unhappily not yet given force in the curriculum of most medical schools, apply in principle to other fields as well. The best illustrations of legal education today incorporate large bodies of psychological, sociological, and economic analysis into the course of study. The lawyer who knows nothing more than "the law books" is ill-equipped to practice law, handicapped in judging when he is elevated to the bench, and hopelessly at sea when he is called in to advise on, or participate in, the determination of public policy. Although there is a wide acceptance of this truth, actual curricular practices lag far behind.

Whether it be business or journalism, government service or social work, engineering or communications, the subject matter of these fields cannot be properly mastered without including much more than vocational techniques. Sometimes the interrelation of studies flows outward, so to speak, from a consideration of problems *within* the technical field; for example, in the study of peptic ulcers in medicine or tax laws in accountancy. Sometimes the integration of studies is achieved by considering the relation of the entire field to the social and political context; for example, the nature and limits of freedom of expression in radio, cinema, and newspaper. An apparently hackneyed theme like censorship in any one of these fields opens up fundamental philosophical and social questions of the most momentous practical importance. The merely trained, run-of-the-mill technician takes sides on such questions without understanding what it is all about.

Another obstacle to the program of integrating liberal and vocational studies is the almost willful misunderstanding of what the program recommends. Where vocational education is given, aside from the problems that open outward to other subjects, there are at least two fields in which the integration can take place. The first is the place of the calling within the social economy, and the relation of its professional ethics to the larger issues of social and ethical philosophy. The second is the study of the

rationale of scientific method as exemplified in the industrial and technical processes, the inventions and leading ideas, which are used in the work of the special field. I say "exemplified," not "identified," because although the logic of scientific method is generically the same for all fields, the specific techniques of reaching warranted conclusions will reflect the differences between the subject matters thought about. This minimum program of interrelation, according to John Dewey, should contribute an essential part of modern liberal education:

> A truly liberal, and liberating, education would refuse today to isolate vocational training on any of its levels from a continuous education in the social, moral, and scientific contexts within which wisely administered callings and professions must function.

As an illustration of a typical misunderstanding, let us consider a direct comment on this position made by Mr. Hutchins:

> A truck driver cannot learn to drive a truck by studying physics, chemistry and mathematics. . . . The truck driver, both as truck driver and as citizen, needs to learn to control himself, to take his place in a democratic organization, to discover the meaning and aim of his existence and of the society of which he is a part. Musing over the laws of thermodynamics as he drives is doubtless better than musing over some other things; but it is not likely to prevent him from wrecking both his truck and his life.

Mr. Hutchins' illustration speaks worlds. There is no vocational curriculum on "How to Drive a Truck" in any reputable institution in the country. I doubt whether there is even a course! There are courses in the physics of gas engines, which is something quite different. But aside from what we will find or not find in our congested curriculums, driving a truck is precisely one of the things which it is *not* the business of vocational education to teach, because it is learned in the same way that everybody learns how to drive a car or a bicycle. It is even questionable whether piloting or navigating a plane, which requires skills that cannot be safely learned on the job without considerable previous instruction, should by itself constitute the subject matter of a vocational course. Vocational instruction should be given *in the basic principles that govern a whole class of practical skills for which the individual has a bent or interest.* It should not aim at robotlike conditioning of human machines to other machines. Truck driving is as honorable a pursuit as any other, but why assume, as Mr. Hutchins apparently does, that whoever begins with it must

necessarily remain with it? The function of knowledge of thermodynamics wherever it is pertinent to vocational education is not to be mused over by the driver in the cab of a truck. That would be almost as dangerous as musing over "the meaning and aim of his existence," which Mr. Hutchins would apparently substitute in its stead. The function of such knowledge when it has been given vocationally is to enable the truck driver, if he so desires, to master other tasks, to make himself eligible for other vocations, perhaps better paid, perhaps more congenial, perhaps more interesting.

That the truck driver needs to learn to fulfill his duties in a democratic community *both* as truck driver and citizen is a welcome admission by Mr. Hutchins. A continuing education in the problems and issues of democratic social life is precisely what Mr. Dewey recommends as part of the curriculum of all vocational education. The difference between them on this point is that for Mr. Hutchins, since these matters are decidable by eternal truths previously imparted by liberal education on its appropriate level, no further instruction is necessary when job training occurs; whereas for Mr. Dewey questions of social policy and direction, which affect the truck driver as citizen and truck driver, demand a continuous and specifically related study.

This is not confusing liberal and vocational education. It is relating them in such a way that no matter how a man earns his living he will not lose sight of the communal traditions to which he owes his knowledge and skills, the communal responsibilities he shares with his fellows, and the communal tasks to which he can make his distinctive contribution. Vocational education which fails to do this is illiberal and had best be abandoned.

The difficulties of giving organizational form to this integrated curriculum are tremendous. But they must be faced. There are certain healthy developments in existing practice which should be encouraged. In many courses in the liberal arts colleges today an attempt is made to provide either some work experience or firsthand contact with practical activities in which general principles are given application. Instead of being done in a haphazard and episodic way, this should be systematized. (The single example of systematization is the Antioch College co-operative work-study program.) During the third and fourth years of the typical liberal arts college, studies are concentrated around a vocational interest but in isolation from the vocation. Guidance by self or others is hardly likely to be sound unless the student is given an

opportunity to savor for himself the quality of his prospective vocational career.

The desirable integration between liberal and vocational education cannot be achieved on a wide scale until the schools and colleges revolutionize their entire attitude towards the vocational future of their students. They must recognize that vocational future as in large part *their* future responsibility, too. Until now the schools have naturally been most interested in what happens to the student while he is studying. And next to that they have been concerned with the problem of his past education, not to mention the competitive devices of enrolling him. What happens to the student after he has finished his studies or received his diploma is regarded as completely his own individual concern. In one sense of course it is. He is on his own. In another sense he really is not on his own until he is given the chance to bring his capacities into action in the most appropriate place for them. The school, co-operating with all agencies of government and industry, should help him find that most appropriate place. It is then that the student is truly on his own.

It is not true that the right man always finds the right place by his own unaided efforts. It is just as true that his right place is found by someone quicker, someone nearer, someone more adroit in the political handling of people than in the capacities demanded by the job. And for many occupations it is even truer that his right place is given to someone else who knows the right people or is born into the right family.

It would be utterly Utopian to expect every man to find his right place. For many more things determine what constitutes "the right place" than the public good or bad that would result from an individual's filling it. But it is not Utopian for educators to accept as a working ideal the general principle of civil service —vocational opportunities should go to those who best merit them. There are many vocational opportunities which are best merited by those who *can* get them, especially when the qualities displayed in the getting are the same as the qualities required in the doing. But there are many more vocational opportunities in which there is no intrinsic connection between the two sets of qualities. It is in respect to these opportunities that the schools must extend their vocational guidance to include voluntary, co-operative placement.

The word to emphasize is "voluntary." For industries and government agencies will co-operate with schools only if they discover

that students recommended as the most likely prospects for vocational openings actually succeed as a rule much better than those who are not recommended. The co-operation would be a genuine two-way process with mutual benefits. On a small scale in certain corners of highly technical vocational curriculums this is now being done primarily for economic reasons. But it is the social and educational validity of the practice which should be stressed, since there are numerous vocations in which the economic advantage, considered only in terms of dollars and cents, cannot be easily assessed. The extension of this practice depends largely upon its recognition by educators and the leaders of the community as an effective method of meeting the rightful claim of the qualified individual for a chance to make good.

It depends upon more than that. As is the case with every other basic educational insight, although it can be given some institutional force here and now, it cannot be built into the fabric of social life without a profound change in the pattern of our economy. It waits for the time when, instead of using individuals as instruments for the production of wealth, the entire economy will be conceived as an instrument for furthering the all-around growth of individuals in a democratic society.

ELECTRONICS

MEDICINE

NEW AIDS FOR THE BLIND

by PAUL A. ZAHL

TO UNDERSTAND the almost hopeless desolation of sudden blindness, close your eyes tightly for a moment and contemplate the amorphous darkness into which this loss of sight projects you; then consider the problem of movement in a dimensionless world. For a person deprived of touch, hearing, taste, or smell, the world still has shape and perspective; for a person deprived of sight, all—at least initially—becomes void and sepulchral. To the sighted, loss of vision seems the most hopeless and pitiable of human disabilities. So dreadful is its prospect that the ancients, applying a hot poker to the eyes of their enemies, thought that to blind them was worse punishment than to kill them.

Today, in the civilian population of the United States, there are between 200,000 and 300,000 blind persons; the total in the world is between 5,000,000 and 10,000,000. It is difficult to give a precise figure for the total number of blinded soldiers from World War II, because of the clinical grading from total blindness to partial eye injury among such casualties. In the Army alone for this war there are about a thousand veterans who are classified as blind. For the Marine Corps, the Navy, and the Coast Guard such casualties are proportionately large. Among the bombed civilian populations, in view of the nature of blast and fire injuries, the proportion of blinded may be greater than among battle casualties. These casualties have offset the decrease in blindness brought about by modern health measures.

The problem of preventing blindness is largely in the hands of the ophthalmologists, the hygienists, the industrialists, and the militarists. Workers for the blind, on the other hand, are presented with a *fait accompli*. Their enormous problem, which concerns the care and life-enrichment of the five to ten million blind, has excited some of history's loftiest humanitarianism. Sighted

From THE ATLANTIC MONTHLY, *Edward Weeks, Editor*

Copyright, 1946, by Paul A. Zahl.

people feel an awesome sympathy for the blind, and especially for the man with the cane, the man with the dog, the man with the cup. But rarely do we realize that for every such blind man we see on the streets, there are in schools, hospitals, and other institutions dozens of blind persons who have never learned re-entry into the world of the sighted.

And we rarely consider that, in the middle of the twentieth century, when the sciences of physics, chemistry, biology, and medicine are eradicating some of the worst of man's diseases and disabilities, we offer the blind only Braille, trained dogs, and a few gadgets. These are commendable aids for the blind, and to a degree very useful, but it is estimated that fewer than twenty thousand blind persons in this country know Braille, and that a much smaller number use it actively. Braille is difficult to learn, requiring high motivation and a better than average tactile and verbal intelligence.

As for the Seeing Eye dog, fewer than one thousand blind people in this country successfully use one. The radio and the Talking Book (a special phonograph which reproduces books recorded by professional readers) have brought comfort and diversion to many blind persons, but they fall far short of being a substitute for eyes. At best, they are only a palliative to the sedentary blind man.

Is there not more that we of this know-how age can do for our blind fellow men? Must we stop with a relatively crude and difficult language like Braille? Must we continue to use animals as eyes? Must the blind be content to sit inactively before a phonograph or radio? Can't we devise a better ranging and detection device than a cane? Our technologists have produced instruments that detect, localize, and range an aeroplane hundreds of miles away; that accurately find and bomb a cloud-hidden target; that use electronics for television; that guide aircraft by invisible beams. And in countless other ways they have conquered the darkness of the non-visual world. A civilization with such skills should be able to develop guidance devices for the blind less crude than the cane or less traditional than the dog, and reading devices less cumbersome than Braille.

A shocked awareness of this humanitarian and scientific anachronism came in the early days of the war to Dr. Vannevar Bush, Director of the Office of Scientific Research and Development. Civilian scientists of OSRD working in military secrecy in laboratories throughout the country were doing key research in

radar, fire control, submarine detection, penicillin production, plasma, malaria, the atomic bomb, in almost all phases of modern war technology. Knowing that many soldiers would come home blind, and so justifying a humanitarian diversion in the midst of a terrible war, Dr. Bush in 1944 set up a committee within OSRD for investigating how modern science could aid blinded soldiers and, collaterally, civilians with the same handicap.

The Army and Navy had their own excellent rehabilitation and training agencies; and Perkins Institution, the American Foundation for the Blind, the New York Institute for the Education of the Blind, and many others had done and were doing a superb job in the care and teaching of the blind. Dr. Bush's object was to find new substitutes for the human eye. Many people interested in the problem of the blind had considered the possibility of technological devices.

Dr. Bush recognized that the problem was enormously complex. He saw that it embraced a whole series of sciences. It is easy for a sighted man to use a gadget; for example, an aviator reads the dials on the panel before him and so knows his position. Instruments have long been available which can tell a sighted man things about his environment that his eyes cannot perceive. But to get such information into the consciousness of a sightless man, and in such a way as to be useful to him, is a problem inherently far more complex than radar or submarine detection or beam flying. To solve it would require the collaborative thinking and research of specialists not only in the engineering and electronics arts, but in psychology, physiology, and the branches of these sciences which deal with the functioning of the senses. Specialists who understand the psychological effect of blindness would have to work in conjunction with technologists and scientists.

Dr. Bush asked Dr. G. W. Corner, a medical biologist of proved versatility, to head a panel of five advisory scientists representing the fields of physics, psychology, and physiology. This group, now called the Committee on Sensory Devices,[1] was directed to make

[1] Dr. G. W. Corner, Chairman (Anatomy and Physiology), Carnegie Institution; Dr. H. A. Barton (Physics), American Institute of Physics; Dr. A. J. Carlson (Physiology), University of Chicago; Dr. W. O. Fenn (Physiology), University of Rochester; Dr. Stacy Guild (Otology), Johns Hopkins University; Dr. K. S. Lashley (Psychology), Harvard University.

As OSRD began preparations for its ultimate dissolution, the Committee on Sensory Devices was taken over by the National Research Council, but it receives financial support from the Surgeon General's Office of the Army and from the Veterans Administration. Its work is closely affiliated with that of the similarly sponsored Committee on Prosthetic Devices, which is investigating the artificial-limb problem.

an over-all study of the possibility of developing artificial devices for the blind. The Committee initiated its activities in March, 1944, by designating the Haskins Laboratories of New York City to act as its central and integrating technical staff, with instructions to begin a survey of the needs of the blind and the specific techniques for filling these needs. This laboratory of physicists, chemists, and biologists expanded to include psychologists and professional workers with the blind, and began the survey. Two crying needs quickly became evident: first, a device more efficient than the cane or the Seeing Eye dog for guiding the blind man through unfamiliar or changing environments; and second, a device which would enable him to read ordinary book or newspaper print easily and comfortably.

In studying the feasibility of an artficial guidance device for the blind, the investigators were more impressed by the performance of the ordinary night-flying bat than by the exploits of radar or some of the other detection and guidance devices developed for military purposes. The bat is the only known mammal which has developed its own extra-visual ranging and detection system. At dusk or after dark it glides with perfect precision among the twigs and branches of trees. It had been suspected since the days of Spallanzani that the bat "sees" by sending out short bursts or cries of sound too high in pitch to be audible to the human ear. Somehow, by listening to the intensity and quality of the supersonics reflected from surfaces which the bat is approaching, the animal can precisely gauge its distance from such surfaces or the speed at which it is approaching an obstacle. These supersonic cries are produced in the larynx of the animal; and the reflections are heard by the bat's supersensitive ears, a fact which can be proved by plugging the bat's ears with wax. Such artificially deafened bats flounder when allowed to fly free.

The Committee on Sensory Devices recommended a study to determine whether "bat vision" could be duplicated for use by the blind man. The "eye" was to be an instrument about the size of a flashlight, and would contain a supersonic generator which at rapid intervals would send out bursts of energy at frequencies above those perceptible to the human ear. Next to the "crier" mechanism was to be a receiver which would pick up the returning reflections and convert them into audible sounds to which the blind man would listen through a hearing-aid phone. Differences in the pitch, intensity, or quality of the returning signal would supply the user with information regarding the shape, character,

and distance of obstacles. Similar supersonic instruments under water have been used in submarine detection and localization since World War I.

Supersonics is not, however, the only type of energy suggesting a detection and guidance use. Electromagnetic energies such as microwaves (radar), ultraviolet light, visible light, infrared, radio beams, all have reflecting properties. These were carefully considered. Most of these electromagnetic energies have the inherent disadvantage of traveling through space at a vastly faster speed than supersonics—namely, that of light. For example, radar may be used for detecting aeroplanes at great distances; but for very short distances it is useless. The blind man is interested in avoiding obstacles between one and twenty-five feet away, not miles away. Electromagnetic energies are on the whole not suited for such short distances, unless triangulation or other arbitrary methods are employed, most of which would be cumbersome and too complex for easy use.

Furthermore, most of such energies require massive and weighty power sources. The blind man needs extreme portability in any sensory aid. Also, many of these energies are found free in space, as, for example, ultraviolet and infrared rays. These ambient energies in the lights and shadows of daylight could be most troublesome—although, in a short-distance ranging instrument recently built by the U. S. Army Signal Corps, a projected beam of visible light is employed. The difficulty of daylight interference was ingeniously overcome by a technical procedure known as modulation. This device is now under test to determine its applicability to guidance problems of the blind.

But supersonics, too, have many theoretical and practical limitations. For example, a supersonic beam may be reflected almost *in toto* by a brick wall but only partially by a privet hedge. Not only is differential reflection by various materials a somewhat troublesome practical consideration, but there is also the phenomenon known as specular reflection. This refers to the way a beam of sound, supersonic or audible, will tend, when striking a wall, to bounce off at an angle incident to the incoming beam. The energy might bounce around a room, from one wall to the next, and not come directly back to its source, as one would ideally like it to. Would a blind man with such a device, in fact, find himself in a confusing world of sound mirrors?

Another difficulty which had to be considered was the matter of ambient supersonics; that is, those sounds which the human

ear cannot hear but which are all around us and which are constantly being generated by the wind swishing through leaves and through shrubbery and grass and around corners, by automobile tires on pavement and gravel, by elevated trains, by almost all grating surfaces.

These were only some of the discouraging difficulties with which the physicists who were charged with designing the artificial "bat eye" had to contend. To pessimists, the theoretician had one stock reply: "Sure, it looks tough. May be insoluble. But the bats do it, so there must be an answer."

The Committee on Sensory Devices set up three separate development contracts with industrial research laboratories high in the know-how of supersonics and electronics. The Brush Development Company, which had already independently initiated some work on guidance devices for the blind, undertook to build an experimental test model using a crystal type of supersonic generator. The Stromberg-Carlson Research Laboratory, long engaged in theoretical and practical studies in acoustics, was directed to devise a similar model using a magnetostriction type of generator. And the Hoover Company Research Laboratory, versed in the mechanical mysteries of silent carpet cleaners, undertook the development of a model in which the supersonics were to be generated by mechanically striking bars, and with which the distance was to be approximated by means of a special "gating" mechanism.

These contracts were made more than a year ago, and some of the models have been completed and are being actively tested on blinded veterans at the Haskins Laboratories, where a growing and even more harassing set of problems is becoming evident. It is true that various types of energy, returning from reflecting surfaces, can give an accurate indication of distance. Oscilloscopes and other measuring instruments give dependable confirmation of that. But the blind man cannot watch the face of an oscilloscope or illuminated dials on a panel, as does the radar operator. The information furnished by the instrument must be fed into the blind man's consciousness through one of his remaining senses. That the sense of hearing should be so employed was suggested by studying the blind man in his own attempts to overcome the handicap.

The blind man's "sixth sense" has long been considered little short of miraculous. In accounting for this "sixth sense," modern

psychologists have been inclined to discount theories of "facial vision" or "pressure sense." The plain truth of how the blind man gets around appears to lie in his heightened hearing acuity. The blind man walking along the street tapping his cane is not doing so to warn sighted people of his approach, but rather to set up sound waves in the air which echo back from reflecting surfaces in the vicinity. From the quality of these echoes and from long and desperate experience, he has learned to note subtle differences and from them to judge distance and, to some extent, even shape and quality.

The cane is often unnecessary, and many blind men prefer to dispense with it. A blind man may use his own footsteps as his sound generator. Some blind subjects listen to the wind and to the sound quality of the air as it sweeps around and is reflected by interposing obstacles. One of the blind men studied had developed his sense of hearing to such an extent that by merely rubbing his hand over the fabric of his trousers, he could generate enough almost inaudible noise to supply himself with an astonishingly accurate set of echo cues.

In view of the fact that the blind man's ears are virtually his eyes, the artificial guidance instruments are being constructed so that the ranging information, so evident on the oscilloscope, is converted into a series of audible sounds which the blind man hears through a miniature phone. If an obstacle is two feet away, say, and the "eye" is pointed at it, the blind man hears a warbling tone of low pitch, indicating his close proximity to the obstacle; an obstacle twenty feet away gives rise to a tone of higher pitch. There is already evidence to indicate that an accurate interpretation of these tones can be readily learned.

On the other hand, the psychologists would have preferred to leave the blind man's ears unimpeded. That means using one of the other senses or a direct connection with the central nervous system to get the ranging information into the blind man's consciousness. Smell and taste appear to be too strictly chemical for such adaptation. The sense of touch, on the other hand, seems worthy of consideration.

For example, the ranging information could conceivably be converted into mechanical energy which could, in turn, activate some sort of pressure or vibratory mechanism held in the hand or strapped to the skin. The greater the pressure or vibration on the skin, the closer the reflecting obstacle might be. Or a series of blunt pegs or pins could bear down on the skin with an intensity

proportional to the distance to the obstacle. Some of the difficulties inherent in the tactile method are the low spatial discrimination of the sense of touch, physiological fatigue factors, conditioning, and inconvenience.

As for direct connection to the central nervous system, either surgical or induced, the possibilities at the present time do not seem to be very promising. In the first place, a large percentage of people who are totally blind have become so because of some injury to the retina or the optic nerves. Usually a degeneration and deadening of these nerves has occurred, so that surgically inserting an electrode does not seem feasible.

On the other hand, Helmholtz many years ago observed that if a skin electrode was applied to the fore part and another to the base of the head, and a very low alternating current was passed through these electrodes, the subject would become conscious of bright flickers corresponding in frequency to the rate of the current alternations. When used with the ranging instrument, rapid flashes could conceivably indicate proximity, slow flashes distance. At about fifty cycles per second the flickers fuse and are no longer discernible as discrete flashes.

The locus of stimulation by the current in the brain is not known, although it is suspected to be somewhere in the optic tissues. If these tissues are inactive, as is probably the case in most blind people, such a portal of entry for range information would have no utility.

It is therefore apparent that the major problem confronting the psychologist is to convert the information gathered by the ranging device into intelligible information for the blind man. Since the auditory sense seems to be the most promising portal of entry, a rather elaborate study has been initiated to determine which sounds or which combinations of sounds should be employed. Pitch, loudness, time interval between tones, combinations of tones, and angle of the ranging beam appear to be the primary acoustical variables to be considered.

The lower limit of perception by the human ear is about twenty cycles per second and its upper limit is about 15,000. For the guidance device in which a tone of varying pitch is to be used, a range of between zero and one thousand cycles has been found initially to be the best when delivered to the ear in warbles of between two and thirty per second. The introduction of overtones,

harmonics, and chords to give the signal a greater content of complexity is being studied.

The techniques for investigating the suitability of using sounds for conveying intelligence are in this instance largely pragmatic. The blind subject is given a supersonic instrument connected to an earphone, and is asked to make his way down a room about seventy feet long. This room is in reality a maze consisting of wooden obstacles of various sizes and shapes. If he makes his way through the maze of, say, twenty obstacles without bumping into any of them, his score is perfect. The obstacles are then rearranged and he is retested. If his score continues to be perfect, the channel between the obstacles is narrowed or smaller obstacles are used. At length, as this narrowing continues, he will begin making errors. At this point, if experience and practice factors have been kept constant, it is assumed that he is getting all he can out of the particular device and out of the particular set of signals being evaluated.

Now the range of the signals is altered or the intensity or combination is shifted, and the subject again goes through the maze. By hundreds of such tests on many blind subjects, the investigating psychologist can obtain data regarding the sort of signal from which the blind man can get maximum information.

Another way of performing such tests is to seat the blind man and introduce an object before him. With the help of the instrument he will estimate the distance the object is away from him. Then the distance will be changed and he will be asked to reestimate it. Or obstacles of various shapes will be introduced in front of him—say, a board cut out in the shape of a large star, then one the shape of a circle, a square, a triangle. He will try to identify these. The degree of accuracy of his readings will give a clue as to the efficiency of the instrument and of the tones from which he is getting his information. Throughout all the tests attention is paid to the man's subjective reactions to the sounds, and an effort is made to satisfy his aesthetic preferences.

Many serious problems have become evident. For example, the type of signal most efficient for detecting the presence of large objects may not be the most efficient for detecting small objects. Or the angle of the beam which will tell a blind man of his approach to an overhanging sidewalk awning may not warn him of his approach to a curb. And there are such factors to be considered as the user's own body movement, the correlation of his

spatial sense with the direction in which his hand-held instrument is pointing, searching, and probing as he approaches the object, the regularity and angularity of the object, and the type of reflecting material. All these are critical and must enter into the final evaluation.

The ideal in the way of guidance devices, and one which seems almost fabulous, is "pattern vision"; that is, a sort of scanning system which, instead of giving the blind man only range and size, would present him with some sort of meaningful sound panorama. At the present state of sensory physiology, it is impossible to predict whether the ear is a sufficiently complex receiving organ and whether it is hooked up with the consciousness in such a way as to make this possible.

The second primary objective of the Committee on Sensory Devices represents an even more perplexing and difficult development than that of the guidance device. It concerns the possibility of devising a system which will enable the blind man to read ordinary print through some sense other than the optical. This instrument would ideally consist of a stylus about the size of a fountain pen which would be used manually to scan the lines of print of an ordinary book. The information so garnered would be converted into some sort of audible signal. Such a device would open up the vast world of literature to the blind man. Using Braille, he is limited to a pre-selected group of books printed in weighty tomes. One can think of no greater boon than that of making all books, magazines, and papers available to the blind.

I recall the day in 1944 when the Committee on Sensory Devices held one of its meetings at the Research Laboratories of RCA. Among other demonstrations by staff members was one having to do with scanning print by five tiny aligned light beams, connected by a series of micro-lenses to a photosensitive mechanism. Each of these beams was tuned to a different pitch, which would sound when the beam was interrupted by the blackness of the printed letter.

When the five points were passed over the letter *I*, say, a musical chord consisting of all five tones would sound during the instant of passage. Over the letter *i*, which is shorter than the *I*, only three tones would sound. Over the letter *h*, first of all five tones would sound, then only three as the beams passed over the rump of the *h*. For the letter *m* there would sound a chord of three notes in rapid succession. A young lady who had studied

the system for only a few hours demonstrated that she could identify, with relative ease, most of the letters of the alphabet from the characteristic musical chords produced as the beams passed over the print.

The concept of a reading machine based on the photoelectric principle was a natural derivative of the discovery many years ago that the metal selenium, when illuminated, will undergo certain very precise changes in its electrical conduction characteristics. The extent of these changes bears a definite relationship to the amount of light energy falling on the metal. The principle of letter scanning, as demonstrated by the RCA engineers, was based on the idea developed about 1912 by a Frenchman named Fournier d'Albe. As early as 1920 the principle was engineered by Barr & Stroud of England into a machine called the optophone, which would read black print. This device was demonstrated in this country before various agencies for the blind. It was rejected at that time for the good and sufficient reason that trainees could not learn to read at a useful speed.

When one examines the museum specimens of the optophone and other similar early attempts at reading machines, one marvels at the degree of constructional skill and the daring thought which must have gone into their conception. The engineering is beautiful; but the weakness appears to lie in faulty psychological premises. This difficulty quickly became evident to the investigators for the Committee on Sensory Devices, who examined the optophone to find out why subjects could not learn to read print at more than a few words a minute.

The trouble seemed to lie in the dependence of the device on letter perception rather than on word perception. The learner could not get beyond the primer stage of spelling out each word. The letters could be identified, but this was a slow and tiring process. To be useful a reading machine would have to enable the blind person to read at least fifty words a minute. If every word had to be spelled out, such a speed would obviously not be attainable.

A non-photoelectric principle has also been explored by various inventors who have tried to devise reading machines. This involves mechanically embossing print on paper, in much the same way that Braille is printed. Like Braille, it is read with the finger tips. To some extent such embossed print may be read, but it has never been accepted by the blind because it is not less cumbersome than Braille, and is in fact not so easy to read. Its ineffective-

ness, too, arises from its dependence on letter rather than word recognition.

In approaching the problem of developing a reading machine, the Committee did not want to abandon the letter-recognition principle *in toto* until more controlled and conclusive tests had been given it. So a dual program of investigation was initiated. The first aspect of this program undertook a close re-examination of various non-portable laboratory machines, with actual tests on blind or blindfolded subjects. In addition to the optophone, two other types of letter-recognition systems were studied. The first, or frequency-modulation system, scanned print with a narrow slit of light which when passing over the blackness of a letter would set up a tone varying in pitch in proportion to the amount of black area under the slit at any given instant. An *l* would block almost the entire length of the slit and would therefore produce a tone of high pitch. The *i* would produce a tone of lower pitch. Most of the letters of the alphabet could be recognized, after some practice, from the characteristic tonal sequences produced.

A related system was developed by engineers of the RCA Laboratories. This system also made use of a light slit through whose long axis, however, an oscillating light spot swept rapidly up and down. The amount of blackness under the scanning device was converted into a tone which varied through a pitch range of 200 to 2000 cycles. Portable models of this RCA device are now under preliminary test on veterans at the Navy Medical Research Center.

Parallel to a study of such direct print-to-sound conversion systems, a detailed and long-term program is being carried on based on the fact that the human ear can comprehend speech at rates up to several hundred words per minute. There must be something inherent in speech which enables the ear to discriminate sound subtleties at the very rapid rates practiced by the Walter Winchells or the Floyd Gibbonses.

The first approach was to identify the key vowel and consonantal sounds which give voice its universal intelligibility. For example, a man from Georgia speaks a language far different phonetically from that spoken by a man from Maine. Yet there is enough phonetic similarity between the two dialects to make them easily intelligible. Psychologists incline toward the view that if the phonetics which all languages, including the foreign

tongues, have in common could be used as the basis of sounds into which scanned letters and words could be converted, perhaps the language of the reading machine could be learned more easily and more rapidly. Such machines would not speak English, but would rather take advantage of the apparent speedy appreciation by the human ear of vowel and consonant-like tones, and would produce a language containing many speech-like sounds.

It seemed worth while, also, to consider the more difficult possibility of a machine which could be made to speak English from ordinary print. Such a machine would, perforce, "recognize" each letter or letter combination, and on the basis of that recognition would speak the phonetic equivalent of the letter or letter combination. A recognition machine could conceivably be constructed to operate at any of several levels of complexity. At the simplest level this machine would speak a given and fixed sound for each letter of the alphabet; at a higher level of complexity the machine would, according to the rules of English pronunciation, modify the sound for any given letter according to the combination in which the letter appeared. In view of the phonetic inconsistencies of the English language, it would probably be necessary to go to the higher level if the machine were to speak easily intelligible English.

All the machines described above have the initial and signal advantage of being able in theory to read ordinary print. The machines belonging to a fourth category would not read ordinary print, but a set of arbitrary symbols. These machines would, however, reproduce literal English from such symbols. Voice spectograms such as those developed by the Bell Telephone Laboratories, could conceivably be employed for such a hieroglyphic language. A voice spectogram is an electronically produced sound-picture of a word or phrase. If such sound-pictures could be printed in books to be scanned by the blind, the advantage would be that a new language would not have to be learned. The disadvantage would lie in the necessity for using a printing medium other than that already in use by sighted readers.

Final evaluation of reading machines rests upon the degree of reading proficiency which can be attained by numerous subjects after many hours of practice. It is obviously impractical to subject each of the many reading-machine ideas under consideration to this expensive and time-consuming procedure. In order to evaluate more quickly, a program has been set up which involves the following procedures.

The first consists of using laboratory short-cuts whereby the sounds which would be produced by a given machine can be synthesized or simulated without the necessity of having to build the final complex and portable model. The second procedure involves the setting up of tests which will permit a reasonably rapid collection of data from such simulated machines from which valid comparisons can be made.

These tests may be of two types and at two levels:

1. Rote learning of the sounds produced by eight common words consisting of four letters each. Such tests can be run on many subjects at the same time, and require about one hour to administer.

2. "Semi-proficiency" tests involving six language-learning lessons recorded on phonograph discs. Each lesson takes forty-five minutes, and the subject learns the sounds produced by fifty-two words, of which forty-five are among the most common words of the language. The words are entered into sentence combinations, and training is standardized and so arranged that learning progress is continuously measurable. Such tests are being given to large student groups at Yale University.

To supplement and to standardize this part of the testing program, an artificially constructed language is being put through these same evaluation procedures. This language is a transliterated English and, as such, represents one ideal of a reading machine.

Whichever reading principles are selected as most promising on the basis of the above types of test must be assayed at a final proficiency level. This, of course, involves speed reading tests of new text under conditions which come as closely as possible to those prevailing when the machine would be used in actual practice by the blind.

A group of ten totally blinded veterans in New York City, together with some non-veteran blind, are employed at the Haskins Laboratories to serve as test subjects for the guidance devices and reading machines. Each day these veterans come to the test rooms, guided in some instances by their wives, in others by a Seeing Eye dog, and in others only by a cane. For periods of one to two hours daily the blind men collaborate with the attending psychologists in working with breadboard or semi-portable models. Maze tests are run. Distance-approximation studies are made, as well as stopwatch records of the time required to identify various objects. Precise data are taken, using various

devices under comparable conditions, so that the advantages of one device may be properly weighed against the advantages of another.

The blind subject explains his own reactions to the particular instrument under test, and suggests improvements. The psychologist has to know whether the tones are too harsh, too loud, too complex, too simple, so as to supplement his more precise measurement data.

Without exception, the blind subjects are enthusiastic about the whole development and test program. These men who have actually used a device in the laboratory appreciate more than anyone else the aims of the enterprise. One of the ace physicists on the research staff of the laboratory is himself totally blind and the holder of an earned doctorate. These subjects are surprised at the help which some of the devices, even in the present stage of development and research, can give to their already highly trained "sixth sense," once a person has mastered an interpretation of the tones. On the other hand, while they voice high enthusiasm over some of the attributes of a device, they also point out serious deficiencies.

One of the greatest hazards in the life of a free-roaming blind man is the down-step; that is, the approach to a curb from the upper side, or the approach to down-going stairs, or the edge of a subway platform. These situations are dangerous because they do not present a surface from which the echoes that the blind man normally employs may reflect. The supersonic and other guidance devices operate surprisingly well, for the probing beam overshoots the dangerous edge, and this registers in the earphone as a radical tone change that tells the blind man of danger ahead.

When will some of these guidance devices or reading machines be ready for distribution among the blind outside the laboratory? The answer at the present time is that there are still many very serious difficulties to be ironed out before even partial application will be attempted. A faulty or incomplete device of this sort is as bad as none at all—like a defective parachute. To those who are understandably impatient for quick results, it has to be explained that the work in these exciting and challenging fields of humanitarian research has only just begun. It took years to develop radar and submarine detection devices to the point where they could be useful.

The essential features of the problems are now clearly defined. The ultimate solutions of many of the problems are not yet in

sight. Indeed, adopting a conservative view, one cannot venture to guess whether it is possible to devise artificial aids which will have more than special-use utility for the blind man, as distinguished from a hoped-for general substitution for sight. One feels most cautious about extending what could be a premature hope. The most that can be honestly said is that the government has set up a cooperative agency which can call on the best brains in the country to focus their energies on the problem. If there is a solution latent in our vast and growing technology, it will be found eventually.

GEOPOLITICS

MACKINDER'S HEARTLAND

by HANS W. WEIGERT

LAY thine ear to the ground and list' if thou can'st hear the tread of travellers."

Halford Mackinder has listened to the ominous sounds from the earth longer and more intensely than any other living student of human geography. From time to time, he has recorded his impressions in brief statements which combined geographic wisdom with prophetic vision. The prose of these statements is rare and forceful poetry. To Mackinder geography is indeed "an art of expression parallel to and complementary to the literary arts . . . it ranges values alongside of measured facts. Hence 'outlook' is its characteristic."

While the shadows cast before a troubled mankind were growing, Mackinder's words increasingly became warnings. Yet nobody seemed to listen to the voice that told of the "tread of travellers" in the darkness. In 1904 and again in later years, Mackinder, unheeded, spoke of the portentous footfalls. Then, a few years ago, his message suddenly returned "as a ghost revisiting a world in which it lived without much honor." The ideas of the now octogenarian Mackinder burgeoned into significance in the turmoil of the second World War and overnight became imperatives for armchair strategists. "Heartland" and "World Island" were uncritically accepted as indispensables in a new geographical jargon—in spite of, or, often, because of the fact that its most eloquent sponsors were in doubt as to how to define the boundaries of that mysterious region "Heartland."

They were curiously attracted by the mystery and glamour woven around the Heartland and World Island catchwords of what seemed to be a new geography. Their curiosity increased when they learned that Mackinder's warnings, addressed to the Peacemakers assembled in Paris in 1919, had been duly noted and clearly understood by one of the enemy—General Karl Haus-

From THE AMERICAN SCHOLAR, *Hiram Haydn, Editor*

Copyright, 1946, by the United Chapters of Phi Beta Kappa.

hofer, who initiated the blueprints for a "transcontinental bloc" reaching from the Rhine to the Yangtze. It was to be based upon collaboration between Germany and Japan with the U.S.S.R. and China, and would result eventually, by "peaceful penetration," in German leadership among the great land Powers. While the German general staff adopted Haushofer's teachings, Hitler discarded them when he committed the decisive blunder of World War II in ordering his generals to attack the Soviet Union.

The mysteries of the Heartland and the effect which Mackinder's ideas had had on the enemy were exciting enough to occupy the interest of his readers in 1942 and later, and to distract them from the broader aspects of his political world geography. However, it is these broader aspects which are the problems of a new generation of peacemakers.

Mackinder was outstanding among modern geographers in showing history—geography set in motion—to be part of the life of the world organism, and in basing a system of human geography on the thesis that the world has become a *closed unit.* To stress this basis of Mackinder's approach to political geography at a time when "global war" and "global geography" are current coin sounds like carrying coals to Newcastle. "Global" concepts, however, are of recent date. It remains to be seen whether they will survive the war or whether competing and contrasting closed-space ideas, such as "geographic isolation" or "continentalism," will not regain the ground they have lost since Pearl Harbor. Mackinder's contribution will be fully appreciated only if we realize now that the postwar temptation will be to build a politico-geographical world which would justify continental regionalism, especially in North America and the U.S.S.R.

Mackinder assumed that what he described as the "Columbian epoch," a period of geographic exploration and expansion lasting four hundred years, had ended around 1900. He sought and found a new formula to express certain aspects of geographical causation in world history. The "Westward Course of Empire" concept, and Frederick J. Turner's doctrine of the passing of the frontier and its significance in American history, had been attempts in the same direction. But Mackinder went further. In 1904, he envisaged a new history characterized by a "closed political system" of world-wide scope. "Every explosion of social forces," he said, "instead of being dissipated in a surrounding circuit of unknown space and barbaric chaos, will be sharply re-echoed from the far side of the globe, and weak elements in

the political and economic organism of the world will be shattered in consequence."

The "Heartland" specialists usually ignore these foundations of Mackinder's political geography. They forget that we cannot truly define "Heartland" or "World Island" unless we first understand the premises of Mackinder's thesis: the world has become a closed system; power, in this closed unit, is mobile on the land and in the air to a degree undreamed of in the Victorian age of sea power. The Victorian age is dead. Yet its ideas still live. Man finds it, to use Vilhjalmur Stefansson's succinct phrase, "easier to change the face of nature than to change his own mind."

Mackinder's consciousness of the passing of the Victorian sea-power age made him see Europe and its political geography as subordinate to Asia. It is in Asia that land power and land-based air power have had their greatest opportunities to challenge established power positions in the world at large. The mobility of land power (not land power as such), in competition with the mobility of sea power, evolved as a decisive geopolitical feature of the twentieth century. By evaluating the competition and possible clash between sea and land power, Mackinder discovered the "pivot region of the world's politics": the Heartland of Eurasia. And he did not hesitate to project the effects which an increasing mobility of military and economic power in this area is bound to have on the rest of the world. In 1904, he saw that "the century will not be old before all Asia is covered with railways. The spaces within the Russian Empire and Mongolia are so vast, and their potentialities in population, wheat, cotton, fuel, and metals so incalculably great, that it is inevitable that a vast economic world, more or less apart, will there develop inaccessible to oceanic commerce."

This pivotal area Mackinder projected as an organic unit within the world unit. Inaccessible to ships but covered with a network of railways, the continental basins of Eurasia are seen as the homeland of a new Russia which is successor to the Mongol Empire. From its central position, Russia can exert pressure on Finland, Scandinavia, Poland, Turkey, Persia, and India. The centrifugal power which drove the horse-riding nomads of the steppes westward and southward against the settled peoples of Europe is still a living force in the Russian heartland. If ever it succeeded in expanding over the marginal lands of Eurasia, if ever it were able to use its continental resources for fleet-building,

then, Mackinder felt, "the empire of the world would be in sight." And to leave no doubt about the direction of his fears, forty years ago he added: "This would happen if Germany would ally herself with Russia."

When Mackinder re-examined his original thesis at the close of the First World War, he found that his "thesis of 1904 still sufficed." Hence his warning: "Who rules Eastern Europe commands the Heartland. Who rules the Heartland commands the World-Island. Who rules the World-Island commands the world." It became much too smooth a slogan when it was dusted off in our day. Most of those who used it persistently were fascinated more by the general appeal of the slogan than by its geographic realities.

The Heartland of Europe and Asia had essentially the same frontiers in 1918 as Mackinder's "Pivot Area" of 1940. It comprised the vast expanse of the continental inland basins of arctic and continental drainage which measure nearly half of Asia and a quarter of Europe, and which are inaccessible from the ocean. As a strategical concept, the Heartland includes all regions which can be denied sea power. Railways, growing and expanding inward, have changed its face continuously since 1904 and have tested Mackinder's thesis. The airplane has since appeared in skies over the Heartland as a new instrument of geographical surgery, and Mackinder greets it as an ally to land power in the Heartland.

The first World War Mackinder sees as the climax in the eternal conflict between continental land power and marginal power, backed and fed by sea power: "We have been fighting lately, in the close of the war, a straight duel between land power and sea power. We have conquered, but had Germany conquered she would have established her sea power on a wider basis than any in history, and in fact on the widest possible base."

The third and final test of the Heartland formula was undertaken by Mackinder in the article, "The Round World and the Winning of the Peace," which he wrote in 1943 for *Foreign Affairs*. To Mackinder, the test was positive; he found his concept "more valid and useful today than it was either twenty or forty years ago."

Yet while the original concept of the Heartland remained basically intact, its frontiers were significantly revised. The revisions were required in order to accommodate certain major changes in the political geography of the world since 1904 and 1918. The

territory of the U.S.S.R. remains equivalent to the Heartland. But there is one rather important exception. A vast area within the Soviet Union which begins east of the Yenisei River and whose central feature is the Lena River is now split from the original Heartland. "Lenaland Russia" has an area of three and three-quarter million square miles but a population of only some six millions, in contrast to "Heartland Russia," which covers four and a quarter million square miles and has a rapidly growing population now numbering one hundred and seventy millions.

Heartland Russia, backed by the natural reserves of Lenaland, looms with greater power than the Heartland Mackinder envisaged in decades past. What earlier had seemed to be mere speculation had now grown into reality, and Mackinder could state as a fact that "except in a very few commodities the country is capable of producing everything which it requires." Again he views the open western frontier of the Heartland. His conclusion that "if the Soviet Union emerges from the war as conqueror of Germany, she must rank as the greatest land power on the globe" is slightly less emphatic than his vision of the approaching "empire of the world" (1904). Otherwise, the Britisher's view of the geopolitical relationship of Russia and Germany had remained unchanged.

Any attempt at a critique of Mackinder's powerful generalizations should begin with the acknowledgment of our indebtedness to the man who did more in our time than anybody else to enlist geography as an aid to statecraft and strategy. The fundamentals of his closed-space concept stand so firmly today that we almost forget how revolutionary the concept was when first formulated forty years ago. The same observation applies to Mackinder's land-power thesis which, appearing at what seemed to be the height of the Victorian sea-power age, seemed shocking and fantastic to many in the English-speaking world. But in reviewing his thesis today, we should remember that it is the concept of a man who viewed the world from "England . . . that utmost corner of the West." Only a Britisher could have written as Mackinder did. Recognizing this and taking account of the technological changes which have surpassed even Mackinder's imagination, we should have sufficient perspective today to speak critically of the theory of the Heartland.

It is perhaps not incidental that the logic of Mackinder's

Heartland seems to reveal itself best on a Mercator world map (such as Mackinder used when he first laid out his blueprint). Here the Heartland lives up to its name. We see it surrounded by a huge arc forming an inner crescent which includes Germany, Turkey, India, and China. Beyond the crescent of peripheral states, Mackinder envisaged an outer crescent which embraced Britain, South Africa, Australia, the United States, Canada, and Japan. Again the Mercator projection lent a helpful hand in constructing what seemed to Mackinder a "wholly oceanic" and "insular" crescent.

However, we find it difficult, if not impossible, to visualize this relation of the Heartland to a surrounding inner and outer crescent if we exchange the Mercator map for the globe or any azimuthal-equidistant map. The North America which seemingly was a part of a chain of insular Powers distant from the Heartland now becomes a geographical myth. Instead we see the Heartland and North America in destiny-laden vicinity. We see the Heartland over the top of the world as a politico-geographical reality, as the result of the lessons of a new geography of world air transport. We have a different view of the Heartland than Mackinder, who plotted it from Britain and with the destinies of Britain foremost in his mind. While time has verified Mackinder's concept of Russia's growing importance as a land power in a pivotal area, the skyways of the Arctic Mediterranean give validity to a new way of regarding the geographical relations of North America and the U.S.S.R. The inaccessibility of the vast inland spaces of the Heartland became evident when the Heartland Power was attacked by Germany in the west, where the Heartland opens itself to invasion. But seen from North America and in terms of new communications, inaccessibility and vastness no longer conceal the Heartland from us. It lies no longer behind an impenetrable wall of isolation.

In his *Foreign Affairs* article, Mackinder seems to have made major revisions in his original concept of the relationship of the rest of the world to the Heartland. We have noticed that the original Heartland thesis remained basically unaltered, although the emphasis on the thinly populated "Lenaland" area has been toned down. But the surrounding crescents (and particularly North America as a member of the outlying insular Power group) are viewed by the Mackinder of 1944 in a different light. This is significant. The original British view which left North America seemingly isolated and beyond the sphere of power zones directly

linked with the Heartland, has now been replaced by an Anglo-American world view.

Has Mackinder thus silenced his critics? I wonder. The critics have been few, and those who questioned the validity of his thesis stressed uniformly the pivotal importance of the densely populated regions of the coast- or rimlands. The overemphasis, however, on either inland or rimland location neglects the complementary character of the two, as well as their constantly changing values. Mackinder understood these dynamics clearly. He re-examined and revised his appraisal of the relationship between interior and peripheral; he perceived from Britain that the peripherals felt, more than ever, the shadow of the continental landmass in its expansionist movement. Thus he projected a new vision of the Heartland in its relation to the surrounding zones. In doing so, he envisaged the geographic link between the Heartland and the Anglo-American world in a new light. From Mercator he turned to the globe. Around the north polar regions he hung a "mantle" of deserts and wildernesses. From the Sahara Desert, the mantle extends to the deserts of Arabia, Iran, Tibet, and Mongolia. From there it spreads out across the "wilderness of the Lenaland" to the Laurentian shield of Canada and to the sub-arid belt of the United States.

Thus he constructed what seems to be a new "pivot of history": a zone including both the Heartland and the basin of the North Atlantic. Thereby Mackinder reveals a new fulcrum of world power, and a new relationship between the Heartland and the outer world. The enlarged pivotal area of 1944 is made apparent by drawing a great circle arc from the center of the Yenisei River across the Mid-Ocean to the center of the Mississippi valley. The arc leads across the bridgehead of France, over the stronghold of Britain—"a Malta on a grander scale"—to the vast arsenal of the eastern and central United States and Canada. This North American-British-French-U.S.S.R. bloc comprises a power fulcrum of one billion people. It neatly balances that other thousand million in the monsoon lands of India and China. "A balanced globe of human beings. And happy, because balanced and thus free."

But the balance is too neat and perfect to be true. Mackinder, by including the coastlands of Europe as well as the North American rimlands and central regions, has wisely acknowledged a significant geopolitical fact. North America is no longer part of a separate outer crescent; her security zone extends via Britain

into the rimlands of western Europe. Yet Mackinder still looks at the world with British eyes. Britain is the vital link in his concept of the "Mid-Ocean" as the main artery which makes the United Nations bloc (without China) a life force. Does he not try to prove too much? Do not his own lessons of a phase of history in which land power (plus land-based air power) challenge the remnants of the Victorian age, guide us to additional routes which extend from North America to the Heartland?

Those routes do not touch Britain, although they touch, through Canada, lifelines of the British Commonwealth of Nations. Mackinder's latest vision pushes the "Lenaland" and with it the whole of Soviet Asia into the background. This seems logical if one views the Heartland from the British Isles. However, a view of the Heartland from any place in North America exposes the fact that the Mid-Ocean avenue is by no means the only one connecting North America and the Heartland. The established sea lanes of the North Atlantic are and will remain the cheapest avenues; but, in years to come, traffic will mount on the new highways and skyways to the Heartland across both the Alaska and the Greenland-Iceland bridges. While we are aware of the climatic barriers which always will hamper an American and Russian expansion northward and a large-scale colonization and land-utilization of their Arctic possessions, we cannot eliminate the northern links from the blueprints of a new world view. These links are represented not only by skyways but also by new inland communications and by sea lanes, opened by weather stations, planes, and ice breakers. Furthermore, there are new inland roads in the making which will connect both the Heartland and North America with China. The old front doors of China, in Hong Kong and Shanghai, are slowly disintegrating with the passing of colonial imperialism.

Mackinder's citadel of land power still stands—and mightier than ever. And it is not merely the Heartland quality of its landmass that accounts for its leading role in today's world theatre. Equally important are the wealth of its resources and the human intangibles which make a nation great. In the political and economic geography of a shrinking world, location is not a static element. Its value changes constantly. The United States and the Soviet Union are about to revise their politico-geographical contacts; the northward course of both nations accounts for some of the major changes. Equally, the relationship of China and the U.S.S.R. is expected to change radically. The long inland frontier

between these two nations will grow in significance in the next few decades, and stimulating or contagious ideas will not be halted by ancient walls. Such contacts will affect the rest of the world and particularly the role of the Heartland.

Finally, there is the human factor: the differences in vitality among the great nations which are paramount among the factors that will change the relations of the Heartland to the rest of the world. The balance of manpower is shifting. At present, the shift favors the vigorously growing nations within the U.S.S.R.—and will continue to do so for decades to come. It is emphasized by the fact, stressed by Ellsworth Huntington, that biological inheritance has produced qualities in the Heartland people which compensate for its climatic handicaps. This trend but underlines the significance of Mackinder's Heartland vision. Yet a future cycle in the evolution of the world's population that is growing much too rapidly—growing in spite of the appalling blood sacrifices of the war—will make the demographic problems of new Powers, of China and India, a world problem. Moreover, it will affect deeply the power position of the Heartland people and of Western nations.

I am afraid that Mackinder's new balance of power doctrine, a world divided into two equal, "therefore free," hemispheres of one billion human beings each, is a structure built upon shifting sand. The weakness of Mackinder's doctrine does not lie in its emphasis on the citadel of land power as pivotal in world affairs. It lies rather in the attempt to construct a balance of power formula which can be applied permanently to the relationship of the Heartland and the rest of the world. Since Mackinder first started out to demonstrate how geographical sense is essential in acquiring a valid world view, new pivot areas have evolved and still others will emerge. The growth of American power particularly has prompted Mackinder to revise his formula. Other areas and their peoples will come of age, and new lines of communications will transform international relations. No balance of power thesis can solve permanently the geopolitical problems of tomorrow. That is the vital lesson which Mackinder himself taught us. The world's nations have realized that they henceforth must live "in a closed system in which they can do nothing of which the repercussion does not come back upon them from the very antipodes."

HISTORY

THE SLAVE POWER CONSPIRACY: 1830–1860

by RUSSEL B. NYE

THE KEYNOTE of the abolitionist histories of the ante-bellum period, and of the literature produced by the abolitionist movement, was the thesis that the fight against slavery was not only a struggle to free the Negro from bondage, but one to remove as a dominant force in American life the threat of a well-organized, aggressive, threatening "Slave Power conspiracy," or what is called "Slaveocracy." For the abolitionists, who remained a minority in the North throughout the entire pre-war period, the "Slave Power threat" served as an invaluable device in gaining public support. There was, they charged, a tacit secret agreement among Southern slaveholders not only to maintain undisturbed their "peculiar institution," but to foist it on the nation by extending it to the territories and free states (possibly to whites), to destroy civil liberties, control the policies of the Federal government, and complete the formation of a nationwide ruling aristocracy based on a slave economy.

To many in the North who were relatively uninterested in the Negro's freedom, the appeal of the charge was strong. Mechanics, immigrant laborers, farmers and lower- and middle-class workmen, prone to suspect the motives of the rich and powerful, found in the abolitionist contention more logic than is usually supposed. During the thirties the abolitionists warned constantly of the existence of such a conspiratorial movement to crush liberty, though the term "Slave Power" did not come into wide use until the fifties. In 1839 the National Convention of Abolitionists, meeting at Albany, resolved that "the events of the last five or six years leave no room for doubt that the SLAVE POWER is now waging a deliberate and determined war against the liberties of the free states," and by 1845 repetitions of the charge became common. From that date on, Northern opinion was sub-

From SCIENCE AND SOCIETY, *Bernhard J. Stern, Editor*

Reprinted from Science and Society, N. Y. Volume X, Number 3 (Summer, 1946). Pages 262–274. Copyright, 1946.

jected to an increasing barrage of proof, and began to be colored appreciably by acceptance of it. As the fear of "black Republicanism" and miscegenation was used by the pro-slavery element to unify Southern opinion, so the genuine threat of the Slave Power became an important factor in consolidating anti-slavery sentiment in the North.

What was the Slave Power of which the abolitionist warned, and from what conditions did it arise? A typical definition called it "that control in and over the government which is exercised by a comparatively small number of persons . . . bound together in a common interest, by being owners of slaves"; all definitions agreed that it was fundamentally "an aristocracy constituted and organized on the basis of ownership of slaves." Its origins lay in the institution of slavery, which "developed and gratified the most intense spirit of personal pride, a love of class distinctions, and the lust of dominion. Hence arose a commanding power, ever sensitive, jealous, proscriptive, dominating, and aggressive. . . ." The threat of Slave Power domination was intensified, said the abolitionists, by the danger of a coalition of Southern slaveholder and Northern capitalist to form a ruling oligarchy. The two had certain moral affinities and a clear identity of interest, it was pointed out, and concerted action was logical and imminent. The tendency to include in the term "Slave Power" not only slaveholders but also Northern industrialists grew, until by 1850 the term meant, as Wendell Phillips strikingly phrased it, an alliance of "the Lords of the Lash and the Lords of the Loom." "The wealth of the North and the wealth of the South," cried *The Antislavery Bugle,* "are combined to crush the liberal, free progressive spirit of the age," and the fight against the Slave Power became a battle against conservatism, reaction, aristocracy, and the power of capital—in Ohio and Massachusetts as well as in South Carolina.

It was not difficult for the abolitionists to recruit evidence to prove that there actually was a Slave Power conspiracy. After 1850, when they began to publicize the charge in earnest, they interpreted the drift of recent events in the light of its existence. Joshua Giddings of Ohio, writing in the forties, listed ten proofs from history to substantiate the belief that a well-organized Southern slaveholding cabal had operated in the past, and might again: the fugitive slave law of 1793, the Creek-Negro troubles in Florida in 1815; the Seminole War, the maintenance of slavery in the District of Columbia, the controversy over the mails and

petitions in Congress in 1836, attacks on free speech and press, and demands for extension of the slavery to the Southwest and for the reopening of the slave trade. Seward in 1855 added the Missouri Compromise, the annexation of Texas, the Mexican War, the Kansas struggle, and the 1850 Compromise to the list of Slave Power victories. The Dred Scott case clinched the evidence, and by 1858 a substantial number of Northerners were ready to believe, as did the non-abolitionist Cincinnati *Daily Commercial* of March 12, 1857, that "There is such a thing as the SLAVE POWER. It has marched over and annihilated the boundaries of the states. We are now one great homogeneous slaveholding community." The aim of this conspiracy, whose existence was thus established, was threefold: to reopen the slave trade; to extend slavery throughout the entire nation and beyond; and, most dangerous threat of all, to make the free white man a virtual slave to a privileged aristocracy of Southern slaveholder and Northern capitalist.

Southern agitation after 1850 for the renewal of the slave trade lent rather convincing proof to the first claim. The failing slave economy led many Southerners to advocate a revival of slave importations as the only remedy for the South's economic difficulties, and abolitionists seized upon the argument as evidence that the Slave Power intended to entrench itself even more firmly by thus bolstering the institution upon which it rested. In the years following, Southern demands became more insistent and frequent (a marked illustration of how completely the South had become committed to the defense and maintenance of slavery) while the abolitionist press kept careful watch of ruses, such as proposals to import "indentured" Negroes, Negro apprentices, or to form "African Labor Importation Associations." The loosening of the 1808 laws against the slave trade or their repeal, warned the abolitionists, would result without doubt in a new and doubly potent Slave Power.

Stressed more strongly by the abolitionists and supported by more substantial evidence was the claim that the Slave Power intended to establish slavery on a nationwide and possibly a hemispheric basis. Gamaliel Bailey in 1844 exposed "a deliberate plot . . . to sustain the slavery of this country . . . and to extend it over almost illimitable regions," and for more than a decade the press reported a boast by Toombs of Georgia that he would some day call the roll of his slaves on Bunker Hill. Furthermore, the abolitionist could cite the Kansas troubles, the attacks

on anti-slavery men in the North, the Mexican War, Texas, the various Congressional compromises, the argument over slavery in the territories, and a host of other proofs. Nor was the Slave Power innocent of designs on Central America. It intended to make slave states of New Mexico and Utah, divide California into a free and a slave state, split Texas into four new slave states, take over at least Mexico, Cuba, San Domingo, Yucatan, and Nicaragua, "consolidating the whole into a vast slave empire." Toward the close of the fifties the accusation formed a major portion of almost every abolition argument, until anti-extension became, by way of the Republican party, a cardinal political principle in the North.

More difficult to establish, but tremendously effective as a propaganda issue, was the accusation that the Slave Power aimed eventually to subvert the liberties of white men, and to introduce virtual white slavery as national policy. Since slavery, reasoned the abolitionists, was founded upon a violation of the principles of liberty and free government, it followed that by the simple fact of its existence slavery was a constant threat to those principles. Abolutionists had warned from the beginning that the Slave Power would some day crush white rights as it had black, and after 1845 the warnings became clearer and more frequent. For proof of their charges the abolitionists had but to turn to the arguments in support of slavery advanced by the slaveholders themselves, particularly to the "positive good" school of thought developed in the South after 1835, a new philosophy of bondage which boldly asserted slavery to be a beneficial institution, the single sure foundation for society, church, and state, while freedom was asserted to be a danger to the human race. Certain aspects of this pro-slavery argument lent themselves admirably to the abolitionist contention.

Slavery, said many in the South, had natural, historical, and moral justification. Governor McDuffie of South Carolina believed that the examination of any community showed that "servitude, in some form, is one of its essential constituents"; Calhoun called slavery "a universal condition," and Chancellor Harper thought that "it is as much the order of nature that men should enslave each other as that animals should prey upon each other." At the same time, pro-slavery men accused free society of dismal failure. It was, said the New Orleans *Delta*, ". . . radically wrong and rotten. It is self-destroying, and can never exist happily or normally, unless it is qualified by the introduction of

some principle equivalent in its effect to the institution of slavery," an argument carried to its fullest expression by George Fitzhugh's *Sociology for the South, or Free Society a Failure.* Slavery was best for the laborer, providing for him a security and paternalistic benevolence lacking in a free competitive labor market; it was likewise best for the employer-capitalist, securing for him a contented, docile labor supply incapable of striking or demanding concessions. "By making the laborer himself capital," T. R. R. Cobb pointed out, "the conflict (of labor and capital) ceases"; adoption of the slavery principle in the Northern factory system would forever end the war between employer and laborer and result in greater advantages to both. As slavery was superior to free society as an economic institution, so was it superior as a political system. Only upon slavery, said the South, could a truly stable republican government be built, for, as Hammond of South Carolina explained, it "prevented the ignorant, poor, and therefore untrustworthy and unstable portion of the population from exercising political influence."

It was not difficult to perceive the implications of the pro-slavery argument. If slavery were a positive good, superior to free society as an economic, political, and social system, it was reasonable to assume that the next step of its proponents would be to impose it upon the nation at large. Certain extreme statements from Southern fire-eaters invited some such interpretation. The Richmond *Enquirer,* for example, declared editorially that "the laws of the slave states justify the holding of white men in bondage," while the Richmond *Examiner* thought that "the principle of slavery is itself right, and does not depend upon difference in complexion," and that "slavery black or white is necessary." Similar quotations were endlessly reprinted by the abolitionist press, which agreed that extension of slavery to white men was a definite objective of the Slave Power. And it could legally be done. The slave laws made no distinction in color; slavery was a matter of condition alone. If a person who was 99.9% white could, under the law, be claimed as a slave, the next step was a logical one. The only reason for the existence of pigmentation as a basis for slavery, warned the abolitionist, was simply that the Negro, who because of his helpless condition could be made a slave, happened to have a different color. The truth was that the institution did not rest upon a distinction of race at all. "Where is the man," asked William Goodell, "who may not at

any moment become a slave?" that is, if slavery is founded not upon color, but upon the right of the strong to enslave the weak.

In making their charges, the abolitionists made a particular effort to point out to the immigrant and the laborer, the two groups most likely to respond, the great stake they held in the abolition of slavery and the consequent defeat of the Slave Power. "American slavery," resolved the Massachusetts Antislavery Society in 1843, "is the deadliest foe of the rights of labor, and ought, therefore, to be the object of special indignation and alarm to the hardworking Irish immigrant." "What security have the Germans and Irish that their children will not, within a hundred years, be reduced to slavery in this the land of their adoption?" asked the Cincinnati *Freeman.* Involuntary servitude, it was warned, could legally be made a prerequisite to citizenship, and by some such device the Slave Power might introduce white slavery for the foreign-born. As evidence, the abolitionists pointed to those provisions of the Nebraska bill which denied citizenship to territorial aliens for five years, and to the anti-foreign riots attendant to the Know-nothing movement. In general, the reaction of the foreign press, especially in the areas of German settlement, was sympathetic, while the influence of men such as C. C. Follen and Carl Schurz, both anti-slavery leaders, turned many immigrants toward the anti-slavery cause. Yet in the end it was not the Slave Power threat which enlisted the support of the foreign-born in abolitionism, but other factors, primarily economic and political, and after 1856 and the decline of the nativistic troubles, the abolitionist campaign to convince the immigrant of the threat of white slavery was largely written off.

More successful was the appeal to the laboring classes. The workman, though little interested in the humanitarian aspects of the slavery question, intuitively perceived that his own liberties were to some extent involved in the issue. The existence of a slave labor system threatened his own status, and he could readily see that the competition of skilled and unskilled slaves tended to depreciate the value of free labor. "Wage slavery" and chattel slavery were, in the opinion of the wisest labor leaders, closely connected, and the former could not be successfully attacked until the latter were abolished. For that matter, it was evident that wage slavery might conceivably turn into chattel slavery or something resembling it—the intervening step was a simple one—and the Slave Power threat held direct and personal meaning for the workman.

Nearly the whole structure of the pro-slavery argument could be turned to support the abolitionist contention that the Southern Slave Power intended to enslave white laborers. If slavery was the best possible system for labor and capital, was it not logical to assume that it would be an improvement over free labor in the Northern factory system? If the laborer was unfitted for self-government, as the South argued, was it not implied that his employer should rule him? If slaves were much better off than the wage laborers, as Fitzhugh contended, the introduction of slavery into industry could be justified on the ground of bettering the free laborer's lot. Such, said the abolitionist, was the intent of the Slave Power, and, if it gained political control of the federal government, it could realize its aim. It was not difficult to find and publicize extremely significant statements from the South. The Republican party in 1856 distributed a reprint of a South Carolina paper's belief that "Slavery is the natural state and normal condition of the laboring man, black or white." The Charleston *Mercury* thought that the great evil of free society was "a servile class of mechanics and laborers, unfit for self-government, and yet clothed with the attributes and powers of citizens." These, and similar statements from prominent Southerners, among them Leigh of Virginia, McDuffie of South Carolina, Calhoun, Dew, Fitzhugh, and others, made out a damaging case. "Let the whole country keep in mind," said Gamaliel Bailey, "that the Southern Democracy claims the right to enslave the whole laboring population of the country." Neither were such sentiments restricted to the South. Solon Robinson of Indiana, a prominent agricultural authority, defended slavery as "a perfect labor system" and suggested its adoption on the nation's farms, a view that found some agreement in Ohio and Illinois. The Salem *Register,* the Pittsburgh *Post,* the New York *Herald* and the extremely Southern New York *Day Book* thought slavery superior as a labor system, while in factory-conscious New England a debate was held on the question. The abolitionist claim that the extension of slavery to white labor was something more than an impossible chimera had a point, and evidence to buttress it. If slavery were ever extended to include whites, the laborer, since his political and economic position was weakest, would be the first to be enslaved—a fact the abolitionists never allowed the laborer to forget. Thus, in 1839, *The Emancipator* summarized the issue: "The struggle is between the antagonist principles of free and slave labor. They cannot much longer co-exist.

One must prevail to the exclusion of the other. The laborers will either be free, or enslaved." Subsequent argument directed at Northern labor by the abolitionists deviated but little from this line, and they continued their appeal to the labor interests for assistance against the Slave Power until the Civil War.

Although the laboring class was too disorganized and too politically immature during the period to exert much influence, nevertheless in the main the effect of the abolitionist warnings of the Slave Power threat to its liberties was relatively large. In New England, especially, the workers tended to be anti-slavery partisans (the textile mill girls were strongly abolitionist), but in other sections of the North some labor leaders felt that although the abolitionists were right in opposing slavery, they agitated the Negro question unduly. Other labor organizations, such as the Associationists, believed the real issue to be wage slavery, whose abolition must precede any other. "Down with all slavery, both chattel and wage," was a popular slogan in labor groups. Land Reformers, such as George Evans, thought that equal rights to the soil must precede abolition of slavery, else the root of the evil would never be eradicated. But though laboring interests, divided as they were, could give the abolitionist movement little organized assistance, the long campaign to convince the laborer of the Slave Power threat brought individual support to the anti-slavery cause, and bore material fruit when, in the form of the Republican party, it entered its political phase.

The abolitionist contention that there existed a Slave Power conspiracy which threatened the continuation of liberty was an important factor in enlisting support among certain Northern elements for the anti-slavery movement. In some ways, and in some groups, the "great Slave Power plot" overshadowed in importance the religious, humanitarian, moral, and political issues of the controversy. The claim tended to discredit the pro-slavery argument, reading into it sinister implications; by carrying Southern logic to its ultimate conclusion and by identifying the slaveholder with a conspiracy of infinitely dangerous designs, the abolitionists robbed the pro-slavery position of any possible appeal to the immigrant, the workman, and the lower middle class in the North. Then, too, the Slave Power threat helped widen the rift between North and South by making it more difficult than ever to be neutral toward or tolerant of slavery or its extension. Neutrality or tolerance, said the abolitionist, implied lack of

interest in or positive hostility to the preservation of the liberal, democratic tradition. The issue simply admitted of no compromise. Identifying their cause with the greater cause of liberty, with republican government, and with the interests of large relatively unorganized special groups such as laborers or immigrants, the abolitionists made theirs the cause of civil and political freedom. The Slave Power threat personified the pro-slavery argument, made it vivid and concrete, and dramatized the controversy into a contest between good and evil, freedom and oppression, democracy and aristocracy. When war came, it was justified by the abolitionists and others as the last phase of the contest, as the final defense against the assaults of the Slave Power on traditional American rights. The South waged war, it was said, ". . . not against Abolitionism or Republicanism *per se,* but against free institutions and the democratic theory of government." Had it not been for the abolitionists, who awakened the people to the "villainous purposes and character of the Slave Power," we should have had "a nation in which were only two classes, *masters* and *slaves.*"

Was there a Slave Power, and were the abolitionists correct in ascribing to it the evil designs which formed so large and important a part of the abolitionist propaganda? In the sense of the term as used by Wilson, Goodell, Bailey, Garrison, and others—a secret and highly organized group with conscious aims of imposing restrictions upon traditional liberties—the Slave Power conspiracy probably had no real existence. The South was never so completely unified as to warrant evidence of a definite "conspiracy." There was Southern disagreement upon such vital issues as Texas annexation, the Mexican War, the Wilmot Proviso, the 1850 Compromise, and the Kansas question. However, it is clear that among Southern leaders there was unity of belief that slavery was a good system, probably the best, and that it should be retained and extended; the events of the period from 1830 to 1860 showed that in preserving and extending it the South was willing to infringe upon basic civil and personal rights, free speech, free press, free thought, and constitutional liberty. The Calhoun-Fitzhugh school of thought, that slavery was a "positive good," was more than a defense of slavery; it was a counterattack upon free society, one which commanded excellent support in the South and, the abolitionist believed, significant support in the North. While the "conspiracy" of which the abolitionists warned was no doubt a natural alliance of common political and economic

interests, its threat to liberty, North and South, was more than idle. There were too many public utterances of policy (emanating often, it is true, from extremists, but at the same time from Southern leaders) for the times to disregard William Goodell's warning that "*the South is thoroughly in earnest.* She is no land of *shams.* There is reality, terrible reality there." The alliance itself was motivated by and founded upon the cardinal principle of slavery—the master principle—and the abolitionists were not so far wrong in believing that its existence seriously jeopardized, for the first time since the founding of the republic, the American tradition.

NOTE: *The above essay, appearing in the Summer 1946 issue of* SCIENCE AND SOCIETY, *had a wealth of author's notes substantiating and giving the source of every quotation or statement, referring to authorities and indicating books, periodicals and journals where the subject may be further studied. Interested readers are referred to the original article.*

INTERNATIONAL AFFAIRS

THE BEAM IN OUR OWN EYE

by CLYDE EAGLETON

YOU can criticize Russians all you want to (and we have already got ourselves into a frenetic state doing it), and at various points I might be able to add some items to the indictment. But not now. Russia may enter into this article by way of counterpoint; but what I am concerned with at the moment is to try to show what others see as they watch us Americans at our democratic antics. This glimpse, I am afraid, will show us trying to have our cake and eat it, too; or, to use another famous figure of speech, it will show us riding our horse off in all directions at one and the same time. We want peace and security in the world, so we say, and we are inclined to blame others because we do not feel sure that we have it; but what are we, the American people, contributing to the sense of security and trust among nations?

To begin with, we said that we wanted an international organization which would provide security; and we can fairly claim credit for having made the United Nations Charter what it is. This is not necessarily a compliment, for we deliberately made it as weak as we could. We rejected the international police force for which the Russians had asked at Dumbarton Oaks, and thereby left Russia with a security system not quite so strong as she had hoped for. We upheld the veto of the Great Powers in the Security Council, and thereby made it impossible for the Security Council to take action against the only states which could be dangerous to us, and the only ones able to make the atomic bomb. We did not do this to appease Russia, though doubtless she wants the veto as much as anyone does; we did it to appease the American Senate and the American people. It was one of the many places in the Charter where we gave with one hand and took away with the other.

We rejected the compulsory jurisdiction of the International

From HARPER'S MAGAZINE, *Frederick Allen, Editor*

Copyright, 1946, by Clyde Eagleton.

Court of Justice, which means that we refused to obligate ourselves even to submit our legal disputes to impartial adjudication. We insisted that the security organization should not be allowed to deal with anything which a sovereign state might say was a "domestic question," and would not even consent to have it decided by any organ of the United Nations, or according to international law, whether or not a question is a domestic one—thereby practically nullifying the whole Charter. We agreed in principle to contribute armed forces for the Security Council to use against an aggressor, but only on condition (Article 43) that each state should reach an agreement some time in the future as to the exact number and kind of forces it should supply. Until the undetermined time when these agreements shall have been made, the Security Council will not be able to take military action against an aggressor, because it will have no forces to employ.

There can be no doubt that at San Francisco we did an excellent job of preserving and protecting our national sovereignty, if that was what we were after; but complete freedom of action is not the usual foundation upon which one builds a system of law and order such as we claimed to be building. The UN is too weak today to assure us of the security which we wish; and for this result the American people cannot pass the buck to Russia or to any other state; they cannot even pass it to the Department of State. The President and the Department of State were doubtless too timorous and might have shown more courageous leadership; but you cannot blame them for being timorous when you recall what the Senate and the American people did to the League of Nations in 1919 and to the World Court in 1935. The President has not dared to submit any treaty of importance to the Senate since the latter date, until the Charter of the United Nations came up; it is no wonder that he was careful to prune it down so that it would not be rejected as the others had been. It is no wonder; but it is a bad situation. This is a democracy, and the executive cannot bind the American people to fundamental changes of policy without their consent; and the American people did not speak up for a strong UN, and they are not yet speaking up for a strong UN.

What have we been doing since San Francisco to encourage international peace and to support the United Nations? We used to talk about the United Nations as a joint enterprise in which we were all to consult and co-operate with one another, against

a common enemy. The United Nations is by the Charter definitely excluded from anything to do with the enemy states; they are to be handled by "the governments having responsibility" therefor. Who are these governments? President Truman suggested some months back that it was time for the United Nations to handle things; and Secretary Byrnes went to the Council of Foreign Ministers in London and argued that the affairs of Europe ought to be handled jointly, and not by just one nation. That was fine, but unfortunately it was inconsistent with our own national policy. We had already made it pretty clear that we were going to run the Pacific area all by ourselves, and when various states demanded that we apply to Japan the same principle which we wished to see applied in Europe, we would not hear to it; and MacArthur is still settling the affairs of Japan all by himself—though graciously consenting occasionally to hear advice offered by the Far Eastern Advisory Council. If the United States is to have exclusive control in Japan, why should not Russia have exclusive control in eastern Europe, or in Manchuria?

Still on the line of joint and sympathetic United Nations co-operation, we were all upset at the way the British were using their armed forces in Greece and Indonesia, and practically frantic about the way the Russians were using their forces in Iran. At the same moment, we were caught in the same sort of a situation in China—that was when the Communists were howling into one ear, and ex-Ambassador Hurley was howling into our other ear. Britain and Russia and we had troops in these areas by common agreement; trouble was to be expected in each area, and the troops were there to maintain order. (It was sheer luck that it was the British rather than we who were on the hot spot in Indonesia, for the Combined Chiefs of Staff had only a short time before transferred control in that area from the United States to Great Britain.)

When the Soviet Union was brought up before the Security Council, she promptly countered by bringing Britain up on the same charges. Mr. Gromyko could, with as much reason, have hauled the United States before the Security Council because of what we were doing in China; he probably refrained only because the current policy of his government was to be tough with Britain and nice to the United States. If we can accuse Russia of using her forces in Iran to spread her Communistic system there, Russia can—and she may do it yet—accuse the United States of using

American forces to defeat Communism and uphold our capitalistic system in China.

Try another viewpoint. One of the things for which we criticize Russia is the fact that she is trying to build up a sphere of influence—though of course we do not use so mild a term—in the Near East. At the same time, and for years back, the United States has been building up a sphere of influence reaching from the North Pole to the South Pole, and we are now talking of extending it from Dakar to Okinawa. Mr. Molotov at San Francisco, after watching how the United States worked with the other American republics to get Argentina admitted, intimated that Russia could anticipate a solid bloc of some twenty American nations, led by the United States, to vote against his country in future United Nations decisions. With half the world in our sphere of influence, the efforts of the Russians in their part of the world look positively puny!

Now, let's take a look at trusteeship. Trusteeship is surely anti-imperialistic; and if the American people are anything, they are anti-imperialistic. The Atlantic Charter began with the words "we seek no aggrandizement, territorial or otherwise"; and good Americans have been busy condemning British and Dutch and French imperialism, and demanding that the colonial possessions of these countries be put under trusteeship. They have not suggested, however—not loud enough to be heard—that any American possession be put under trusteeship. On the contrary, we are trying to grab more territory in the Pacific and not put even it under trusteeship. This issue is not officially decided; but the American people and members of Congress are saying: "Our boys fought and died for those islands, didn't they? Well, then, they are ours!" That is imperialism as baldly as it has ever been put—might makes right! It is bad enough to disregard the principles which we accepted in the Charter of the United Nations, but the proposal to take illegally the mandated islands of the League of Nations in the Pacific is really shocking. Of course, if we want to take those islands, no one is going to stop us—we are too big; and this, you may recall, is exactly what we complain about Russia's doing in eastern Europe.

Whether we are turning imperialistic or not—as some of our foreign friends are beginning to wonder—we are giving the Soviet propagandists an excellent opportunity to charge us with it. Inevitably, therefore, they present the Soviet Union as the champion of downtrodden peoples everywhere against the imperialistic,

capitalistic nations. This should give even the most nationalistic of our patriots something to consider seriously.

There is another angle to all this. If we are going to claim Pacific islands on the ground that we conquered them and that we need them for national security, we could as well claim lands which we conquered elsewhere or which we need as bases, and which might be even more useful to us. How far—other states may be asking—does the United States intend to go with this strategic base idea? We are bargaining to get Iceland into UN, provided she will let us have bases there—another vote for us; Australia and New Zealand are worrying about bases in that part of the world; and what is going to happen with regard to the string of air bases across Africa? What are all these bases for? Of course, we Americans know that these bases are not for aggressive purposes, but how is Russia to know? I know that the dog is not going to bite me, but does the dog know it?

And what about the atomic bomb? The United Nations was not strong enough to provide security before the bomb came along; much less can it take care of this added and difficult problem. This was recognized in the ABC declaration, issued by President Truman and Prime Ministers Attlee and King, in which they offered to turn over the bomb secrets to the UN provided adequate safeguards could be established. Presumably, such safeguards would mean a considerable strengthening of the United Nations security system; but there was no evidence to show that the United States, which had made the UN weak, was now ready to make it any stronger. While everyone was puzzling over this, and wondering if the United States could be stalling, the Secretary of State's Committee on Atomic Energy released a report which disregards the UN entirely as regards security.

The owner of so terrible a secret is bound to be looked upon with suspicion by his neighbors; so what might our neighbors think of this report? They would probably say that it contains novel and constructive and perhaps well-intended proposals; they would perhaps be a little skeptical as to the possibility of ownership and operation of atomic energy facilities by the UN; but surely they would ask: where is the security we are all looking for? All the report says is "strategic balance of power among nations," and "danger signals." It seems to mean that UN will locate its atomic materials and plants inside the borders of several nations, so that if one nation illegally seizes what is within its territory, other nations can illegally seize what is within their ter-

ritories and, if they feel like it, can hit back at the aggressor with what they have seized. This does not sound like collective security through the United Nations; it sounds like the old game of national action and power politics. Doesn't the United States trust the UN, or intend to use it? It may well seem doubtful to those who note the care with which our proposal for the international control of atomic energy reserves to us the right to continue manufacture of the bomb—until we voluntarily decide to stop.

As this is being written, the Security Council has overridden the Russian request, and also a memorandum from the Secretary General of the United Nations, and has decided to leave the Iranian matter on the agenda. I helped in the making of Chapter VI, and I think the general position taken by the Secretary General was correct. Whether it was or not, the argument was disregarded by the Security Council on the general ground that the important work of the Security Council ought not to be impeded by slavish devotion to procedure. We taught those Russians a lesson this time! And what was the lesson? That the claim of the accused to constitutional procedures under the Charter will not even be considered; that the Charter is of no importance, and that the impartial and expert opinion of the Secretariat is to be spurned, whenever a big enough gang in the Security Council wants to put something across. These are precedents which may be used against us some day. Yes, we showed those Russians where they belong—and that place, they might conclude, is outside the United Nations. It may be even more important to show a Great Power, than to prove to a small state, that it will receive fair treatment under the Charter.

Which way are we going? If we are not going to strengthen the UN and increasingly rely upon it for security, why should we expect Russia to do so? If we are going to depend upon our own national efforts for security, and set up United States instead of United Nations bases, why should not Russia build up her national strength and claim Spitzbergen or Tripolitania, or such places? If we consider that our national safety requires the Panama Canal to be under our own instead of international administration, how can we expect Russia to want international control of the Dardanelles? We have committed ourselves to collective security through the United Nations by signature, but everything that we do indicates that we rely upon our national, and perhaps on our

regional, strength rather than upon the UN. We seem to be trying to impress our strength upon the world: our Navy is sailing around displaying itself in various places; we are planning a tremendous demonstration with the atomic bomb, which no other nation could afford; our soldiers in various places manifest, sometimes in appalling fashion, the unrestrained might of the United States. Yet, at the same time, the unwillingness of the American people to go in for conscription—or even to extend the draft—makes it very doubtful whether we could actually, with any degree of safety, rely upon our own national strength to protect us.

You say that the statements made above are exaggerated and unfair? Naturally, you would. I think so, myself; I wrote them so. Nevertheless, they are no more exaggerated than the charges which we are making against other states, and very probably they underestimate what others are saying about us. But there is a much more constructive reason for saying these things than the mere pleasure of exposing our vagaries and inconsistencies. It is time to stand up firmly against the Soviet Union; we are, in fact, beginning to do so. But we cannot do it effectively unless we have a firm foundation of consistent policy upon which to stand; unless the policy offers reasonable security and a fair amount of justice to Russia; and unless our course of conduct is one which would give Russia some reason to trust us or the UN.

There is no use asking what Russia will do—that depends upon what we are going to do. The first question before us is not Russia, but ourselves. If we will take a responsible lead, a lead which clearly shows that we intend to give to the United Nations the support which it must have if it is to succeed, we can get most of the world to follow us; and if we show that the United Nations will not be used against Russia unfairly, there is little doubt whether Russia will continue to support it. It would be very difficult for her to stay out, with most of the world behind us. We have a definite advantage over her, for she needs security above all, and she does not have so many friends on her side; and she is quite well aware of these facts. She could not afford to stay out; if she did stay out, she would have the world organized against her. She would, that is, if the United States makes the United Nations into a real security system. If we don't do that, if each nation must depend upon itself for security, some of them will line up with Russia.

The problem is not Russia; the problem is us. Whatever Russia wants or does not want, nothing can be done until the American

people make up their minds to a definite and consistent policy which they are willing to support and for which they are willing to pay the price. It is the United States which now blocks advance toward real security. That is our problem; the problem of Russia comes later. We are now in a vicious circle, and there is no use arguing whose fault it is or who began it; someone must cut through it. The responsibility for taking the first steps in this direction is ours; we are the strongest and most influential state in the world at the moment; the UN cannot be made stronger unless we do it; and we have the bomb.

INTERNATIONAL AFFAIRS

IS EINSTEIN RIGHT?

by CHRISTIAN GAUSS

IN THE course of the past summer my friend and fellow townsman, Professor Einstein, issued a statement designed to shock the public out of its complacency. He was evidently deeply concerned, for he followed it shortly thereafter by an interview which he gave to the *New York Times* of June 23rd. Everyone who knows Professor Einstein realizes that he has all his life been unwilling to step out of his role as scientist, to make any statements on public questions. His work has done more than that of any other man to direct the thinking of our time into those channels which have finally resulted in the creation of the atomic bomb. He had accepted the chairmanship of the Emergency Committee of Atomic Scientists and had done this, not in order to stimulate further research along scientific lines, but to startle you and me into a sense of our new responsibility. Our victory in World War II, he tells us, is portentous, for it was achieved at the cost of a revolution. The nature of this revolution must be immediately recognized and its possible consequences forestalled, if our civilization is to continue. "A world authority and eventually a world state are now not merely desirable in the name of brotherhood; they are necessary for survival."

When Professor Einstein tells us that we must carry the facts of atomic energy to the man in the village square he indicates that significant political action is called for and that he believes in the democratic process. This is not for the moment our primary concern. When he tells us, however, that "a new type of thinking is essential if mankind is to survive," it is worth our while to inquire whether this involves a reorientation of the type of thinking done by scholars and university professors, and why this is necessary. Let us consider briefly the nature of the problem with which the scientists have confronted their colleagues in other fields of study.

From THE AMERICAN SCHOLAR, *Hiram Haydn, Editor*

Copyright, 1946, by the United Chapters of Phi Beta Kappa.

New theories on the nature of our world and new inventions have, of course, influenced civilization in the past. The American anthropologist, Morgan, in the nineteenth century, found that even in primitive forms of social organization, inventions or the rudimentary applications of technology were so important that they could serve as a basis for determining the nature and degree of civilization. A very few of these inventions, like the use of fire and the manufacture of pottery in which men could cook their food, were sufficient to raise them from what he called "savagery" to "barbarism." The addition of a few other discoveries, like agriculture, the domestication of animals, the use of metals, the invention of the wheel, were sufficient to lift them from barbarism to the civilized state. We are not here concerned with the reasons that led later students to abandon Morgan's specific gradations. All of us are familiar with the somewhat similar classification of various epochs into the stone age, the iron age, the bronze age, etc. In the discussions of the reasons for the decline of particular civilizations which have reached a high degree of development, this question of the applications of science and technological invention, has persistently reappeared. We shall mention but one instance.

A distinguished nineteenth century scientist, Liebig, and a distinguished German scientist and historian, Du Bois-Reymond, carried on a discussion which may possibly have some relevance here. Roman civilization had reached a point of development considerably higher than that of any of the peoples outside Rome's dominion. Why was it that this civilization should have collapsed and the Roman Empire have fallen? One of the learned debaters held that the Roman Empire fell because of the Romans' ignorance of phosphoric acid, or as we would say today, chemical fertilizer. It was this ignorance which prevented the Romans from restoring the fertility of their exhausted soil. The other believed that it was the Romans' ignorance of gunpowder; with it they could easily have repelled barbarian attacks upon their far-flung frontiers.

The seriousness of the problem and the standing of the debaters was such that reverberations of this debate can still be found in the pages of learned journals. That the results were so largely negative should be ascribed to the fact that Liebig and Du Bois-Reymond were dealing not with the disease which was to prove fatal, but only with two of its symptoms. To hold her empire together Rome needed also a more rapid and effective means of

communication; and we might with almost equal justice ascribe the fall of Rome to her ignorance of the telephone or telegraph. She needed also a more rapid and effective system of transport, and though the Romans knew the principle involved in the phenomenon which Watt utilized in developing the steam engine, the possibilities of steam power never seemed to tempt them.

The malady of which the Roman Empire died went much deeper. The Roman mind which excelled in its capacity for law and administration remained oriented toward the past and was essentially unimaginative. The forces which had been adequate to found and protect the original city on the seven hills were no longer adequate to rule and maintain an empire which embraced the Mediterranean world. She failed to recognize that in expanding her empire, she had altered the nature of her problem. She never dreamed of creating the technological instruments which might have assured her dominion over her over-extended and increasingly impoverished domain. Necessity could not become the mother of invention for a people who remained complacently ignorant even of their needs.

If, in its technological aspect, Rome's predicament was then the opposite of ours, in one sense we are suffering from the same malady. We must realize that a civilization which is altered in one of its aspects cannot remain anchored to its past. It must orient itself toward the future. It must reverse its time sense. In Einstein's words, "A new type of thinking is essential if mankind is to survive."

One further comment on the Du Bois-Reymond type of thinking would seem to be pertinent here. The European world did not of course remain ignorant of the use of gunpowder. But strangely enough, when it was introduced many centuries later into the mediaeval feudal civilization which had succeeded the Roman, its effect was not in the least stabilizing. As much as any other single factor, gunpowder destroyed the age "when knighthood was in flower." The knight owed his prestige and political power to his prowess in arts which allowed him to meet his adversary at least on equal terms in single combat, hand to hand. Often the lord of a quite independent little principality with a moated castle on a hill could maintain himself and his dependents against interminable sieges by hostile lords and their retainers. But all his prestige and power collapsed when his traditional skills, the isolated little walled town and the moated castle could not prevail for even a few days against socially inferior mercenary soldiery

armed with blunderbusses and cannon. New architecture, new types of city life and organization, new training, larger nationalistic political groupings were so rapidly enforced that by the time of the Battle of Pavia (1525) the last of the knights, the Chevalier Bayard, has already become a pathetically anachronistic figure.

Neither did the steam engine act to preserve and stabilize. It is a commonplace that within a century it had forced "the industrial revolution." It is not necessary here to discuss the character and extent of this industrial revolution. Probably most of us would agree that technological inventions in the past have compelled societies to accept new forms of social and political organization.

In assessing our present situation we must, however, bear in mind that in terms of increased power for constructive or destructive purposes placed at the disposal of men, gunpowder and steam power were petty and minor inventions. It is impossible to establish anything like a ratio between them and the bomb. We may gather some idea of the potentialities involved in nuclear fission if we consider one of Professor Einstein's equations $E=mc^2$. Here E represents energy expressed in ergs; m, mass in grams; and c, the speed of light in centimeters per second. This has been interpreted to mean that "every pound of any kind of matter contains as much energy as is given off by the explosion of fourteen million tons of TNT." We may momentarily console ourselves by remembering that present methods of nuclear fission release only a fraction of this theoretically possible power. But even so, the little bomb which was dropped on Hiroshima and killed eighty thousand civilians and demolished a city was of an incommensurably greater order of magnitude. If the revolutionary adjustments demanded are in any sort of proportion to power released, then scholars would do well to realize that figuratively speaking, the bomb has fallen on their own heads as well.

Philosophers used to tell us that there was no such thing as an isolated problem. No problem in any field could be finally insulated from the problems in other fields. Every problem in science or politics impinged, for instance, on problems of ethics, religion and art. This was merely another way of expressing what we used to call the unity of knowledge.

At about the time of Du Bois-Reymond's speculations on the decline of Rome, the French historian and critic, Taine, reformulated this principle into a law governing the development of civilizations. He called it the law of mutual dependence. Ac-

cording to Taine, this meant that any signal advance (or retrogression) in politics, for instance, must, if the civilization is to remain in balance, induce compensatory changes in law, religion, literature, social organization, etc. The same would of course be true of significant advances in science. Students in the social studies are merely confirming Taine's "law" when they speak of dangerously delayed readjustments as "social or institutional lag."

Professor Einstein then is right in appealing for immediate significant compensatory changes in our present political organization. The nation-state with sovereign powers, including the power to make war, was becoming anachronistic with the invention of more effective systems of communication and transport. It is now totally obsolete as an instrument for the protection of the culture and life of its people; and any attempt to maintain pretensions to "sovereign rights" must spell disaster to its own people as well as to our world. Many other cherished notions, such as that which holds that the primary function of governments is to promote and protect "free enterprise," when this may result in the manufacture and traffic in incommensurably greater quanta of energy, are now subject to revision.

What is called for is an extension of the frame of reference against which the validity and permissible limits of human conduct must be judged. This clearly involves the extension of the sphere of law to global dimensions, and a new and global enforcement agency. It is a staggering problem of readjustment, reconstruction and re-education.

What concerns us here is the degree of assistance which scientists may hope for in this campaign of re-education from scholars and teachers engaged in other disciplines. The immediate prospect is not encouraging. In the shaping of the modern mind the historians have probably played the major role and their histories in large measure have been nationalistic. They have tended to emphasize as most significant the unique, particular and incommensurable aspect of every age and people. The objectivity which many of them assume their science demands, leads them to refrain from passing moral or "value" judgments. The nation, they say, is the product of historic forces which have operated in the past and their operation is the *ultima ratio mundi.*

In this dispensation, history makes men. It is not men like Lenin, Hitler and Mussolini and, in a quite different realm, Einstein who make history. This orientation toward the past is

nevertheless supposed by many to teach us more effectively than any other discipline how to act wisely in the present. Anyone who holds that in any important new situation wise decisions must be oriented toward the future and based on considerations of human welfare is usually regarded as a visionary or an ignoramus. In connection with the claim that history alone, or history primarily, can teach us to make wise decisions in the present, it is worth considering whether even the most accurate and dispassionate account of every stage that led to the invention and dropping of the bomb could help us very much in reaching a wise solution of the problem with which science has confronted us. Nor can the teaching of more courses in American history, now so widely advocated, help us greatly to transcend the limits of our nationalistic thinking which scientists feel is the only road to security and human welfare. "Americanism," as inculcated in numerous history text books, and interpreted by congressional committees, has suddenly become more dangerously obstructionist.

Nor is the situation in what we grandly call "the humanities" more favorable. Its various disciplines also have been nationalized and over-historicized. Too many of our own scholars and teachers of literature have bent all their efforts to showing us not how great or humanly admirable a given work of literature is, but how completely it is seventeenth century English or Spanish or how nineteenth century German or Russian. This side of humanistic study in all fields has been almost hopelessly out of balance, and I believe it can be stated as a valid principle of literary judgment that the true greatness of a work of art depends upon the degree to which it transcends temporal and nationalistic limitations.

So Cervantes' Don Quixote is not great because of the Spanish and the seventeenth century characteristics which it undoubtedly possesses. It is great because Germans, Frenchmen, Czechoslovakians, Russians and Americans today may still understand and enjoy it and recognize that it presents so significant an aspect of human life and character that they may call one of their own friends Quixotic without the slightest implication that he is either seventeenth century or Spanish.

So Shakespeare's Hamlet is not great because it is an Elizabethan Englishman's picture of a Prince of Denmark. It is great because here again we have so fundamental an aspect of man's life and destiny presented that men of quite different nationalistic conditioning can fully understand its meaning, and it loses only some of its quite minor accessories when presented in American

modern dress. Work along these lines would seem the more fruitful method of cooperating with the scientists who insist that we are called upon to extend our horizons.

Scientists have long been engaged in the greatest cooperative global enterprise known to man. Biology, astronomy, mathematics, physics, chemistry have known no nationalistic limitations. These sciences have been advanced by the coordinated work of men of many nations, just as nuclear fission has been accomplished by the cooperation of men of varied national origins. It is easier for them to give political reality to this world in which they have in part lived and moved and had their being, with no loss of freedom and much profit to themselves.

It should also be easier for students and teachers of religion who admit the moral validity today of ideals set forth by Jesus and spread by Jews in Palestine nineteen hundred years ago. They might assist their colleagues teaching the innumerable new postwar courses in American Civilization, to explain why it is that Christmas, the anniversary of His birth which occurred so far beyond the temporal and geographic limits of the United States, still arouses a deeper emotional response in Americans than even our own Fourth of July.

It will be far more difficult for practitioners of other disciplines who consciously or not have helped to build the barriers that balk us now. As the issues are greater than men ever sought to realize before, the recriminations will be fiercer and pride more desperately hurt. It may help to recall that many recognized before the bomb ever fell that the time had already come when we must learn to live in One World.

The stakes are immense, the task colossal, the time is short. But we may hope—we must hope—that man's own creation, man's own genius, will not destroy him. Scholars, indeed all men, must move forward in the faith of that philosopher who held that there is no problem the human reason can propound which the human reason cannot reason out.

INTERNATIONAL AFFAIRS

ARE WE READY FOR A WORLD STATE?

by EDWARD R. LEWIS

SINCE the atomic bomb was loosed on Japan, stunning the Japanese people and the minds of all of us, the demand for the formation of a world state has taken on new vigor and insistence. The majority of the persons attending the Dublin, New Hampshire, Conference last October declared that "the implications of the atomic bomb are appalling, and that only a world government, with a world parliament, and a world executive responsible to the world parliament can save us. Albert Einstein, likewise, has demanded world government, chiefly in order to control the atomic bomb; and to that end he recommends that exclusive military and naval power be vested in a world government. Norman Cousins, in his eloquent and moving book "Modern Man Is Obsolete," adds his voice to the same demand. It is the old cry of "Unite or Perish." The time is short, tragically short, we are told. The atomic bomb will not be a secret long. We must act at once before it is too late.

The intense idealism and sincerity of the demand are unquestionable. But despite these earnest appeals, the time cannot be so short that we have not time to consider what a world state implies, what the difference is between a world state and the present United Nations, so far as effective control of the atomic bomb may be concerned, whether a world state gives promise of successful operation today, and above all, whether it is likely to furnish us with a protection from the atomic bomb.

We have been told, of course, that the world state should have a parliament and an executive. Naturally, it would have a supreme court to decide cases appealed from the highest courts of its member nations which involved questions under its constitution. Likewise, probably, a world state would have its own courts in which a citizen of one nation could sue a citizen of another nation.

Many believe that the chief purpose of a world state would

From THE YALE REVIEW, *Helen MacAfee, Managing Editor*

Copyright, 1946, by The Yale Review.

be to have an army, a navy, and an air force, and to have a monopoly of military, naval, and air power. If a constituent nation could have a separate army, navy, or air force, there would be no purpose in a world state.

If the problem of the control of war power were answered, the problem of the constitution of the parliament of a world state would come next.

Russia has 192,000,000 people; China, above 450,000,000; India, 388,000,000; the countries of South America, about 88,000,000. I think it is not unfair to say that the people of China, India, Russia, Germany, Spain, Italy, Thailand, Poland, the Arab nations, the Malay States, Burma, Iran, Afghanistan, and the countries of South and Central America have as yet shown no long-term capacity for representative government; nor have they developed the ingrained habits requisite for it. Their combined population is about 1,650,000,000.

On the other hand, it can be said that the only countries which have shown sustained capacity for self-government, with an effective desire to govern themselves, are Great Britain, the United States, France, Norway, Sweden, Denmark, the Netherlands, Switzerland, and the British Dominions—Canada, Australia, and New Zealand. It might be added that the Union of South Africa, the Irish Free State, and Czechoslovakia in its brief but promising career cut short by the ruthless Nazis, have shown evidence of capacity for this type of sustained political achievement. The combined population of all these countries is about 275,000,000.

Thus the countries without fairly long records of substantial success in self-government would on a per-capita basis outnumber those with such records by more than five to one.

The Dublin Conference suggested that representation in a world state be based not merely on population but on industrial and natural resources as well. Yet it is difficult to see how, on any basis that can be imagined, the countries that lack the political habits and achievement of representative self-government would not overwhelmingly outvote the countries that have them.

Even if a world parliament were bi-cameral and in the upper house each nation were allowed but one vote, the politically experienced nations would still be badly outvoted in the upper house by the politically inexperienced nations, and in the lower house, if it were based on population, the balance would be overwhelmingly against the politically experienced nations.

Obviously, it is no answer to say that this argument is based

on political conceit, and that it may be merely the misfortune and not the fault of the politically backward countries that they have not yet shown political ability in self-government. One cannot avoid replying that the people of many of these countries have had long periods, some of them centuries, in which to assert and develop their ability, more time in a number of cases than the people of the politically more competent countries have had, and that many of them have shown not only no aptitude for self-government but no sustained interest in it. Certainly this is true of the people of Germany and Italy. But the point need not be argued. Let us assume that the people of all these countries have the innate capacity for self-government. The fact remains that they have not yet shown this capacity, and that a world state is being demanded immediately. We may well ask that it should not be the task of a world state to educate backward member nations in self-government.

But composition of a world parliament is only the first of the problems involved in grievous discrepancies between the nations of the proposed world state which create clashes at every turn.

It is difficult to see how a world state could deny free movement of people from any nation to any other nation in such a state. Indeed, there are those who insist now, under the United Nations Charter, that one of the fundamental freedoms should be the right of people to move freely from any part to any other part of the world. Denial of such a right has been characterized as akin to Nazi racial intolerance. Thus a well-known essayist has stigmatized the Australian policy for a white Australia as mere "tribalism." Such opinions are doubtless a natural result of the intense feeling aroused during the past ten years by the hateful Nazi race doctrines. Because people have been shocked by the vicious Nazi persecutions and by the horrors of the concentration camps, they have leaped to the opposite extreme of asserting that it is intolerance to base any political or social action on the ground of race or color. War, as everyone knows, promotes doctrinaire extremes. Lincoln once said that he rejected the "counterfeit logic" which asserted that because he did not want a Negro woman as a slave, he must want her as a wife. I suggest that we should reject the equally counterfeit logic which now says that because we hate Nazi persecution and cruelty on account of race, we must allow the unlimited immigration of people of all races and colors into our country. It is certain that in the foreseeable future a policy of unrestricted immigration into the United

States, Australia, New Zealand, or Britain, say, would only lead to a tragic increase of race problems which would make the successful operation of any democracy impossible. At any rate, it would be bitterly and strongly opposed.

The problem of free migration suggests the real reason why the nations of the United Nations organization are not yet ready for entrance into a world state. They have vastly different political experiences and backgrounds. Their political traditions are different. Their systems of law are different. Their cultural roots and habits are different. Their languages are different.

Surely, it takes a naïve optimism to imagine that a closely integrated world state with a world parliament, a world law, perhaps a world bill of rights, could be formed of so heterogeneous and unevenly developed a concourse of constituent nations.

Yet we are told confidently that this is the attitude of querulous Bourbonism. Not only, it is said, does necessity today call for a world state but the formation of our own country points the way. The assertion has been made repeatedly that the United States of America was formed of thirteen separate, sovereign States, with great diversity in population and with jealous and antagonistic views. If the United States could be formed in 1787 out of the weak league of the Articles of Confederation, it is but political intransigence, many argue, to doubt that a world state can be formed now by the nations of the United Nations.

Our school and college courses in argumentation and logic teach that the argument from historical analogy is the most unreliable and the least convincing of all arguments. But the advocates of a world state, like the advocates of "Union Now," are indifferent to, or perhaps unconscious of, such doubts.

I think, however, that the only similarity of the United States of America to the proposed United States of the World lies in the word "united." The comparison is completely at variance with the facts. It is amazing that such a distortion of our history should have attained such a vogue. It has run through the arguments of "Union Now" and the eloquent advocates of a world state. The comparison has been repeated so often that by many it is now accepted as an established fact that our country was formed by the union of thirteen separate States, separate in the sense that the nations of the United Nations are now separate.

Such a distortion of our history is puzzling. Perhaps it may be due to the fact that in the forty years before 1924 we received such masses of immigration from countries of vastly different

backgrounds that our sense of continuity with our past has become blurred. This theory goes far beyond the extreme States Rights theory of Calhoun, for even Calhoun did not claim that the thirteen colonies, which he stubbornly and erroneously called "sovereign," had ever been independent nations.

Those who argue that the formation of the United States is analogous to the proposed formation of a world state would probably be surprised to learn that Rufus King of New York declared in the Constitutional Convention of 1787: "None of the States are now sovereign or independent. . . . This is a union of the men of those States." James Wilson, one of the great constitutional lawyers, if not the greatest, of the Convention, asserted: "The States under the confed. are not sovereign States—they can do no act but such as are of a subordinate nature." He declared that the States "are now subordinate corporations or Societies and not Sovereigns." He asked whether we were forming a government for "men, or for the imaginary beings called States." Elbridge Gerry of Rhode Island "urged that we never were independent States, were not such now, & never could be even on the principles of the Confederation. The States & the advocates for them were intoxicated with the idea of their *sovereignty.*" Madison said, "Some contend that states are sovereign, when in fact they are only political societies. . . . The states never possessed the essential rights of sovereignty." In the summer of 1861, Lincoln admirably summarized his theory of the States Rights question in his Special Message to Congress, in which he said that none of the original thirteen States had ever been States "either in substance or in name outside of the Union," that none of them had ever been independent or sovereign, but "passed into the Union even before they cast off their British colonial dependence."

Advocates of a world state who cite the example of the formation of our Union are ignoring a great deal of our history. The truth is that our Union was formed in 1776 of thirteen colonies, all of which were colonies of Great Britain. New York, New Jersey, and Delaware had for brief periods been under either Dutch or Swedish rule, but after 1673, all the colonies were colonies of Great Britain, and ten of them had been from the beginning. None of our colonies or States had ever sent an ambassador to a foreign country, or received one; none had ever made war against or signed a treaty with a foreign nation. None had ever been an independent nation.

Moreover, the thirteen colonies had powerful historical forces making for union when they declared independence. The colonies were all under the English common law. They all had legislatures modelled on the English system. Save for a few Swedes in Delaware, some Dutch in New York, New Jersey and Delaware, some Germans in Virginia and a considerable number in Pennsylvania, all spoke the English language. The United States Census Bureau Report, "A Century of Population Growth," estimated that in 1790 more than 90% of our population had originated in Great Britain and North Ireland. The National Origins figures, presented to Congress in 1928 and accepted as a basis for immigration quotas, estimated the percentage as 80%.

It is mistaken, therefore, to say that our population was notably diverse and heterogeneous in 1790. Certainly it was remarkably homogeneous compared with the populations of the United Nations today.

Advocates of a world state who are fond of emphasizing our diversity in 1790 like also to emphasize our present diversity. Always, they stress diversity instead of our essential unity. So, likewise, there are people who invariably stress the minority elements of any problem instead of the major factors. They seem to think that there is some magic in diversity. But while a reasonable amount of diversity may add variety and interest to a body politic, an undue amount with too great extremes is a definite danger to it. Diversity, indeed, never of itself makes for union. Our Union in 1787 was not made because of diversity but in spite of it. Benjamin Franklin, for example, testified to the weakening effect of the racial diversity in Pennsylvania. This held Pennsylvania back while the homogeneous States of Virginia and Massachusetts led the way in the Revolution and in the creation of the Union. Our Union was formed in 1787 despite the diversity which then existed but which was not great enough to overcome the forces for union; we were brought by integrating common aims and traditions into essential unity.

The people of the thirteen colonies had also had vital experiences which had welded them together. Many had fought side by side in three French and Indian wars. They had so fought in the Revolutionary War. They had come after a century and a half of pioneer life on this continent to think of themselves as one nation, as Americans, so that Patrick Henry could say in 1774, "I am not a Virginian, I am an American."

Moreover, the people of the thirteen colonies had reached,

generally speaking, the same stage of political development. The United States, then, was made from a deep feeling of unity. When that feeling became dominant, but not until then, the Union came.

The contrast between the thirteen colonies in 1776, or the thirteen States in 1787, on the one hand, and the nations of the United Nations today, on the other hand, could hardly be more crucial. The differences of these nations in political capacity and achievement, in traditions and background, in race and language are, as all know, immense. To make any comparison hold, it would be necessary to show that in 1787 each of our thirteen States had been an independent nation, with a centuries-old political tradition, a law and a proud history of its own. In short, the analogy of the formation of our Union with the formation of a world state now is lame and faulty.

Throughout the course of the Second World War, we have seen many examples of what may be called the "blue-print state of mind," which likes to make elaborate charts of world organization, to make detailed statements of plans, based upon the hope or the assumption that political constitutions can be evolved in the study or conference room.

It is, of course, natural that the emotions generated by war have tended to produce grandiose and doctrinaire proposals. Emotionally stirred, many of us like to imagine that democracy can be produced by a few courses in the schools, and that without a common basis a world state can be brought about by a mere agreement. But reason should remind us that states are not made that way. During the French Revolution, Edmund Burke warned that "the science of constructing a commonwealth, or renovating it, or reforming it, is, like every other experimental science, not to be taught a priori." He exerted all his power and energy in eloquent argument against the theory that a constitution could be made to order by the members of the Constituent Assembly. He declared that state constitutions are the result of growth, that they depend on long-evolved political habits and institutions.

William James once said that "the civic genius of our people," the "mystery, at once the secret and the glory of our English-speaking race, consists in nothing but two common habits, two inveterate habits carried into public life, habits so homely that they lend themselves to no rhetorical expression, yet habits more precious, perhaps, than any that the human race has gained." These two habits, he went on to say, are, first, "the habit of

trained and disciplined good temper towards the opposite party when it fairly wins its innings," and, second, the habit of "fierce and merciless resentment towards every man or set of men who break the public peace."

It may safely be said that no world state can survive if these two habits are not ingrained in the peoples which make it up. And, surely, no one can say that these two habits are now recognized or followed by the great majority of the people in the nations of the present United Nations.

The advocates of a world state are in too much of a hurry to realize a lofty ideal. There is some reason to believe, as I have already said, that the crashing blows we have all had during the past six years, the carking anxiety, the grievous losses, the death and desolation, have warped us so that we no longer think in the terms of gradual and fruitful change necessary where great new goals are concerned. Rather, we think in terms of abrupt and even cataclysmic revolution. We are often impatient when anyone even counsels delay. Yet only in 1945, in San Francisco, we found that the U.S.S.R. could not be induced to enter the United Nations Organization unless each of the five big powers were granted the veto power. The Charter was accepted, weak as it was, on the statesmanlike ground that it was the best that could be obtained at the time, and in the hope that it could be broadened and strengthened. It seems incongruous, to say the least, that within six months after it was found impracticable to make the Charter of the United Nations stronger, through such a first step towards abatement of national sovereignty, it should be proposed to jump over all intervening steps and form a world state at once.

What, then, of the argument that the alternative to a world state is now destruction? In these days when black predictions of catastrophe are common, it may seem foolhardy to venture an opinion that our choice is not so compelling. Yet it may be ventured. If, owing to the atom bomb or other destructive weapons, it is certain that we are doomed if the people of the United Nations cannot be convinced in a year or so of the necessity of a world state, then perforce we are doomed, because men's minds in a score of countries cannot possibly be convinced or action achieved so fast. But I agree with the famous statement of Justice Holmes, that he had "no belief in panaceas and almost none in sudden ruin." Even in the present circumstances, his words may still well be heeded.

What reason is there to believe that a world state is a panacea against the atomic bomb, or if that question seems unfair, what reason is there to think that a world state could control the atomic bomb more effectively than could the United Nations?

The people of the world state would still be scattered as people are now over the entire globe. No world-state army or navy or air force could be big enough to police every corner of the globe. If scientists can produce atomic bombs in some nation of the United Nations, it is difficult to see why they could not produce them in some corner of a world state. What reason have we for believing that a world state could prevent their use any more effectively than could the United Nations? There have often been civil wars in single states as there have been wars between nations.

A world state offers no more protection against the atomic bomb than can the present United Nations. On the other hand, a world state would face all the obstacles we have considered—a Babel of tongues, a Babel of diverse laws and customs, peoples at different stages of development, with no common backgrounds, the majority of them with no sustained political habits, no tried traditions of self-government. A nation, wrote Renan, is a soul, a spiritual principle. It is, he said, both of the present and the past. It is formed of a rich legacy of memories, and the desire to live together, to maintain the heritage from the past. A nation, he went on, cannot be improvised. Nor can a world state.

The advocates of a world state would try overnight to manufacture a world state to order. It cannot be manufactured. It must grow and develop naturally, out of ever closer association of nation with nation in a common effort, if it is to come at all. Nature, an old Latin proverb says, does not make jumps. All political experience would seem to warn us to go forward in the path on which we have started, persistently step by step, instead of attempting an uncertain leap into the unknown.

LABOR

THOUGHTS ON LABOR DAY

by THURMAN ARNOLD *and* WALTON HAMILTON

IT SAYS in the good book—the Bible, the Constitution or Adam Smith—that "man cannot live by wage rates alone." The rate is a sheer fiction unless there are "hours worked" to go along with it; and the more of these hours—that is, within the limits of decency, say forty or less—the more it signifies. But the rate is set down, not in units of value which remain the same from everlasting to everlasting, but in terms of dollars whose power to purchase may be—and just now is—a wasting asset. Labor, then, a dominant interest in the American commonwealth, must shape its program toward a multiple objective. It must work for a stable economy with permanent and high prosperity; it must hold and advance wage rates for the sake of that permanent prosperity; it must stand firm and even take the offensive against limitation of production and the degradation of the dollar.

The various fronts on which labor must fight are vitally linked. In particular, to carry on as if the money wage were the ultimate goal is to confuse trade-union strategy. For in our industrial culture money is no more than a means of measure. Now, as in the past and always, a man's wage is and must be his own fair share of the total of goods which the nation produces.

This share is a product of two terms, not of one. Together they fix the worker's living standard so that on the wage front a double, rather than a single, strategy is called for. In respect to the advance of wage rates, the national labor force may be divided into groups by industry or by craft. For those who do the same work, or work for the same employers, can best stand together. But in respect to guarding the purchasing power of the dollar the interests of all groups are alike, and all crafts must maintain a united front. If each is to attain its own goal, it must not betray the objective of the others. A series of separate movements to

From THE NEW REPUBLIC, *Bruce Bliven, George Soule, Michael Straight, Stark Young, Editors*

Copyright, 1946, by Editorial Publications, Inc.

advance wage rates, if unattended by any campaign to increase production and hold the price front, may be futile; for business sets wages down as costs—with a profit added—and higher rates get reflected in higher prices which other crafts must pay.

To succeed, the labor movement must be a consumer's movement as well. It is axiomatic, then, that the value of a day's work lies not in the dollars by which it is counted, but in the good things of life which it will buy. To advance wages without advancing prices—or more strictly for wages to advance at a higher rate than profits—is not the absurdity a large section of the press holds. It is good American doctrine, the only way through which the increased industrial efficiency of a new age can be distributed to that great body of consumers known as labor.

Real wages are most easily and rapidly advanced when production is increasing. And since the sum of the parts cannot exceed the size of the whole, an abundance must be produced if the shares of the crafts and of their members are to be increased in quantity. Labor, let us say it with a couple of "therefores," has a stake in all that makes for larger and larger production. The union is a partner in all enterprises which make for progress.

For that reason restriction of output is a luxury which labor can ill afford. In a number of trades there are, at least on occasion, the best of excuses for not breaking one's neck and for stretching the task out. Labor has bitter memories of "working itself out of a job"; of seeing high productivity followed by a slump in which goods are unsalable. The volume of work is limited; fairness to fellow workers demands that it be made to go around. But however valid at any moment are the reasons which prompt them, such restraints are unfair to other crafts. For they use more labor than is necessary, increase the costs of the resulting services, impose a price for idleness and waste upon the consumer. This becomes a tax which one group of workers imposes upon others.

If specific restraints were casual or exceptional, they might be overlooked. But, as in all human affairs, an act tends to be repeated, to become a custom, to be vested as of right. So, with labor, as with other economic groups, practices which are mischievous come to be frozen into a pattern. Thus the rules of some of the building trades spread a great deal of labor over a very little work; it is demanded that musicians be hired as stand-bys even when there is nothing for them to do; itinerant trucks are

required to pay for the services of local drivers—even if they are not used—when passing through certain cities.

Such practices have become widespread enough to enrich the language with the term "featherbedding." As already suggested, the evils to which such rules are addressed are often genuine enough; there are more members in the trade than there is work for, and security is among the highest of human values. But rarely, if ever, is such a remedy effective and in the long run it aggravates the mischief. For it does not find employment elsewhere for workers not needed in the trade and, by imposing a cost for unnecessary labor, it raises the price and restricts the market.

For the prevalence of such practices labor is not alone, or even chiefly, to blame. It only follows where the most respectable economic groups have blazed the way. If there is stand-by labor, we also have an abundance of functionless capital. The railroads today charge shippers interest on "sums invested" which are there because of machinations in the distant past. In public utilities the law allows the operating companies a "fair return" on their investment; yet the capitalization upon which the return is paid is often not monies actually put to work, but the values of the properties as derived from their capacities to pay dividends. And, generally by pyramiding corporate structure upon capital structure and then protecting the merger from competition, three or four capital items are there to claim dividends where none was before. An inventory of all the sums of capital which currently bear interest, over the investments actually necessary to get our industrial work done, would reveal an alarming amount of featherbedding.

Nor is management as distinguished from capital in any position to make charges or to hurl brickbats. There are numerous and colorful instances, but no statistics, of the number of stand-bys in the managerial group. A would-be aluminum producer gives up his own business and becomes "consultant" to a large corporation at a better-than-living wage. His real contribution to his new master has been to forsake his own business; his worth is measured by value subtracted from the national total. Officials of huge corporate empires are in fact, however it may legally be set down, their own employers. They fix their own salaries at the expense of their disenfranchised stockholders and, with a keen eye to the indispensable character of their own services, vote

themselves bonuses. The super-wage slave can hardly complain of the teamster's bit of gravy while clinging as of right to his own velvet.

Nor was there during the war years equality of sacrifice among economic groups. The employment, the movement, the earnings of labor were governed by more rigid formulas than were the earnings of capital. The letting of war contracts was on a far more elastic basis than the increase of wages. Wages were held in check lest there be inflation, but no such fear restrained the procurement of materials of war. If labor was sometimes represented on boards, representatives of the employers and of the public were there to effect a balance. In the letting of contracts and the stimulation of production, representatives of big business were on both sides of the bargain. In the War Department the people's money was signed away by corporate executives disguised as Army officers; and the War Production Board was in fact a house of delegates from the managerial group. The renegotiation of contracts and the excess-profits tax—which passed into eclipse at the earliest decent moment—did not begin to set things right. Privilege, manifest in the unchecked pursuit of gain at public expense, was rampant.

The meaning of all this is clear. Labor has no monopoly on strikes, stoppages, self-interest. We can present the most respectable precedents for every restrictive practice in which it has engaged. But labor, in its own interest, should remember that its affairs must be carried on in the open; the affairs of capital, while perhaps they should, do not get such public airing. When labor joins with capital to restrict production it gets very few of the gains and most of the blame. It trades its own public standing and long-run interest for a very petty share of the fruits of exploitation. The hodcarriers who prevented the use of ready-mixed concrete in Chicago did not get a speculative profit out of the increased cost of homes. The moral is plain. Organized labor has the interest and the power to impose upon the national economy a cease-and-desist order against making the good things of life scarce. It should not confine its objective and impair its moral position by tolerating sabotage of production in its own ranks.

Two basic questions must be put: What do labor unions owe to each other? And what do they owe the public? The questions are really one; for workers and their families are the larger part

of the public and, in respect to holding—and presently increasing —the purchasing power of the dollar, the interests of labor and of the consumer are identical.

The need is for a return to common sense, the "old-time religion," the "American way." Break the barriers which hold opportunity in leash, which barricade industries against the newcomer and which make access to the market a special privilege. The mine workers serve their brethren in other trades very poorly when they attempt to impose rust upon Big Inch and Little Inch in the fear that to make oil and gas more plentiful will decrease the demand for coal and for men to mine it. And if the railroads see a menace in a great job-creating enterprise such as the St. Lawrence Waterway, the Brotherhoods who cause trains to move will be unfair to labor in general if they go along. It is the state of industry in general—its vitality or impotence—which creates the situation within which the leaders of the various unions must wage their several battles. If industry is healthy, expanding, dynamic, the gains will be material; if the hand of paralysis has been laid upon it, heroic efforts can secure only small gains.

A dynamic economy is a changing economy. As it grows, new industries emerge and old ones expand or decline. Wherever it moves to restrict output, labor has lapsed from a broad to a myopic, from a healthy to a pathological, view. At such times it has tried to keep alive trades which were dying, rather than to make the most of new employment and to ease the transfer of the unwanted from decadent into growing trades. The case for unemployment insurance is unquestioned and there must be no backward step from a scheme of social security which covers all the great hazards of life. But social security—a necessity in our current society—is for labor a defensive rather than an offensive weapon. And even so good a thing as full employment is not to be accepted sight unseen. We demand, and have a right to demand, full employment with an increasing real wage, not full employment at any price. And the full employment that brings with it an ever-advancing standard of life can come only by freeing industry of the shackles which hold enterprise in bondage. In so far as social security is a substitute for the honest earnings of the individual, the size of the need for it is an index of sickness in the national economy.

One cannot be a good trade unionist without being a good citizen. If a worker is to advance not only his wage but its pur-

chasing power as well, he must make public matters his own affair. A host of questions which affect the wealth of the nation await his attention. A large part of the economy has escaped the rule of free enterprise and is headed for established privilege. Since the great depression and increasingly during the war, industry after industry has been operating at government expense. And now that the war is over, many of these have yet to demonstrate their ability to get back on their own. Even more: Far more numerous are the businesses which in one way or another have been permitted to assess their own subsidies against the government. Milk inspection, decreed to protect the public health, has been used to create a sheltered market for the elect. Housing has been priced out of the reach of the American people by a host of restraints imposed by building codes, suppliers of materials, real-estate boards. The patent, intended to protect the inventor, is now most usually employed to "fence in" privileged preserves. By joining international cartels, American concerns are assured of exclusive access to the American market and swear away our opportunity to build up trade overseas. Industries are thus insulated against competition, new blood, newer ways. And like all things which are freed from the necessity of making good, they no longer feel the goad which makes for progress. If real wages are to advance, a long-neglected task of making dynamic that which has become sterile awaits labor.

The total product is fixed by no iron law. It depends upon the knowledge of men and the wisdom and good faith with which that knowledge is put to work. For man does not live in a prison-house, in which a niggardly nature has provided a limited amount of wealth which is less than enough to go around. Instead, the resources whence come our livings are the great unknown. The gifts of nature are of value to us as they can be turned to account. As we are free to ask new questions, we acquire new knowledge; as knowledge is made practical, technologies turn into resources that which before was only stuff. Indians once starved on Texas plains where oil now flows in such profusion that government action is needed to make it scarce. And our science, and the useful arts in which it finds expression, are still in their infancy. One great threat to labor is an attitude which would hold in check the creation of plenty lest in an avalanche of goods the privileged be threatened with financial insolvency. Its inheritance awaits American labor if its crafts will recognize their community of

interests with each other and with the public—and if it will let its mind and its program be bold.

A word is necessary as to the practical problems of orienting labor to its responsibilities. Voluntary action in the present decentralized control of the labor movement does not seem likely. It would require new leadership of the particular unions which have established restrictive practices over a period of years to enter into a struggle to remake the pattern of the unions and frequently of the industry. This cannot be expected without outside pressure if, as is usually the case, the leadership is old and lacking in flexibility.

Legislation setting rules of the game or freeing the Anti-Trust Division to bring about correction of these practices is perhaps the most promising avenue of approach. However, this is not a prospect for the immediate future. The present strength of the anti-labor coalition makes the most progressive elements of labor afraid to sponsor such legislation. Yet such legislation is necessary if the anti-labor coalition is not to have a strong and valid argument against certain labor practices, under the cloak of which it can secure popular support for broad restrictions on the entire labor movement. Perhaps the election of a Congress more favorably inclined to labor's cause will release the more progressive organized-labor elements from their ties to the few segments of the labor movement which have followed the big-business pattern of restricting production and thus impeding the free functioning of our economy. But whatever the solution is and however indefinite the date at which it may be attained, those who believe in labor and in labor's cause must realize that practices restricting production are a liability of which labor must rid itself at the earliest possible moment.

NUREMBERG AND INTERNATIONAL LAW

by ROBERT H. JACKSON

A letter to the President

My Dear Mr. President:

I HAVE the honor to report as to the duties which you delegated to me on May 2, 1945, in connection with the prosecution of major Nazi war criminals.

The International Military Tribunal sitting at Nuremberg, Germany, on 30 September and 1 October, 1946, rendered judgment in the first international criminal assizes in history.

The tribunal also declared four Nazi organizations to have been criminal in character. These are: the Leadership Corps of the Nazi party; die Schutzstaffeln, known as the SS; die Sicherheitsdienst, known as the SD; and die Geheimestaatspolizei, known as the Gestapo, or secret state police. It declined to make that finding as to die Sturmabteilungen, known as the SA; the Reich Cabinet and the General Staff and High Command. The latter was solely because the structure of the particular group was considered by the tribunal to be too loose to constitute a coherent "group" or "organization," and was not because of any doubt of its criminality in war plotting. In its judgment the tribunal condemned the officers who performed General Staff and High Command functions as "a ruthless military caste" and said they were "responsible in large measure for the miseries and suffering that have fallen on millions of men, women and children. They have been a disgrace to the honorable profession of arms." This finding should dispose of any fear that we were prosecuting soldiers just because they fought for their country and lost, but otherwise is regrettable.

The magnitude of the task which, with this judgment, has been brought to conclusion may be suggested statistically. The trial began on November 20, 1945, and occupied 216 days of trial time.

Thirty-three witnesses were called and examined for the prosecution. Sixty-one witnesses and nineteen defendants testified for the defense; 143 additional witnesses gave testimony by interrogatories for the defense. The proceedings were conducted and recorded in four languages—English, German, French and Russian—and a daily transcript in the language of its choice was provided for each prosecuting staff and all counsel for defendants. The English transcript of the proceedings covers over 17,000 pages. All proceedings were sound-reported in the original language used.

In preparation for the trial, over 100,000 captured German documents were screened or examined and about 10,000 were selected for intensive examination as having probable evidentiary value. Of these, about 4,000 were translated into four languages and used, in whole or in part, in the trial as exhibits. Millions of feet of captured moving-picture film were examined and over 100,000 feet brought to Nuremberg. Relevant sections were prepared and introduced as exhibits. Over 25,000 captured still photographs were brought to Nuremberg, together with Hitler's personal photographer, who took most of them. More than 1,800 were selected and prepared for use as exhibits. The tribunal, in its judgment, states: "The case, therefore, against the defendants rests in large measure on documents of their own making, the authenticity of which has not been challenged except in one or two cases." The English translations of most of the documents are now being published by the Departments of State and War in eight volumes and will be a valuable and permanent source for the war history. As soon as funds are available, additional volumes will be published so that the entire documentary aspect of the trial—prosecution and defense—will be readily available.

As authorized by your executive order, it was my policy to borrow professional help from Government departments and agencies so far as possible. The War Department was the heaviest contributor, but many loans were also made by the State, Justice and Navy Departments and, early, by the Office of Strategic Services. All have responded generously to my requests for assistance. The United States staff directly engaged on the case at Nuremberg, including lawyers, secretaries, interpreters, translators and clerical help, numbered at its peak 654, 365 being civilians and 239 military personnel. British, Soviet and French dele-

gations aggregated approximately the same number. Nineteen adhering nations also sent representatives, which added thirty to fifty persons to those actively interested in the case. The press and radio had a maximum of 249 accredited representatives who reported the proceedings to all parts of the world. During the trial over 60,000 visitors' permits were issued, but there is a considerable and unknown amount of duplication as a visitor was required to have a separate permit for each session attended. Guests included leading statesmen, jurists and lawyers, military and naval officers, writers and invited representative Germans.

On the United States fell the obligations of host nation at Nuremberg. The staffs of all nations, the press and visitors were provided for by the United States Army. It was done in a ruined city and among an enemy population. Utilities, communications, transport and housing had been destroyed. The courthouse was untenantable until extensively repaired. The Army provided air and rail transportation, operated a motor pool for local transportation, set up local and long-distance communications service for all delegations and the press, and billeted all engaged in the work. It operated messes and furnished food for all, the courthouse cafeteria often serving as many as 1,500 lunches on court days. The United States also provided security for prisoners, judges and prosecution, furnished administrative services, and provided such facilities as photostat, mimeograph and sound recording. Over 30,000 photostats, about 50,000,000 pages of typed matter, and more than 4,000 record discs were produced. The Army also met indirect requirements such as dispensary and hospital, shipping, postal, post-exchange and other servicing. It was necessary to set up for this personnel every facility not only for working, but for living as well, for the community itself afforded nothing. The theatre commander and his staff, military-government officials, area commanders and their staffs and troops were cordially and tirelessly cooperative in meeting our heavy requirements under unusual difficulties and had the commendation not only of the American staff, but of all others.

It is safe to say that no litigation approaching this in magnitude has ever been attempted. I trust my pride will be pardonable in pointing out that this gigantic trial was organized and ready to start the evidence on November 20, 1945—less than seven months after I was appointed and after the surrender of

Germany. It was concluded in less time than many litigations in the regularly established courts of this country which proceed in one language instead of four. If it were not that the comparison might be deemed insidious, I could cite many anti-trust actions, rate cases, original cases, in the United States Supreme Court, and other large litigations that have taken much longer to try.

In this connection it should be noted that we decided to install facilities for simultaneous interpretation of the proceedings into four languages. This was done against the advice of professional interpreters of the old school that it "would not work." It does work and without it the trial could not have been accomplished in this time, if at all. To have had three successive translations of each question, and then three of each answer, and to have had each speech redelivered three times in different languages after the first delivery finished would have been an intolerable waste of time. The system we used makes one almost unaware of the language barrier, so rapidly is every word made available in each language.

Although my personal undertaking is at an end, any report would be incomplete and misleading which failed to take account of the general war-crimes work that remains undone and the heavy burden that falls to successors in this work. A very large number of Germans who have participated in the crimes remains unpunished. There are many industrialists, militarists, politicians, diplomats and police officials whose guilt does not differ from those who have been convicted except that their parts were at lower levels and have been less conspicuous.

Under your executive order of January 16, 1946, the war-crimes functions devolve upon military government upon my retirement. At the time this order was signed it was agreed between military government and myself that I would at once name Brig. Gen. Telford Taylor as deputy in charge of preparing subsequent proceedings, and that upon my retirement he would be named to take over the war-crimes prosecution on behalf of military government. He has assembled a staff and prepared a program of prosecutions against representatives of all the important segments of the Third Reich, including a considerable number of industrialists and financiers, leading Cabinet Ministers, top SS and police officials and militarists. Careful analysis is being made of the tribunal's decision to determine any effects of the acquittal of Schacht and von Papen upon this plan of prosecution of indus-

trialists and financiers who are clearly subject to prosecution on such specific charges as the use of slave labor.

The unsettled question is by what method these should be tried. The most expeditious method of trial and the one that will cost the United States the least in money and in manpower is that each of the occupying powers assume responsibility for the trial within its own zone of the prisoners in its own custody. Most of these defendants can be charged with single and specific crimes which will not involve a repetition of the whole history of the Nazi conspiracy. The trials can be conducted in two languages instead of four, and since all of the judges in any one trial would be of a single legal system no time would be lost adjusting different systems of procedure.

A four-power, four-language international trial is inevitably the slowest and most costly method of procedure. The chief purposes of this extraordinary and difficult method of trial have been largely accomplished, as I shall later point out.

There is neither moral nor legal obligation on the United States to undertake another trial of this character. While the international agreement makes provision for a second trial, minutes of the negotiations will show that I was at all times candid to the point of being blunt in telling the conference that the United States would expect one trial of the top criminals to suffice to document the war and to establish the principles for which we contended, and that we would make no commitment to engage in another.

It has been suggested by some of our allies that another international trial of industrialists be held. The United States proposed to try in the first trial not only Alfred Krupp but several other industrialists and cartel officials. Our proposal was defeated by the unanimous vote of our three allies. After indictment, when it appeared that the elder Krupp was too ill to be tried, the United States immediately moved that Alfred Krupp be added as a defendant and tried for the crimes which he had committed as chief owner and president of the Krupp armament works. This was likewise defeated by the combined vote of all our allies. Later, the Soviet and French joined in a motion to include Krupp, but it was denied by the tribunal. This is not recited in criticism of my associates; it was their view that the number of defendants was already sufficiently large and that to add others would delay or prolong the trial. However, if they were unwilling to take the

additional time necessary to try industrialists in this case, it does not create an obligation on the United States to assume the burdens of a second international trial.

The quickest and most satisfactory results will be obtained, in my opinion, from immediate commencement of our own cases according to plans which General Taylor has worked out, in the event that such is your decision. Of course, appropriate notifications should be given to the nations associated with us in the first trial.

Another item of unfinished business concerns the permanent custody of captured documents. In the hands of the prosecution and of various agencies there are large numbers of documents in addition to those that have been used which have not been examined or translated but which probably contain much valuable information. These are the property of the United States. They should be collected, classified and indexed. Some of them may hold special interest for particular agencies; all of them should be available ultimately to the public. Unless some one qualified agency, such as the Library of Congress, is made responsible for this work and authorized to take custody on behalf of the United States, there is considerable danger that these documents will become scattered, destroyed or buried in specialized archives. The matter is of such importance as to warrant calling it to your attention.

The vital question in which you and the country are interested is whether the results of this trial justify this heavy expenditure of effort. While the sentences imposed upon individuals hold dramatic interest, and while the acquittals, especially of Schacht and von Papen, are regrettable, the importance of this case is not measurable in terms of the personal fate of any of the defendants, who were already broken and discredited men. We are too close to the trial to appraise its long-range effects. The only criterion of success presently applicable is the short-range test as to whether we have done what we set out to do. This was outlined in my report to you on June 7, 1945. By this standard we have succeeded.

The importance of the trial lies in the principles to which the four powers became committed by the agreement, by their participation in the prosecution, and by the judgment rendered by the tribunal. What has been accomplished may be summarized as follows:

(1) We negotiated and concluded an agreement with the four dominant powers of the earth, signed at London on August 8, 1945, which for the first time made explicit and unambiguous what was theretofore, as the tribunal has declared, implicit in international law, namely, that to prepare, incite, or wage a war of aggression, or to conspire with others to do so, is a crime against international society, and that to persecute, oppress, or do violence to individuals or minorities on political, racial or religious grounds in connection with such a war, or to exterminate, enslave, or deport civilian populations, is an international crime, and that for the commission of such crimes individuals are responsible. This agreement also won the adherence of nineteen additional nations and represents the combined judgments of the overwhelming majority of civilized people. It is a basic charter in the international law of the future.

(2) We have also incorporated its principles into a judicial precedent. "The power of the precedent," Mr. Justice Cardozo said, "is the power of the beaten path." One of the chief obstacles to this trial was the lack of a beaten path. A judgment such as has been rendered shifts the power of the precedent to the support of these rules of law. No one can hereafter deny or fail to know that the principles on which the Nazi leaders are adjudged to forfeit their lives constitute law—and law with a sanction.

(3) The agreement devised a workable procedure for the trial of crimes which reconciled the basic conflicts in Anglo-American, French and Soviet procedures. In matters of procedure, legal systems differ more than in substantive law. But the charter set up a few simple rules which assured all of the elements of fair and full hearing, including counsel for the defense. Representatives of the four powers, both on the bench and at the prosecutors' tables, have had to carry out that agreement in day-to-day cooperation for more than a year. The law is a contentious profession and a litigation offers countless occasions for differences even among lawyers who represent the same clients and are trained in a single system of law. When we add the diversities of interests that exist among our four nations, and the differences in tradition, viewpoint and language, it will be seen that our cooperation was beset with real difficulties. My colleagues, representing the United Kingdom, France and the Soviet Union, exemplified the best professional tradition of their countries and have earned our gratitude for the patience, generosity, good-will and professional ability which they brought to the task. It would be idle to pre-

tend that we have not had moments of difference and vexation, but the steadfast purpose of all delegations, that this first international trial should prove the possibility of successful international cooperation in sue of the litigation process, always overcame transient irritations.

(4) In a world torn with hatreds and suspicions, where passions are stirred by the "frantic boast and foolish word," the four powers have given the example of submitting their grievances against these men to a dispassionate inquiry on legal evidence. The atmosphere of the tribunal never failed to make a strong and favorable impression on visitors from all parts of the world because of its calmness and the patience and attentiveness of every member and alternate on the tribunal. The nations have given the example of leaving punishment of individuals to the determination of independent judges, guided by the principles of law, after hearing all of the evidence for the defense as well as the prosecution. It is not too much to hope that this example of full and fair hearings, and tranquil and discriminating judgment will do something toward strengthening the processes of justice in many countries.

(5) We have documented from German sources the Nazi aggressions, persecutions and atrocities with such authenticity and in such detail that there can be no responsible denial of these crimes in the future and no tradition of martyrdom of the Nazi leaders can arise among informed people. No history of this era can be entitled to authority which fails to take into account the record of Nuremberg. While an effort was made by Goering and others to portray themselves as "glowing patriots," their admitted crimes of violence and meanness, of greed and graft, leave no ground for future admiration of their characters and their fate leaves no incentive to emulation of their examples.

(6) It has been well said that this trial is the world's first post-mortem examination of a totalitarian regime. In this trial, the Nazis themselves, with Machiavellian shamelessness, exposed their methods of subverting people's liberties and establishing their dictatorship. The record is a merciless exposé of the cruel and sordid methods by which a militant minority seized power, suppressed opposition, set up secret political police and concentration camps. They resorted to legal devices such as "protective custody," which Goering frankly said meant the arrest of people not because they had committed any crime but because of acts it was suspected they might commit if left at liberty. They destroyed

all judicial remedies for the citizen and all protections against terrorism. The record discloses the early symptoms of dictatorship and shows that it is only in its incipient stages that it can be brought under control. And the testimony records the German example that the destruction of opposition produces eventual deterioration in the Government that does it. By progressive intolerance a dictatorship by its very nature becomes so arbitrary that it cannot tolerate opposition, even when it consists merely of the correction of misinformation or the communication to its highest officers of unwelcome intelligence. It was really the recoil of the Nazi blows at liberty that destroyed the Nazi regime. They struck down freedom of speech and press and other freedoms which pass as ordinary civil rights with us, so thoroughly that not even its highest officers dared to warn the people or the Fuehrer that they were taking the road to destruction. The Nuremberg trial has put that handwriting on the wall for the oppressor as well as the oppressed to read.

Of course, it would be extravagant to claim that agreements or trials of this character can make aggressive war or persecution of minorities impossible, just as it would be extravagant to claim that our Federal laws make Federal crime impossible. But we cannot doubt that they strengthen the bulwarks of peace and tolerance. The four nations, through their prosecutors and through their representatives on the tribunal, have enunciated standards of conduct which bring new hope to men of good-will and from which future statesmen will not lightly depart. These standards by which the Germans have been condemned will become the condemnation of any nation that is faithless to them.

By the agreement and this trial we have put international law squarely on the side of peace as against aggressive warfare, and on the side of humanity as against persecution. In the present depressing world outlook it is possible that the Nuremberg trial may constitute the most important moral advance to grow out of this war. The trial and decision by which the four nations have forfeited the lives of some of the most powerful political and military leaders of Germany because they have violated fundamental international law do more than anything in our time to give to international law what Woodrow Wilson described as "the kind of vitality it can only have if it is a real expression of our moral judgment."

I hereby resign my commission as your representative and chief

of counsel for the United States. In its execution I have had the help of many able men and women, too many to mention individually, who have made personal sacrifice to carry on a work in which they earnestly believed. I also want to express deep personal appreciation for this opportunity to do what I believe to be a constructive work for the peace of the world and for the better protection of persecuted peoples. It was, perhaps, the greatest opportunity ever presented to an American lawyer. In pursuit of it many mistakes have been made and many inadequacies must be confessed. I am consoled by the fact that in proceedings of this novelty, errors and missteps may also be instructive to the future.

Respectfully submitted,

ROBERT H. JACKSON.

LITERARY CRITICISM

THE ART OF KATHERINE ANNE PORTER

by VERNON A. YOUNG

WITH four short novels and barely a score of short stories, Katherine Anne Porter has established herself for posterity as the most flawless realist of her generation, yet not until last year, when *The Leaning Tower and Other Stories* was published, had she received anything like her due, except from the extreme critical minority. In 1931 she received a Guggenheim fellowship for *Flowering Judas,* and in 1937, for *Flowering Judas and Other Stories,* a $2,500 fellowship given by the Book-of-the-Month Club "to an American author whose work has not received from the book-reading public the recognition it deserved, as measured by actual sales."

One is no longer surprised that literature of moral subtlety and stylistic rectitude may not sell. But Miss Porter's stories are in the American grain and of the American bone, critical and exploratory; their subject matter is always enthralling, their realism exact, their style lucid and flexible, and if there were no other felicities than these (there are, in fact, many) one would have the right to expect her reputation to be as generally accepted as that, say, of Willa Cather, Ernest Hemingway, or Erskine Caldwell. It is not, and the belated acclaim with which the reviewers at large greeted her last-year's volume indicated their defensive resolve to praise Miss Porter's virtues at all costs, even though this collection included fewer of them. *The Leaning Tower and Other Stories* confirms Miss Porter's position among the best American writers without, I think, elevating it.

This was niggardly praise, if one did not reflect how secure a position she has already attained, in the view of the above-mentioned minority. Everything can be gained for American fiction by asserting the honest artistry of this writer's work as a whole, in order to secure her a wider audience. Little can be

From THE NEW MEXICO QUARTERLY REVIEW, *Dudley Wynn, Editor*

Reprinted by arrangement with The New Mexico Quarterly Review (The University of New Mexico). Copyright, 1945.

gained for Miss Porter by raising this particular book above her others; at least, not without more demonstration and comparison than I was able to discover in reviews on the occasion. Before delivering a reluctant disclaimer on the contents of *The Leaning Tower,* I should like to define, if possible, the special gifts and methods by which Miss Porter's art, at its best, has been made eminent.

The variousness of her endowments mocks pedantic analysis and eludes any academic stalking of her "controlling subject." The best one can hope to do is give an account of that variousness, render one's awareness of her skill and her uncommitted wisdom, acknowledge the richness of the reading experience she has, with what few volumes, given us. The real difficulty of anything but description of her work may well be the factor which has embarrassed critical appraisal and retarded public appreciation of that work, since it does not lend itself to dust-jacket summary and simplification.

A beginning can always be made by calling Miss Porter an incomparable stylist, which she is, but the term unfortunately suggests prose for prose's sake, and there is no writing today which is more organically connected with its subject matter than hers. It would be perfectly just to insist that the last four pages of "Old Mortality" or the first four of "Pale Horse, Pale Rider" will stand with any comparable number by any anthologized author of the day; it would be just, but it would also be irrelevant and incomplete. Such passages depend, for their function as illumination, upon what has preceded or what is to follow; in Miss Porter's narratives, the context is all. The rhythm, tone, and imagery of her prose are scrupulously selected, or rather, developed, in keeping with the occasion represented and the person involved. This facility is far more rare in modern fiction than is commonly supposed. To name three conspicuous examples of its absence: any casuistic sequence of Virginia Woolf's incandescent prose could belong to the stream of consciousness of any of her characters, from any of her books in that style; Hemingway's narrative writing, effective in its own way, has always the unique stamp of his personality, whether he is describing a big-game hunt, a bullfight, or Spanish guerrilla warfare; Steinbeck's descriptive pieces are invariably removed, by Biblical cadences and scientific jargon, from the intellectual milieu of the inarticulates with whom he is usually occupied.

This is not the case in Katherine Porter's fiction. Observe, in

the following passages, each from a different story, how the author's editing retains the color and background of the character under consideration, the quality of his thinking, the images and vocabulary he would find appropriate to his crisis if he were capable of editing it himself. In the first, from a short story, "Theft," an intense young woman, superficially self-assertive, lonely and embittered, living on the literary and economic fringe of New York, is reflecting angrily on the theft of her purse by the janitress:

> She remembered how she had never locked a door in her life, on some principle of rejection in her that made her uncomfortable in the ownership of things, and her paradoxical boast before the warnings of her friends that she had never lost a penny by theft; and she had been pleased with the bleak humility of this concrete example designed to illustrate and justify a certain fixed, otherwise baseless and general faith which ordered the movements of her life without regard to her will in the matter.
>
> In this moment she felt that she had been robbed of an enormous number of valuable things, whether material or intangible: things lost or broken by her own fault, things she had forgotten and left in houses when she moved: books borrowed from her and not returned, journeys she had planned and had not made, words she had waited to hear spoken to her and had not heard, and the words she had meant to answer with; bitter alternatives and intolerable substitutes worse than nothing, and yet inescapable: the long patient suffering of dying friendships and the dark inexplicable death of love—all that she had had, and all that she had missed, were lost together, and were twice lost in this landslide of remembered losses.

In the succeeding paragraphs from "Noon Wine," Mr. Thompson, a poor dairy farmer in the Baptist belt of south Texas, is trying to justify to himself his murder of an obnoxious stranger who had attempted to arrest his hired man, Mr. Helton:

> After all, he might have got rid of him peaceably, or maybe he might have had to overpower him and put those handcuffs on him and turn him over to the sheriff for disturbing the peace. The most they could have done was to lock up Mr. Hatch while he cooled off for a few days, or fine him a little something. He would try to think of things he might have said to Mr. Hatch. Why, let's see, I could have just said, Now look here, Mr. Hatch, I want to talk to you as man to man. But his brain would go empty. What could he have said and done? But if he *could* have done anything else almost except kill Mr. Hatch, then nothing would have happened to Mr. Helton. Mr. Thompson hardly ever thought of Mr. Helton. His mind just skipped over him and went on. If he stopped to think about Mr. Helton he'd never in God's world get anywhere. He tried to imagine how it might all have been, this very

> night even, if Mr. Helton were still safe and sound out in his shack playing his tune about feeling so good in the morning, drinking up all the wine so you'd feel even better; and Mr. Hatch safe in jail somewhere, mad as hops, maybe, but out of harm's way and ready to listen to reason and to repent of his meanness, the dirty, yellow-livered hound coming around persecuting an innocent man and ruining a whole family that never harmed him!

The third selection, from "Hacienda," focuses on a bullying, irritated movie producer explaining his troubles while on a train going to a Mexican "location":

> . . . He went on to explain that making good involves all sorts of mysterious interlocking schedules: it must be done by a certain date, it must be art, of course, that's taken for granted, and it must be a hit. Half the chance of making a hit depends upon having your stuff ready to go at the psychological moment. There are thousands of things to be thought of, and if they miss one point, bang goes everything! . . . He sighted along an imaginary rifle, pulled the trigger, and fell back exhausted. His whole life of effort and despair flickered like a film across his relaxed face, a life of putting things over in spite of hell, of keeping up a good front, of lying awake nights fuming with schemes and frothing with beer, rising of mornings gray-faced, stupefied, pushing himself under cold showers and filling himself up on hot coffee and slamming himself into a fight in which there are no rules and no referee and the antagonist is everywhere. "God," he said to me, "you don't know. But I'm going to write a book about it. . . ."

This genius for stylistic verisimilitude is displayed at even greater length in the short story "Magic," where, with an extraordinary economy and deceptive simplicity, a kind of depersonalized horror is evoked from a Creole servant's tale of black magic—or "Rope," a sardonically humorous incident of domestic incompatibility which, told entirely in indirect discourse, accumulates a tragi-comic, nightmarish intensity. One might elaborate on this aesthetic integrity that exercises so perfect a tact in its choice of exact perspective and prose manner, but examples of technical virtuosity do scant justice to the wholeness of Miss Porter's artistry. The wholeness is indispensably assisted by the craftsmanship; it is sustained in the memory of the reader as the result of the searching gaze with which Miss Porter scrutinizes the context of the single experience.

Precisely this scrutiny is what separates her from the ruck of writers who proceed from the idea to the fact, from the general to the particular. In her short stories, especially, the concrete experience assumes whatever universality the sensitive reader is

able to construct from it. Like all disciplined practicers of her craft (and for her equal in this direction at the same level of skill, one must return to Henry James), she does not urge the extrinsic significance. She resists all temptation to shape her people or events falsely, to prove that life means well or means badly or means nothing. She never woos us with obvious injustices, as Caldwell does, or intensifies the grotesqueries and brutality of her material (which often suggests the opportunity) in the way of Steinbeck or Faulkner. With no dialectical thesis to substantiate, she has all the experience that comes within her sight to select from and reveal.

The quality of negation ever present in her work is neither romantic nor nihilistic but the sum of her brooding recognition of the wasteland of modern life, tempered by a sense of responsibility for examining its origins in the poor valors and the despoiled potentialities of its citizens. That she is cognizant of the social scheme that has been produced by, and in its turn, reproduces, the conditions she has striven to translate into literary art, we have her own measured words for:

> For myself, and I was not alone, all the conscious and recollected years of my life have been lived to this day under the heavy threat of world catastrophe and most of the energies of my mind and spirit have been spent in the effort to grasp the meaning of those threats, to trace them to their sources, and to understand the logic of this majestic and terrible failure of the life of man in the Western world.

This is not dialectic, but dedication.

It is noteworthy that almost all her characters inhabit the fringes, either of the mundane world or of the moral world of decision, enterprise, and coherence. Whether her setting is East Side New York, a Western newspaper office, or a café in Mexico, the comedy and the anguish are grounded in the fact of tentativeness, of marginal comprehension. Kennerly, the movie producer in "Hacienda," is the only worldly success in her gallery, and he is as pathetic in the face of the forces which move him as any peon.

Incomprehension and incompatibility—these are her governing themes. Excepting Miranda in "Old Mortality," no character in a Porter story has an affirmative insight, or, when he has, he lacks the will or the confidence to act upon it. The heroine in "Theft" recognizes her self-defeat but no resolve ensues; the recognition is all. In "Rope," the couple's immersion in recrimi-

nation and abuse comes to no decisive break, and no reformation is implied.

> He was a love, she firmly believed, and if she had had her coffee in the morning, she wouldn't have behaved so funny. . . . There was a whippoorwill still coming back, imagine, clear out of season, sitting in the crab-apple tree calling all by himself. Maybe his girl stood him up. Maybe she did. She hoped to hear him once more, she loved whippoorwills. . . . He knew how she was, didn't he?
>
> Sure, he knew how she was.

The catalyst of marital habit has remained unchanged. The reader's desire for a categorical denouement is first disarmed and then repudiated by the comic spirit, just as it is in "That Tree," where the journalist's discernment of his wife's limitations (and, incidentally, of his own) halts at the point when one might expect it to be enforced. ("The Leaning Tower" is Miss Porter's only unsuccessful application of this method, as I shall later demonstrate.) If, as Joseph Wood Krutch has aphorized, tragedy judges a man by his heroism, comedy by his intelligence, then Miss Porter has comic genius, though, in her behalf, one might extend Mr. Krutch's definition to involve the ironic perception of creatures behaving neither heroically nor intelligently.

This psychologically monochromist treatment may account for the reluctance, or inability, of the common reader to accept Miss Porter's paramountcy. Complete and dramatic pessimism or complete affirmation attract attention. Both Ernest Hemingway and Willa Cather have been best-sellers in their time. One will not find, in Miss Porter's work, that continuous, stylized heightening of experience that Hemingway offers, and there is a whole body of criticism to maintain that such heightening is the *sine qua non* of first-rank fiction. One usually concurs, yet the exception that vanquishes the rule had been committed in advance by Tolstoy's realism, the quality of which (no other comparison is intended) Miss Porter's most nearly resembles in its seeing around and under a situation, unbeguiled by dramatic polarities that might more easily court the favor of relaxed readers. Any effect of inconclusiveness is abrogated by faultless structure; aesthetic completeness is exhibited by the form of her stories, making dialectic simplification unnecessary.

Willa Cather owes her success with the public less, I think, to her subtlety of palette (her wish "to make the style count for less and less and the people for more and more," a wish devoutly consummated by Miss Porter with less vagueness of execution)

than to the central heroism of her attitude. *Death Comes for the Archbishop* appealed to those who, besides needing the regional or religious *frisson,* wanted their pioneer adventure untinctured by the severities of realism. *The Professor's House,* probably her best novel, educes its superiority from the unquestionably romantic figure of its professor, and from his moving renunciation of the will-to-death inspired, in large part, by Tom Outland's unquestioning faith.

In Miss Porter's world, closer than Cather's to the one we daily inhabit, the heroic stance is rarely taken, and if we miss in her stories the solace of exaltation, we receive in exchange the more instructive rewards of intensified observation not unwarmed by critically handled understanding. Miss Porter's sympathies are tough of texture, not easily strained by humanitarian credulity. It would be unwise to infer that she "loves people." Running through her pages there is an infinite sensitivity toward the pathos of the general human situation. When she examines the specific situation, however, she discards any assumption of pity. It is as though she had withdrawn herself from any possible involvement, the better to extract the truth from her material, not in the manner of the earlier "detached" realists who so grimly kept their distance that they impoverished their intuitive powers, but as if she had made herself a passive but sentient receptacle. Her treatment of the dispossessed, always justly emphatic, never descends to special pleading; indisputably aware of what is glibly called "class warfare," she is more profoundly aware of the warfare within the individual that may drive him, as well from cowardice or egotism as from need, into identifying himself with a faction.

There is not a more mordacious illustration of politico-revolutionary psychology in modern fiction than in "Flowering Judas." One is ready to believe that like Laura, the heroine of the story, Miss Porter has rejected "kinship in one monotonous word. No. No. No. She draws her strength from this one holy talismanic word which does not suffer her to be led into evil. Denying everything, she may walk anywhere in safety, she looks at everything without amazement." I should not care to push the parallel too far, for obviously Miss Porter does not deny everything, but certainly she denies and resists the importunities of sociological over-simplification as passively and artfully as Laura resists the benevolent anarchy of Braggioni, "the professional lover of humanity."

Ruth Benedict, the anthropologist, has written that "No man ever looks at the world with pristine eyes." He looks at it, she would have us understand, always with the eyes of his special group, race, or culture background. In such stories as "María Concepción" and "Flowering Judas," Miss Porter comes as near to a pristine view as it is possible for anyone but an anthropologist, perhaps, to acquire. By what manner of mental osmosis she can depict such psyches as those of María and Juan Villegas, without a hint of judicial patronage, remains one of the miracles of her art. Not the least amazing of her abilities is this power to exercise double vision: the fruitful perceptions of her own experience through the "conscious and recollected years," and the unblinking objectivity which can dramatize the alien plights of María, Laura, or Mr. Thompson.

A highly developed taste for irony is undoubtedly the controlling factor here. Irony perceives the disparity between the act and its supposed value, thereby freeing its possessor to look unqualifiedly at the foreign experience with both his own and the foreigner's eyes. At this point, the anthropologist and the novelist need the same attributes; the novelist, however, must retain the sensitized observation that the strictly anthropological approach might find it necessary to surrender. This attribute, whether of irony or science, may be the most important one in Miss Porter's possession and the salient reason for her success with many of her stories of childhood. Besides the sympathy and bittersweet recollection which she has patently expressed in them, irony has commanded her fidelity to the intelligent ambivalence one ought to experience before the child predicament. And it is irony again which administers to that quality of negation which flows from shrewd uncertainty, from the recognition of the tricks of flux, not the dogmatic negation which closes forever the circle of possibilities. In each of her short novels, irony has the last word, quite literally, and an examination of them will be profitable for a more extended statement of both her art and her attitude.

"Old Mortality," the most complex and subtle of her novels, in a mere eighty-odd pages, records the substance of a passing generation of the South of 1885 to 1912. With none of the florid nostalgia and provincial didacticism of the historical novels of Elizabeth Madox Roberts and her followers or imitators, Miss Porter evokes, with a vivid handful of characters, the positive flavor of an age dying of the tension between its adamant prohibitions and its desperate prodigalities. The terrible frustrations,

sexual and financial and spiritual, are exposed to the discerning eyes of Miranda, who grows into and out of this environment.

The subject of the novelette is simply this: the growing up of Miranda, through her childhood years of alternating belief in and doubt of the "romantic" existence of her elders to the day when, after a marriage undertaken, apparently, in desperation, she returns to visit her family and sees her alienation from them with sudden and vindictive clarity. Her apprehension of her own isolation and her tremulous wonder at her own possibilities close the novel with one of the most eloquent and disturbing passages to be found in Miss Porter's pages. This writer has read that passage a dozen times and cannot control a quite uncritical excitement of the blood at the poignance of Miss Porter's intelligent and fearful disclosure of the brink at which Miranda stands.

> What is the truth, she asked herself as intently as if the question had never been asked, the truth, even about the smallest, the least important of all the things I must find out? and where shall I begin to look for it? Her mind closed stubbornly against remembering, not the past but the legend of the past, other people's memory of the past, at which she had spent her life peering in wonder like a child at a magic-lantern show. Ah, but there is my own life to come yet, she thought, my own life now and beyond. I don't want any promises, I won't have false hopes, I won't be romantic about myself. I can't live in their world any longer, she told herself, listening to the voices back of her. Let them tell their stories to each other. Let them go on explaining how things happened. I don't care. At least I can know the truth about what happens to me, she assured herself silently, making a promise to herself, in her hopefulness, her ignorance.

The last two words, of course, affirm Miss Porter's genius. Without them, the experience would still stand at the center of her preoccupation with the questing heart and mind. With them, it signals her knowledge of the limitations imposed inexorably by custom and fallibility upon the most wary. For one knows that Miranda, celebrating what Emerson called "the integrity of the observing self," may yet succumb to the banality of the years and, like the elders whom she is rejecting, will likely become hedged in, if not by the boundaries of social pattern, by the barriers erected by the loss of self.

"Pale Horse, Pale Rider" is a counterpoise to "Old Mortality." Miranda (the same, we presume) is working during the First-War years on a Western newspaper. The theme of death is the solvent in this story as emerging life was in "Old Mortality." The cruel shifts of poverty, the cheap jingoism of the war years,

the general atmosphere of physical and national destruction have imprisoned Miranda's spirit. She meets the challenge of the oppressive penury of her days with that makeshift courage and metallic wit which urban living demands of its victims, but not even the healthy, soap-smelling presence of her gentle but inarticulate sweetheart, on leave before going overseas, dispels the odor of death in her nostrils.

> She liked him, she liked him, and there was more than this, but it was no good imagining, because he was not for her nor for any woman, being beyond experience already, committed without any knowledge or act of his own to death.

This certitude is psychosomatic at its source; even as Miranda intuits the presence of decay, she is struck down by influenza. Thereafter, in an effectively beautiful delirium sequence, her conscious will-to-death battles with the deep-down will-to-live. She recovers, almost in spite of her own desire, to find that the war is over and that Adam, her sweetheart, exposed to her contagion, has died in a camp hospital. She faces the resurgence of life in her with the same outraged anger that seizes Granny Weatherall, in the short story which bears her name, before the onslaught of death, humiliated beyond expression by the enormity of this conspiracy of nature. Reluctant to leave the tranquillity of her womb-like delirium, she averts her gaze from the face of life.

> At night, after the long effort of lying in her chair, in her extremity of grief for what she had so briefly won, she folded her painful body together and wept silently, shamelessly, in pity for herself and her lost rapture. There was no escape. Dr. Hildesheim, Miss Tanner, the nurses in the diet kitchen, the chemist, the surgeon, the precise machine of the hospital, the whole humane conviction and custom of society, conspired to pull her inseparable rack of bones and wasted flesh to its feet, to put in order her disordered mind, and to set her once more safely in the road that would lead her again to death.

The Miranda of "Pale Horse, Pale Rider" wishes to reject everything in order to die, as the Miranda of "Old Mortality" had wished to reject everything, even love, in order to live. "I hate love," the earlier Miranda had thought, "I hate loving and being loved, I hate it." Possessing and being possessed is unthinkable for the freedom of spirit which she envisaged and hungered for. Later, continuity itself is too great a burden, the possibilities are temporarily played out. Life will go on, but the second

Miranda stands at an apex of uncertainty no less fraught with danger than the boundless anticipation of her earlier self. The novel ends on a note of appalling irony.

> No more war, no more plague, only the dazed silence that follows the ceasing of the heavy guns; noiseless houses with the shades drawn, empty streets, the dead cold light of tomorrow. Now there would be time for everything.

This is as far as the Miranda cycle has been recorded; if its roots are as autobiographical as the numerous appearances of Miranda suggest, especially in the childhood experiences which make up the bulk of Miss Porter's last volume, we may be permitted to hope for a further development of her confrontation of life. Those who are titillated by the correspondencies between an author's life and his fiction have virgin territory to explore in these two novels, in "Hacienda" and "That Tree" (where the Miriam of "Old Mortality" reappears) as well as in the short stories in *The Leaning Tower*. All of these certainly seem to testify to the dependence of much of Miss Porter's art on her own or her shared experience. This essay will stop at the border of any attempt to reconstruct her personality from her work, or vice versa. The finished products have their own existence, and there remain a sufficient number of her stories to confound the seeker after biographical origins.

"Noon Wine" is one of them. Published in the same volume with the Miranda novels, it is as different from them in subject matter and method as if authored by another. Dramatic in structure, the development of its stark and pathetic action is the best thing of its kind since *Ethan Frome*. To a small south Texas farm at the turn of the century comes Olaf Helton, a mild, taciturn, hard-working Swede. For nine years he works as the hired hand of Mr. and Mrs. Thompson, a land-poor, God- and society-fearing couple; by his industry he rescues them from at least the outer periphery of poverty. When Mr. Homer T. Hatch, "a man who should be fat, ordinarily, but who might have just got over a spell of sickness," a man who, when he laughed, showed "rabbit teeth brown as shoe-leather"—when this repulsive interloper tries to arrest Helton as an escaped lunatic, Mr. Thompson splits his head open with an ax, but not before Hatch has knifed Mr. Helton. Mr. Thompson is acquitted by a jury, but he cannot make his neighbors or even his wife believe that it was a murder committed not in cold blood but in defense of Mr. Helton.

When his own children begin to eye him suspiciously, he commits suicide.

In bare outline, these are the events of the story, but such a synopsis meagerly suggests the resources employed in their telling: the evenly paced introduction of the Thompsons' household, the faithfully observed instances of gathering rural comfort as the "furriner" eases manual burdens and plays the song of noon wine on his harmonica, the leisurely hypnotic scene leading up to the killing, where Homer T. Hatch and Mr. Thompson, on a sweltering afternoon, cut their tobacco plugs and discuss Olaf Helton's character, the baffled casuistry of Mr. Thompson at the collapse of his social esteem, and the last grim paragraph, deadly irony of action matching the irony of reflection which terminated the other novels.

> . . . Taking off his right shoe and sock, he set the butt of his shotgun along the ground with the twin barrels pointed towards his head. It was very awkward. He thought about this a little, leaning his head against the gun mouth. He was trembling and his head was drumming until he was deaf and blind, but he lay down flat on the earth on his side, drew the barrel under his chin and fumbled for the trigger with his great toe. That way he could work it.

This is simple narrative at its best, lacking the intellectual subtleties of Miranda's stories, but clean in its own strong outlines like a piece of good wood carving. Here Miss Porter has beaten John Steinbeck on his own ground. Compare her unaffected delineation of Olaf Helton with Steinbeck's gratuitous Lenny, who remains, as Mark Van Doren dubbed him, "the Little Nell of the twentieth century."

It is all the more surprising, in view of these successful variations in form, that "The Leaning Tower" should fail just where it might have been expected to succeed, in effectual irony. The merits of the novel cannot be denigrated—they are the omnipresent ones of Miss Porter's style: the double attentiveness to pictorial precision and to "intellectual physiognomy"; the prose which, while it serves the interests of the ear, observes the proprieties of functional decorum; the confident control over the nexus of truth and poetry. Still, one can, I believe, question the larger purpose to which these merits should contribute. It is this purpose which I feel to be wanting and, therefore, if totality of form is the central standard for a novel, long or short, limiting to the dimensions of the study at hand. Since the success of this

novel depends mainly on its progression, a fairly detailed outline of its plot is in order.

The occasion of this study is confined to five days in Berlin in December, 1931. Charles Upton, a young American tentatively embarking on an artistic career, is moving from a dismal hotel whose air is "mysteriously oppressive," to cheaper, and, he hopes, more pleasant lodgings. The apartment house to which he moves is managed by a Viennese woman who, like most of her countrymen, has seen more prosperous and authoritative days. During negotiations for his room, Charles carelessly injures a small plaster replica of the Leaning Tower of Pisa, a souvenir of the landlady's Italian journey years before. Her consternation at the accident seems inordinate to Charles. He meets three other inhabitants of the house: Hans, a Heidelberg student, cherishing his new dueling scar; Herr Bussen, a starving mathematics student, and Tadeusz Mey, a young, cynically gay, Polish pianist. Herr Bussen attempts to kill himself, but the others agree to pretend that he is merely a victim of food poisoning, as he asserts. On New Year's Eve, Charles accompanies the young men to a cabaret where they all get very drunk, argue rather pointlessly but not vehemently about national aims and personalities. Behind the badinage looms Hans' need of pure power, the fat Otto's incipient lean-Nordic worship, and the Pole's wistful frivolity combined with his dark knowledge of national pride and shame. The tension of the argument is relaxed by women and song, with everyone joining in the chorus of a popular lyric, "their laughing faces innocent as lambs at play."

When Charles, very drunk, returns to his room, he sees that the Leaning Tower has been mended:

> Leaning, suspended, perpetually ready to fall, but never falling quite, the venturesome little object—a mistake in the first place, a whimsical pain in the neck, really, towers shouldn't lean in the first place; . . . yet had some kind of meaning in Charles' mind. Well, what? He tousled his hair and rubbed his eyes and then his whole head, and yawned himself almost inside out. What had the silly little thing reminded him of before? There was an answer if he could think what it was, but this was not the time.

And there, or soon after, Miss Porter leaves him, hoping, through his haze of drunkenness, that he will learn what it is that seems to be threatening him.

I submit that this is an unsuccessfully subtle ending, and a

failure on the author's part to focus the full force of illumination on Charles Upton's experience. Indirection is not necessarily a virtue in a novel; it may well conceal an evasion by the novelist of an honest contest with his own implications. Since dishonesty and evasion are the last practices with which I would charge Miss Porter, I can only believe that she thought her novelette to be more suggestive and less explicit than it had been. For if Charles does not grasp the significance of the plaster symbol, he is more obtuse than, by Miss Porter, he had been made out. He had been relatively shy, easily affronted, and socially insecure, but he had also displayed a trenchant satiric insight by his crayon sketching of the ugly Berliners, and though evasive and plaintively sociable in the presence of his hosts at the café, had pertinently criticized their arrogant self-love. The reader knows, all along, even without the oblique reference to the unnamed leader's photo in a barber shop, precisely what aspects of evil are dogging Charles' footsteps. Those aspects are nowhere concealed; they are uncompromisingly represented by Miss Porter throughout and are presumably observed by Charles. The ugly sculpture, the heavy, oppressive furnishings, the ill-mannered surveillance, Hans' preposterous pride in his dueling scar: all these are named objects of revulsion. The following paragraph describing a crowd before a toy-and-sugar-pig-shop window is as clearly an indictment of a cultural psyche as it is an astonishingly graphic and aggressive word-painting:

> With their nervous dogs wailing in their arms, the people, shameless mounds of fat, stood in a trance of pig worship, gazing with eyes damp with admiration and appetite. They resembled the most unkind caricatures of themselves, but they were the very kind of people that Holbein and Dürer and Urs Graf had drawn, too: not vaguely, but positively like, their late-medieval faces full of hallucinated malice and a kind of sluggish but intense cruelty that worked its way up from their depths slowly through the layers of helpless gluttonous fat.

After all these unambiguous portents have been duly noted and Tadeusz the Pole has plainly told Hans that the Germans have a great culture but no civilization, it is wholly anticlimactic for Charles to be visited by so tenuous a premonition as he feels before the patched and precarious Leaning Tower. Either he should have been portrayed as having no insight at all, thus enabling the reader to watch his innocent journey through horror with ironic fascination, or as having more sustained perceptions than he is given. In the latter case, the desperateness and latent

brutality which we have observed around him would need fulfillment in a greater denouement than the story has.

Though this novelette fails, in its own right, to establish an illumination of character equal in subtlety to that of "Old Mortality," or a situation equal in dramatic irony to that in "Pale Horse, Pale Rider," it is, none the less, a decisive prosecution of a people without dignity or humor in defeat, and a disquietingly fluent addition to Miss Porter's prose achievements. Conceivably it is an earlier work than the others, published later, but this assumption must wait upon a more detailed bibliography than is at present available.

The short stories in this volume, likewise, seem to me to be inferior, in total power, to those in *Flowering Judas.* "A Day's Work," featuring the domestic tribulations of a henpecked Irish loafer, is amusing and pathetic. In the hands of a lesser artist, its Maggie-and-Jiggs background would have impelled it into bathos. Under Miss Porter's guidance, no cliché of situation or speech is tolerated; staunch avoidance of patness is one of her greatest gifts. The opening paragraphs of "The Old Order" provide a superlative handling of her obsessive subject—the rituals of domesticity, the sacred and comically profane aspects of the war of the generations. Yet the portrait does not dissolve into scene (as it literally did in "Old Morality"); it is too obviously a reminiscence and needs the kind of crisis that crystallized the pathos in "The Jilting of Granny Weatherall." The remaining studies (or recollections), of childhood, are peerless of their kind, but at most they are vignettes. My favorite among these is "The Circus," in which for the child Miranda, her first circus is an ordeal of horror. The climax of the event is embodied in one of the most startling sentences in the book. "The man on the wire, hanging by his foot, turned his head like a seal from side to side and blew sneering kisses from his cruel mouth."

All these stories are marked by Miss Porter's characteristically meticulous workmanship. It is simply that they appear to stand in even closer relation to herself than do the more objective earlier stories, and one's enjoyment of them is inhibited by this proximity. One cannot fail to recognize, however, that if this collection does not surpass the earlier ones, it has felicities that no respecter of truth and craft in fiction can afford to ignore.

If one wishes to estimate, with any finality, the value of Miss Porter's contribution to American literature, one will finally add to her perfection of form her disclosure, and it is hers alone, of

how immensely difficult, for all but the stupid and the cruel, is the task of sheer day-by-day living in our time—and what precarious victories of moral understanding it is possible to achieve. The fullness of her disclosure, neither stunted by naturalism nor bloated by romanticized aggravation, is the criterion by which any American realism should be gauged.

It is impossible, as well as presumptuous, to forecast the nature of her future production in fiction. No living writer promises more. Her short stories have already placed her beyond anyone now working in that genre. One can safely declare that if, with her past excellencies, she can contrive longer novels with greater social scope and dramatic complexity, she will be nothing less than the great American novelist that our age has demanded, and presumed it deserves.

LITERARY CRITICISM

DARWIN AND THE TANGLED BANK

by THEODORE BAIRD

DETAILS of the scene can be filled in. They were both very great men. Carlyle was 80. On his last birthday he had been much honored. From Prussia came a decoration—"The Star . . . is really very pretty . . . hung with a black ribbon, with silver edges. . . . Had they sent me a ¼ lb. of good Tobacco the addition to my happiness had probably been . . . greater!" From America and Harvard came an honorary LL.D., and Disraeli, beginning his letter, "A Government should recognize intellect," offered him the Grand Cross of the Bath.

Darwin was 66, and *The Origin* had been published for sixteen years. At home and abroad learned societies had delighted in recognizing him, and he too was entitled to wear the star with the black silver-edged ribbon, the Prussian *Pour le Mérite*. In the public mind he played a unique part, for his name had been appropriated to stand for what vast numbers of people professed to be against, Darwinism. He had been abused, denounced, and reviled. Carlyle, in ordinary conversation, but not to the man's face, had had his say often enough: our descent from the apes is a humiliating discovery, which scientists had much better have kept to themselves, and, in short, he would like to lay his stick over Darwin's back. "I find no one," he told Allingham, "who has the deep abhorrence of [Darwinism] . . . that I have in my heart of hearts!" Here then was a combination of persons more crucial than in the famous meeting of the libertine Wilkes and the moralist Johnson; here was personified the clash between science and literature, empiricism and intuition.

We owe our knowledge of what they talked about to Carlyle's brief report. "I asked him," he said, "if he thought there was a possibility of men turning into apes again. . . . [Darwin] laughed much at this, and came back to it over and over again." Completely won over by Darwin personally, Carlyle was pleased with

From THE AMERICAN SCHOLAR, *Hiram Haydn, Editor*

Copyright, 1946, by the United Chapters of Phi Beta Kappa.

the meeting, and he told Allingham, who thought the phrase curious, that Darwin was a "pleasant, *jolly*-minded man." What Darwin thought of this exchange may well be contained in the sentence where he says of Carlyle, "As far as I could judge, I never met a man with a mind so ill adapted for scientific research."

Plainly Carlyle belongs to literature. Darwin's position is obscure. A popular textbook places him at the opposite pole, remarking that his work "cannot be said to belong to literature, if in the definition of literary work is presupposed an effort towards artistic expression." Yet Darwin, who certainly never thought of himself as a writer like Carlyle, was deeply concerned with literary composition, as the extensive remarks to Bates of the *Amazon* reveal. There were people who were born writers, he admitted, but he found the work hard. He had found it a good plan whenever he was in difficulties to fancy that some one had entered the room and asked him what he is doing; then he would try to explain "what it is all about." He added, "I think too much pains cannot be taken in making the style transparently clear and throwing eloquence to the dogs." The effort toward expression was there, and it would be a harsh critic who did not find artistic the result in the *Voyage of the Beagle.*

Darwin's subject—the face of the earth, the processes of nature —had long been within the scope of literature, and in his attitude there was nothing consciously novel. In the presence of the mystery or the beauty or the violence of nature, with the accompanying possible responses of worship or pleasure or shock, a writer could say, "Here it is, look at it," while simultaneously he communicated to the reader the effect, "How divine"; "How lovely"; or "How horrible." This, indeed, is the literary experience—seeing the object, feeling an emotion. And it is this which Darwin communicates on page after page of the *Journal and Remarks* made on the voyage around the world of H.M.S. Beagle. His emotions he records in the plain and modest language of the eighteenth century. They are none the less strong.

Naturally many were pleasurable. In reflecting on the five years' experience, he says he enjoyed himself deeply. His biggest word, *sublime*, he applies to large effects, like the forests of Brazil, "where the powers of life are predominant," or to Tierra del Fuego, "where Death and Decay prevail." Milder adjectives are *glorious, beautiful, delicious, striking, pretty,* and he is moved to speak of the "inexpressible charm" of life in the open air: the deathlike stillness of the plains, the Gauchos making their beds

round the fire, the dogs keeping watch. More than once he deliberately took thought how to convey to the reader the pleasure he felt: "I wish to find language to express my ideas. Epithet after epithet was found too weak to convey to those who have not visited the intertropical regions, the sensations of delight which the mind experiences."

Yet violence, destruction, and death were everywhere part of the charming landscape, like the slowly wheeling condor in the sky. The observer's experience is complicated, and the emotions mixed. In the foreground there is ever present the human being—the Fuegian savage, described in pages comparable to Swift on the Yahoo, slavery in Brazil, the conflict of races in New Zealand. "Wherever the European has trod, death seems to pursue the aboriginal." The same kind of fact met him everywhere. There was the cormorant playing with the fish it caught: "Eight times successively the bird let its prey go, then dived after it." There were the seals lying in astonishing numbers on the rocks, watched in the sky all the while "by the patient but inauspicious eyes of the turkey-buzzard. This disgusting bird. . . ."

Inanimate nature provoked even more violent response. The concepts of time and space, which might be enlarged by the attentive perusal of the paragraphs in Lyell's *Principles of Geology* on prepossessions in regard to the duration of past time, were shattered by the presence before his eyes of bones and shells and mountain ranges and in his ears the sound of running water. By immediate observation Darwin was forced to review his prepossessions, to consider how time in sufficient quantities could be conceived of; and the language he uses indicates how great was his perplexity. "It is impossible to reflect on the changed state of the American continent," he says, "without the deepest astonishment. . . . Certainly, no fact in the long history of the world is so startling as the wide and repeated exterminations of its inhabitants."

He returns to this problem, and once with especial solemnity. Climbing a pass in the Andes he saw and heard the muddy, steeply inclined mountain streams, whose roar was like that of the sea. "Amidst the din of rushing waters, the noise of the stones, as they rattled one over another, was most distinctly audible even from a distance. . . . The sound spoke eloquently to the geologist, the thousands and thousands of stones, which, striking against each other, made the one dull uniform sound, were all hurrying in one direction. It was like thinking on time, where the

minute that now glides past is irrecoverable. So it was with these stones; the ocean is their eternity, and each note of that wild music told of one more step toward their destiny."

Often he had seen beds of mud and sand and shingle thousands of feet thick, and he had been inclined to exclaim that such enormous masses could never have been formed by natural causes, grain on grain. "But . . . when listening to the rattling noise of these torrents, and calling to mind that whole races of animals have passed away from the face of the earth, and that during this whole period, night and day, these stones have gone rattling onwards in their course, I have thought to myself, can any mountains, any continent, withstand such waste?" Any continent—as if nothing could be more stable. Yet even this prepossession was destroyed by the "perfect horror" of the earthquake at Valdivia. "I falter where I firmly trod," says Tennyson, and every reader knows his words are metaphorical, alluding to instabilities of faith, but for Darwin the quaking of the earth was a literal experience with consequences on his systematic thinking. "The earth, the very emblem of solidity, has moved beneath our feet," he says, "like a thin crust over a fluid."

In this mixed response to nature—so beautiful, so horrible—Darwin was, of course, like many another man. Among his contemporaries the serious writers were making it their business to convey this very tension, to frame statements about it, even to resolve it, and in so doing they used traditional forms of speech, metaphors. They spoke as if an analogy between their manner of speaking and the universe really existed; and their readers, making the proper allowances, knew what they meant. It is unlikely that anyone ever asked Tennyson whether "God's finger touch'd him, and he slept," is an accurate verbal equivalent for the bursting of a blood vessel, nor was Carlyle besought to define in operational language his splendid, ringing phrases. Communication between author and reader was sustained by words which always meant more than their literal paraphrase, and the meaning was an insight, an intuition.

When in the *Origin* Darwin came to express how Nature as a whole seemed to him, he, too, used a metaphor. Nature, he said, is like something else, a struggle for existence, in which the fittest survive. The public instantly knew what he meant, recognizing the similarity as true (the Social Darwinians) or as false (the anti-Darwinians). And as a metaphor it must stand for some general experience, some common feeling about life, like that con-

tained in the comparison with a flame (out, out, brief candle) or with a growing thing (all flesh is as grass). It implies what was by the middle of the nineteenth century a familiar literary attitude, the act of witnessing and feeling about, as at a play. It involves recognition of hero and villain, conflict, victory and defeat, and the conversion of painful emotions into pleasure. The dramatist asserts that everything turns out right, and the audience is satisfied, the tension relaxed. "Now cracks a noble heart. Good night, sweet prince, And flights of angels sing thee to thy rest."

Educated readers were accustomed to the most exquisite verbal consolations about the death of Hamlet or the fall of man or the decline of the Roman Empire, and the ultimate, the inexpressible meanings resided in metaphor, as in the similarity of good night, rest, and death. The transfer of this trained literary attitude to nature and its processes was apparently not difficult. A handful of seeds thrown on the ground becomes a drama. No matter how painful some moments, the spectator is finally satisfied. True, a number of seeds did not germinate, other were starved out, parasites and disease were shockingly destructive, but the play has a good ending—the survivors are the better plants. The complicated literary expression known as tragedy had recognized a paradox, that death is sometimes better than life, so that we applaud defeat. The metaphor of struggle for existence revises this proposition to read, life *is* better than death, the living *are* better than the dead. If nature is horrible, it is finally beautiful.

This kind of interpretation was to be expected from readers brought up on the prophetic writing of the nineteenth century. Carlyle could proclaim that the Universe is made by Law, that the great Soul of the World is just. "Look thou, if thou have eyes or soul left, into this great shoreless Incomprehensible: in the heart of its tumultuous Appearances, Embroilments, and mad Time-vortexes, is there not, silent, eternal, an All-just, an All-Beautiful . . ." and so on, ending, "This is not a figure of speech; this is a fact."

But Darwin was using language in quite another manner. He took pains to say that the struggle for existence is not a fact but only a figure of speech. He stops dead in his tracks, when first using the term, to explain, "I use this term in a large and metaphorical sense," and he defines exactly what in nature he is pointing at. Two dogs in a time of dearth may be truly said to struggle for life as they fight for a bone. Second, the phrase is extended to include the relation of dependence: a plant on the edge of a

desert is dependent on sufficient moisture, a mistletoe is dependent on the apple tree. Third, the phrase includes success in leaving progeny. These three different kinds of behavior are represented by the shorthand notation, struggle for existence. And in detail Darwin was careful not to confuse his manner of speaking with the thing spoken of. Thus he writes, every single organic being "*may be said* to be striving. . . ."

Some readers knew well enough what Darwin was talking about. Asa Gray straightened out a correspondent who could not see how plants "struggled" since they had neither consciousness nor will, by replying that something really did happen in nature, "call the action what you please—competition (that is open to the same objection), collision, or what not—it is just what I should think Darwin was driving at," and he refers him to the relevant passages of definition in *The Origin*. Here is a language difficulty. What phrase can stand for "the action" of nature, since it contains in it so many separate items, capable of expression in so many possible relationships? Any one metaphor—struggle, competition, collision—is little better than another, since none can express nature in its entirety. To understand the meaning of the phrase the reader must comprehend the grandly complex context, established by the author, in which nature appears as a multiplicity, so varied in its movements, that only the most wide-ranging mind can take it in.

Yet the parallel phrase, survival of the fittest, seems to imply that nature turns out right and that the best man wins. Each creature tends to become more and more improved, and this improvement leads to gradual advance in organization. This, says Darwin, is an intricate subject. Only a careless reader could suppose that Darwin saw clear direction in any given moment or event, that he was ever in a position to applaud the hero or hiss the villain, like the spectator in the theater—for at great length he expresses objections and qualifications to his own theory. A sequence of events can be labeled "improvement," but this word is not a fact, it is only a figure of speech. What exactly does it refer to in nature? Naturalists are not agreed among themselves, as they shift their points of view and adopt different scales of measurement. It can be defined—in words—as high differentiation and specialization of the several organs, but how do they apply to a particular organism, how as a means of comparison of two organisms? What, for example, is to be said of the many low forms which have not advanced since the dawn of life, where no

sequence of improvement is perceptible, which, nevertheless, when dissected, reveal to the naturalist "their really wondrous and beautiful organization"? Then there are cases of "what we must call retrogression of organization," and how does that fit into movement going in one direction? As for the comparison of different types, to make an ascending scale seems hopeless, for "who will decide whether a cuttlefish be higher than a bee?"

The objection that a theory which must be so qualified is of little use is obviously wrong. Asa Gray and other readers knew what Darwin was talking about. Darwin's position as a writer was identical with that of the historian. Gibbon had been able to speak of events as true—in a certain way. He defined his scale, civilization under the Antonines, and, at the other extreme, the illiterate barbarian, so that the basic metaphor of decline and fall refers to something more expressed than the reader's personal scale of civilization. In detail, of course, he could not be sure of very much. The precise behavior of a particular Scythian during every moment of his life was unknown to him or to any man, but the general westward movement, in "waves," of the pastoral tribes of Asia, is an historical fact.

The figure of speech, then, points to a complicated event. A blow by blow account, with victory and defeat determined by the universal empire, the score carefully kept, is impossible in the struggle of any organism's existence. How little he knew in detail Darwin is constantly reminding the reader: "We know hardly anything about. . . . If we make due allowance for our profound ignorance. . . . This ought to convince us of our ignorance. . . ." Granting, however, the enormous limitations of knowledge under which the historian and the scientist labor, we do know what they are driving at: that life has flourished in many forms, that whole races have disappeared, yet the historical record can be made out by the trained observer, and this record can be expressed in a large, metaphorical sense.

The basic figure for this process is the tree of life—the trunk, the branches and twigs, some living, some dead, all representing complex relationships. "I believe," said Darwin, "this simile largely speaks the truth," and for a page and item by item he works out the similitude of that great tree "which fills with its dead and broken branches the crust of the earth, and covers the surface with its ever-branching and beautiful ramifications." The related movement which takes place while the tree grows, one part living, another part dying, one part branching out and con-

tinuing the succession—this is the struggle for existence. The way in which this movement takes place is natural selection. And as for the survival of the fittest, "The inhabitants of the world at successive periods in its history have beaten their predecessors in the race for life, and are, in so far *higher* in the scale." This is, indeed, largely the truth. On the diagram known as a family tree the living are higher on the scale than the dead. A temporal relation is represented spatially.

Darwin's use of language is consistent. If in addition to the analysis of metaphor a glossary is compiled of keyboards, such as *law, facts, nature, species, variety, variation,* and if the crucial word in each definition is followed up, it will appear that Darwin's verbal universe is expressed and his language system complete. From the pages of *The Origin* can be constructed a recognizable, going world. It would contain an enormous number of separate things, accurately observed: animals and insects and plants, continents and oceans. Life and death take place, the surface of the earth moves like a thin crust over a fluid, and whole races pass away. The causes are all natural. There would also be a consciously placed, self-disciplined observer, a man aware of his own ignorance. For him exists a language problem, to use words not as revelations of his own inner self but as pointers to actions outside the observer, and he solves it by limiting exactly the degree of similitude implied by his metaphor.

This observer is also much moved by what he sees. Privately, we know, Darwin took intense delight in the act of observing. His son writes: "I used to like to hear him admire the beauty of a flower; it was a kind of gratitude to the flower itself. . . ." The emotions expressed so modestly in *The Voyage of the Beagle* recur in more generalized form in *The Origin.* Wonder and amazement predominate. "No one," he says, "can have marveled more than I have done at the extinction of species." In the last stately pages of *The Origin* he, too, resolves the tension of nature, so horrible, so beautiful. "When I view all beings . . ." he says, "as the lineal descendants of some few beings which lived long before the first bed of the Cambrian system was deposited, they seem to me to become ennobled." And as he contemplated the tangled bank, clothed with plants, the birds singing, insects flitting about, and in the damp earth the worms crawling—the struggle for existence going on before his eyes while he paused in his morning stroll on the Sand Walk; as he reflected that these elaborate forms have all been produced by laws acting around us, and that from the war

of nature, from famine and death, has come the production of the higher animals—then he says, "There is grandeur in this view of life. . . ."

Galton's praise of Darwin, that he had "studied veracity as the highest of arts," belongs to him both as an observer and as a writer. Actually it is hard to see how these two processes can be separated and distinguished. It is easier to conclude that in 1859, at one of the great moments in modern thought, literature and science were united.

LITERARY CRITICISM

POLITICS

SHAW AT NINETY

by ERIC BENTLEY

ON THE twenty-sixth of July, 1946, Bernard Shaw was ninety years old. How should we—or he—feel about it? The ninetieth birthday of the man who once wrote, "Every man over forty is a scoundrel," is an ambiguous occasion. Ambiguous because he does not believe in celebrating any birthdays, let alone ninetieth birthdays. Ambiguous because, in the opinion of so many, Mr. Shaw has outlived his genius and even his usefulness. Ambiguous because, it is thought, the politics of the twentieth century has traveled far beyond the ken of Fabianism. Ambiguous because twentieth-century literature has taken quite a different turn since the days when Shavian drama was the latest thing. And yet, despite Mr. Shaw's indifference to celebrations, despite the indifference of my contemporaries to Mr. Shaw, I propose to celebrate the ninety-year span of this man's life by asking the Shavian question: What use has it been? To what end has Bernard Shaw lived?

Seventy years ago a young Irishman went to live in London. Another twenty years had to pass before London was fully aware of the fact that it possessed a new critic, a new novelist, a new thinker, a new wit, and—rarest of all—a new dramatist. In the first decade of the twentieth century Shaw's reputation swept across America and Central Europe. On the death of Anatole France in 1924 he was declared the leading Great Man of European letters. A new play by Shaw was a world event. Between 1923 and 1925 the part of Saint Joan was enacted by Winifred Lenihan in America, Sybil Thorndike in England, Ludmilla Pitoëff in Paris, Elisabeth Bergner in Berlin. On the occasion of his seventieth birthday a *New York Times* editorial declared Shaw "probably the most famous of living writers."

Soon the fame won by plays and books was doubled by the fame won by films. Shaw's opinion on everything were reported in the

From THE ATLANTIC MONTHLY, *Edward Weeks, Editor*

Copyright, 1946, by Eric Bentley.

press almost weekly. Has any other author ever been so famous during his lifetime? (Since 1905 many articles on Shaw have been published every year. Some forty whole books have been written about him.) True, none of his books has sold like *Gone With the Wind*, none of his plays has run as long as *Tobacco Road*. But, even by the economic criterion, Shaw's career was "sounder" than any merely popular author's, for his books went on selling indefinitely and his plays returned to the stage again and again. True, as a "best-selling classic" Shaw does not rival Shakespeare or the Bible. But then it takes the death of its author to put the final seal of respectability upon a classic. And Shaw refuses to die.

If, as Freud says, the life of the artist is a quest for honor, riches, fame, love, and power, Shaw must be one of the most successful men who ever lived. Then why is he, rather obviously, a sad old man? Because he is sorry to leave a world which he has so brilliantly adorned? That is too shallow an explanation. Honor, riches, fame, the love of women, these he has been granted in abundance. Yet the striking thing about Shaw is his relative aloofness from all these worldly advantages. He talks about them all as if they belonged to somebody else.

But Freud mentioned a fifth goal: power. And this Shaw has only had to the same extent as any other rich writer, and that is to a very small extent indeed. Not that Shaw wanted to be Prime Minister or anything of that sort. The only time Shaw stood as candidate in a large-scale election his abstention from demagogy amounted to a Coriolanus-like repudiation of his electors. When the electors turned him down, they were returning a compliment.

This was not the kind of power Shaw wanted. Crude personal ambition is something he scarcely understands. What he did feel was the consciousness of great spiritual resources within him, the consciousness of a message—of, as he put it, being used by something larger than himself. When, therefore, people paid attention to the ego of Shaw and not to the message of Shaw, when they paid attention to the small and not to the large thing, that was for Shaw the ultimate catastrophe. More plainly put, Shaw's aim has been to change our minds and save civilization; but we are still in the old ruts and civilization has gone from bad to worse. For Shaw this must be the cardinal fact of his career. "I have produced no permanent impression because nobody has ever believed me."

Anyone who knows Shaw's aims and attitudes knows that this is as complete a confession of failure as old Carlyle's famous

sentence: "They call me a great man now, but not one believes what I have told them." Three years after Carlyle's death Shaw wrote on behalf of the peaceful Fabians that "we had rather face a Civil War than such another century of suffering as this has been." And then came, of all things, the twentieth century, the age of Wilhelm II, Tojo, and Hitler! In 1932 Shaw was again addressing the Fabians. He said: "For forty-eight years I have been addressing speeches to the Fabian Society and to other assemblies in this country. So far as I can make out, those speeches have not produced any effect whatsoever."

"So what?" some will be content to say, reconciling themselves with cynical ease to the ways of the world. Why should Shaw think he can change civilization by thinking, writing, and talking? This, say one of his Marxist critics, is the "bourgeois illusion." Winston Churchill does not use the Marxist vocabulary, but his essay on Shaw, in *Great Contemporaries*, conveys the same contempt. He will accept Shaw only on condition that he does not ask to be taken seriously. He ignores Shaw's repeated assertion: "The real joke is that I am in earnest."

The fact that Shaw has been easy to brush off can be explained by the method which he has used to spread his fame, a method he expounded forty years ago with characteristic frankness:—

> In order to gain a hearing it was necessary for me to attain the footing of a privileged lunatic with the license of a jester. My method has therefore been to take the utmost trouble to find the right thing to say and then say it with the utmost levity.

The lunatic jester was named "G.B.S.," a personage who from the start was known to many more people than Bernard Shaw could ever hope to be, a Very Funny Man, whose perversities were so outrageous that they could be forgiven only under the assumption that they were not intended, whose views and artistic techniques seemed to be arrived at by the simple expedient of inverting the customary. Unfortunately Bernard Shaw proved a sorcerer's apprentice: he could not get rid of "G.B.S." The very method by which Shaw made himself known prevented him from being understood. The paradox of his career is that he should have had so much fame and so little influence.

So little influence? Is the phrase disparaging? After all, Shaw had an appreciable influence at least on the generation of 1910. And yet even this is hardly something that Shaw would congratu-

late himself upon, for it was mainly negative. It represented only the superficial part of his teaching, his anti-Victorianism. It was often the kind of influence he had positively to disown—as in the case of the young criminal whose plea of being a disciple of Shaw was later embodied in *The Doctor's Dilemma.* The attention Shaw attracts must not be confused with influence.

During the first decades "G.B.S." was a Dangerous Spirit, distinctly Mephistophelian, red-bearded, young, and aggressive. No kind of philosopher can more easily be dismissed. Eugene O'Neill's play *Ah, Wilderness* portrays this early Shavian "influence" as a sort of measles which the more literary high school boy must have and then forget. After the First World War, the great dividing line in Shaw's career, "G.B.S." was regarded as rather cute, a Santa Claus if not a Simple Simon. William Archer crowned his long series of attempts to discredit Shaw with a final blow: Shaw was a Grand Old Man. "Not taking me seriously," said Shaw, "is the Englishman's way of refusing to face facts." And by "the Englishman" Shaw has always meant Monsieur Tout-le-monde. "What is wrong with the prosaic Englishman is what is wrong with the prosaic men of all countries: stupidity."

Before the First World War, Shaw was the leader of the *avant-garde.* After it he was the Grand Old Man—which meant that he had lost the support of the rebellious young. In 1898 Shaw had written: "I may dodder and dote; I may potboil and platitudinize; I may become the butt and chopping-block of all the bright original spirits of the rising generation; but my reputation shall not suffer; it is built up fast and solid, like Shakespeare's, on an impregnable basis of dogmatic reiteration." Like Shakespeare's! What an irony, for the man who wished to have, not literary prestige "like Shakespeare's," but *influence* like Voltaire's or Luther's. "I see there is a tendency," Shaw said in 1921, "to begin treating me like an archbishop. I fear in that case that I must be becoming a hopeless old twaddler."

The new "G.B.S." proved another spirit that could not be exorcised. And the new "G.B.S." was worse than the old, for fogies have even less influence than iconoclasts. The old critics had at least feared and scorned Shaw. An admirer of the new sort wrote: "But I do not believe that we will thus scorn him or forget him when the irritation of his strictures on events that are close to our hearts or to our pride is removed." Unfortunately, for Shaw's purposes, irritation to our hearts and our pride was desirable, while praise for the irritator was neither here nor there. If the

undirected rebelliousness of Mencken—whose first book of criticism (1905) was also the first book ever written about Shaw—was only a negative and distorted Shavianism, that is the only sort of Shavianism that has as yet had any currency at all.

The people who have revered Shaw in his later years—revered him as patriarch, as senile prodigy—have not bothered to imbibe any of his teaching. This is best illustrated by the fact that Broadway, though always reluctant to stage anything but a new play, has revived old Shaw plays and made money with them, while his new plays were either left alone or played to half-empty houses. It was not that Shaw's new plays were so obviously inferior to his old plays. They were in any case much better plays than most of those on Broadway. It was that Shaw was no longer welcome as a living force. He was a Classic—that is, the author of plays old and awesome enough to be innocuous.

When Shaw won popular fame he lost his serious reputation. "The bright and original spirits of the rising generation" repudiated him and passed on. A *Nation* editorial of October, 1909, already reflects new departures: "The time has come . . . when the insolent Shavian advertising no longer fills us with astonishment or discovery, or disables our judgment from a cool inspection of the wares advertised. The youthful Athenians who darted most impetuously after his novelties are already hankering after some new thing. The deep young souls who looked to him as an evangelist are beginning to see through him and despair." The occasion of these patronizing remarks was the publication of Chesterton's brilliant book on Shaw, which, despite Chesterton's avowed dislike of "time snobbery," was an attempt to make Shaw sound dated.

In 1913, D. H. Lawrence wrote that there ought to be a revolt against the generation of Shaw and Wells. In the same year a young English critic, Dixon Scott, who was soon after to be killed at Gallipoli, interpreted Shaw, in one of the best critical essays of that generation, as essentially a child of London in the eighties. Shortly after the First World War the leading poet of the new generation, T. S. Eliot, was careful to put Shaw in his place as "an Edwardian," a quaint survivor from before the flood. Several of the clever critics of this clever decade wrote essays to prove Shaw an old fool. Theatrical criticism followed the general trend. The gist of George Jean Nathan's notices in the twenties and thirties is that Shaw is played out.

When William Archer conferred the title of Grand Old Man,

Shaw was not yet seventy. The wheel turned, and lo! an ancient of seventy-five, eighty, eighty-five. Diamond jubilees followed jubilees as the figure rose and rose. This year, when Shaw is ninety, some will laugh with him and some will laugh at him, some will laugh sentimentally and some will laugh superciliously. Few will laugh in the true Shavian fashion—seriously.

I hope some of the main features of Shaw's career are now clear. To gain an audience he invented a pose. The pose gained him his audience but prevented him from having any influence. The mask of clowning in Shaw's career has as its counterpoint the mask of clowning, of farce and melodrama, of *Kitsch* and sheer entertainment, in his plays. Of this second mask a great theatrical critic, Egon Friedell, remarked that it was clever of Shaw so to sugar his pill but that it was even cleverer of the public to lick off the sugar and leave the pill alone. In that battle with his audience which is the main conflict in Shavian drama, in that battle with the public which is the main conflict in everything that Shaw writes or says, the audience, the public, has won. "I have solved practically all the pressing questions of our time," Shaw says, "but . . . they keep on being propounded as insoluble just as if I had never existed."

Up to this point Shaw's secret is an open one. Shaw's famous method, his "Shavianism," by which people mean his pose of arrogance, was a deliberate strategy in an altruistic struggle. As I have suggested, it was precisely because Shaw was so unusually immune from the common frailties of ambition and egoism that he could adopt the manner of the literary exhibitionist without risk of his integrity. His campaign of self-promotion was not the campaign of a clever careerist who decides to secure at once by cunning what he will never secure later by genius. Shaw had artistic genius enough, and knew it, but he was not primarily interested in artistic genius and artistic reputation. He wanted his pen to be his sword in a struggle that was more ethical than aesthetic.

Wishing to change the world, Shaw wished to speak to the public at large, not merely to his literary confreres. So he put his genius at the service of his moral passion. He knew that he risked sacrificing altogether a high literary reputation; and the fact that his name is so often linked with the publicist Wells indicates that, for a time at least, Shaw has forgone that kind of reputation. The arrogant pose was an act of self-sacrifice. Shaw's modesty was offered up on the altar of a higher purpose. In order to be influential he consented to be notorious.

His failure was double. Willingly he forwent his literary reputation. Unwillingly he had to admit his lack of influence as a thinker. The term Artist-Philosopher which Shaw coined for himself is perhaps a concealed admission that both as artist and as philosopher he had failed to make his mark.

If this were the whole story, Shaw would be no more important than a hundred other men who have abandoned art for "action" or propaganda without making any noticeable dent in the world's armor. Shaw's is a more complicated case. If he is today a sad old man it is not himself that he has found disappointing. His unhappiness is not that of a Citizen Kane finding that success does not bring contentment. It is in *us* that he is disappointed. It is modern civilization he grieves over. To the man who now proceeds to ask: but is not Shaw one of us? is he not an integral part of modern civilization? one would have to reply: his ideas are indeed typically modern, a synthesis of all our romanticism and realism, our traditionalism and our revolutionism, yet he himself is not one of us. He is further apart from his contemporaries than any other thinker since Nietzsche.

Shaw was born and bred a Protestant in the most fanatically Catholic city in the world. That indeed is his situation in a nutshell. His home, far from being one of puritanic pressures like Samuel Butler's, was one of abnormally tepid relationships. From the beginning Shaw was encouraged to be independent. Practically the only thing his education taught him was how to stand alone. His keenest pleasures were those which the imagination could feast on without intrusion from people around him; when he speaks of his voluptuous youth he means he read novels, wandered round an art gallery, reveled in opera and melodrama. Since his schooling was as untyrannical as his home, he was largely unaffected by it. The first time he felt the pressure of society was when he became a clerk. It was too much for him. He broke with his whole environment by going to seek his fortune in London. If he lived with his mother there, it was only to save money. Mother and son continued to see little of each other.

Shaw entered British society by the Bohemian gate. He never tried to become an established member of the upper, middle, or lower class. He remained "unassimilated." His first circle of acquaintance consisted largely of musicians, his later circle of writers and actors. Even his journalistic experience did not bring Shaw overmuch into contact with the general run of men. As book

reviewer, art, drama, and music critic, he worked at home, at the gallery, the theater, and the concert hall, not at the office. A brief connection with the telephone business convinced Shaw for a second time that he must never try to "earn an honest living."

From 1882 on, Shaw was a socialist, addressed mass audiences, served on committees, was elected borough councillor, stood as candidate for the London County Council. But how far all this work was from any mingling with the working class, the middle class, or any class except that of intellectuals is clear to anyone who studies the life of Shaw in particular or the history of the Fabian Socialists in general. The Fabian Society should be thought of less as one of the several branches of the British Labor movement than as one of the many societies for intellectuals which abounded in Victorian, and especially Late Victorian, England.

One might almost say that the Fabians were nearer to the Aesthetes than to the trade-unions. Theirs was but another form of Bohemianism. "Instead of velvet jackets and a slap-dash joviality," as Dixon Scott put it, the young writers of the eighties "took to *saeva indignatio* and sandals," to "Jaeger and Ibsen and Esoteric Buddhism." "They became infidels," he added, "atheists, anarchists, cosmogonists, vegetarians, anti-vivisectionists, anti-vaccinationists." Far from involving Shaw personally in ordinary British society, socialism helped to keep him out of it. And for good. For he married a wealthy Fabian in 1898, and in the twentieth century has barely pretended to be a part of our world at all. At best he descends upon us from his country house at Ayot St. Lawrence like a prophet descending from mountain solitude.

If this version of Shaw's career seems fanciful, turn to the last page of the preface to *Immaturity,* the long essay which is the nearest approach to an autobiography that Shaw will ever write. Calling himself "a sojourner on this planet rather than a native of it," Shaw continues:—

> Whether it be that I was born mad or a little too sane, my kingdom was not of this world: I was at home only in the realm of my imagination, and at my ease only with the mighty dead. Therefore I had to become an actor, and create for myself a fantastic personality fit and apt for dealing with men, and adaptable to the various parts I had to play as an author, journalist, orator, politician, committeeman, man of the world and so forth. In this I succeeded later on only too well. In my boyhood I saw Charles Mathews act in a farce called Cool as a Cucumber. The hero was a young man just returned from a tour of the world, upon which he had been sent to cure him of an apparently hopeless bashfulness; and the fun lay in the cure having overshot the mark

> and transformed him into a monster of outrageous impudence. I am not sure that something of the kind did not happen to me; for when my imposture was at last accomplished, and I daily pulled the threads of the puppet who represented me in the public press, the applause that greeted it was not unlike that which Mathews drew in Cool as a Cucumber. . . . At the time of which I am writing, however, I had not yet learned to act, nor come to understand that my natural character was impossible on the great London stage. When I had to come out of the realm of imagination into that of actuality I was still uncomfortable. I was outside society, outside politics, outside sport, outside the church. If the term had been invented then I should have been called the Complete Outsider.

Shaw was certainly an outsider. And, as we have seen, the ruse by which he sought to get Inside was by no means successful.

At this point Shaw's career is revealed to us as something more than a picturesque misadventure, and Shaw as something more than a frustrated propagandist or a frustrated man of action. Of course he *is* a frustrated propagandist to some extent—all preachers are. But he is not a man of action at all. He is an artist, and therefore, whatever his didactic urge, whatever the naturalistic ardor with which he seeks to portray the outer world, he gives expression to his own nature and tells the story of himself. In the art of persuasion one Hitler or one Hearst is worth a thousand Shaws. The fact that Shaw did not descend to the methods of the politician, let alone of the demagogue, would indicate that—in spite of himself—he was not fundamentally a propagandist.

When remarking that the good advice of the Gospels, Dickens, Plato has never been heeded, Shaw says in the foreword to his *Prefaces:* "You may well ask me why, with such examples before me, I took the trouble to write them. I can only reply that I do not know. There was no why about it: I had to: that was all." A cryptic solution? To those who know their Shaw it is suggestive of other Shavian tenets. Most basic of them is the statement in *The Sanity of Art:* "We are afraid to look life in the face and see in it not the fulfilment of a moral law or of the deductions of reason, but the satisfaction of a passion in us of which we can give no account whatever." To satisfy passions we do many things because we "have to"—there is "no why about it." If the passion is a sufficiently high one—according to Shaw, chastity is passion, thought is passion—the action is justified.

Shaw's passions are high. In the preface to *Immaturity,* which I have already cited, Shaw refers to himself as an Insider. "The

moment music, painting, literature, or science came into question the positions were reversed: it was I who was the Insider. I had the intellectual habit; and my natural combination of critical faculty with literary resource needed only a clear comprehension of life in the light of intelligible theory: in short, a religion, to set it in triumphant operation." One of the most interesting portraits of Shaw is his own John Tanner, the man of ideas who in this world of ours is rightly regarded as even more a gasbag than an iconoclast, but who in the realm of the spirit, as Don Juan Tenorio, is a true master.

Whatever his duties to us, Shaw had his duty to himself. Whatever his function as a deliberate preacher, Shaw also knew himself to be a *force* that had to act according to the inscrutable laws of its own nature. He was being used—for an unknown purpose—through the agency of a passion "of which we can give no account whatever." This passion led the man who thought of himself as a propagandist to what looks like the weakest and most unpromising of all propagandist media—the theater. Nor are the plays the most propagandist of plays. As far as the presentation of opinions was concerned, Shaw's forte is for presenting both sides of a question with equal conviction, an art he brought to such a pitch that some thought his *Saint Joan* a defense of the Inquisition, while others thought his later political plays a defense of fascism. From beginning to end Shaw's drama expresses his nature —his apprehension of many-faceted reality—much more than it champions particular doctrines. It even mirrors Shaw's life rather closely in a series of self-portraits.

It is not of course true, despite Mr. Wells, that *all* Shaw's characters are Shaw—at least not in any obvious or important way. Nor can one, as Mr. Laski hints, simply look for a character who talks a lot, who believes in socialism, or creative evolution, and stamp him as Shaw. In *Candida,* for example, there is actually more of Shaw's philosophy, more of Shaw's plight too, in the pre-Raphaelite poet Marchbanks than in the platform-speaking socialist Morell. These two characters might perhaps be taken as two halves of Shaw's nature: his outer, glib, and confident half, at once socialist and social, and his spiritual, lonely, and artistic half, the half that puts him beyond the pale of society. Certainly the secret in the poet's heart is the secret of Shaw the Outsider who is the real Insider, the man who is strong enough to leave the homestead and live with himself and his vision.

In the later plays the two most interesting self-portraits are Captain Shotover in *Heartbreak House* and King Magnus in *The Apple Cart.* Both portray Shaw's role in modern civilization and in England in particular. In *Heartbreak House,* England is represented as a ship, with no captain, heading for the rocks. In a ship within this ship—a house in which the only room we see is got up like a ship's cabin—lives Shotover, half lunatic, half sage, an ex-sailor who sold himself to the devil at Zanzibar. He is conducting researches with the aim of discovering a death ray, ostensibly "to blow up the human race if it goes too far."

Actually Shaw borrowed the death ray from a novel by Bulwer Lytton in order to repeat a fancy he had aired long before in an essay: either we must learn to respect justice as such or acquire the power to kill each other instantaneously by merely thinking. *Responsibility* (our supreme desideratum according to Shaw) must be attained by whatever method—if not by a passion for justice, then by the passion of fear. It is significant that Shaw does not present Shotover as a noble character but as a senile eccentric. As poignantly as Nietzsche, Shaw recognizes his own limitation. Although Shotover marries a young woman, in sadly ironic recognition of the Shavian union of Artist Man and Creator Woman, he does not discover the death ray any more than England learns to respect justice. The end is chaos and misunderstanding.

The Apple Cart was discussed flat-footedly at the time of its first productions as a play advocating monarchy. This is a misunderstanding. The situation of the play—a king confronting his Labor cabinet—is actually a fantasy which, like all Shavian fantasies, has very concrete implications. The king is a philosopher-king. In fact he is Shaw (even to his love life, which includes a humdrum wife whom he prefers to a romantic mistress). The problem of the play is not King George versus Ramsay MacDonald but the question: Who knows better what is going on and who is better fitted to cope with it—Bernard Shaw the artist-philosopher or Ramsay MacDonald the prime minister? Their common enemy is Breakages Limited—that is, capitalism, the sinister power, thriving on destruction, which the critics took no notice of because it is not personified on the stage. It lurks in the background. Now just as in Shotover Shaw does not make himself patriarchal, so in Magnus he does not make himself majestic. It is not clear that Magnus could really have won if he had gone

to the polls, as he threatened, against the politicians. It is not clear that the philosopher *can* replace the prime minister. No basic problems are cleared up at the end. We are left with the not very encouraging title of the play.

But perhaps the most complete picture of what I have called "Shaw's role in modern civilization" was long ago provided in *John Bull's Other Island.* As in *Man and Superman* Shaw represents himself by two characters and, as in *Candida,* the two Shaws are brought up against a more masterful person, one who really assumes that he—in *Candida,* it is *she*—has inherited the earth. In *Candida* the emphasis is chiefly psychological. In *John Bull's Other Island* it is chiefly philosophic, a matter of rival outlooks. The Antagonist is not a charming lady but the Shavian Englishman, the Shavian professional man, the Shavian politician, Broadbent, the two syllables of whose name tell us nearly all we need to know of him. Shaw himself, I think, is part Larry Doyle, part Father Keegan; that is, partly the worldly Irishman whose realism drives him to have his revenge on England by "succeeding" as an Englishman, partly the divinely mad priest who believes (Shaw has been quoting the line ever since) that "every jest is an earnest in the womb of time."

There is no passage in Shaw that more clearly shows what he is for and what he is against; there is no passage that more openly reveals his estrangement from our world than this brief encounter between Keegan and Broadbent:—

> BROADBENT: I find the world quite good enough for me: rather a jolly place in fact.
>
> KEEGAN: You are satisfied?
>
> BROADBENT: As a reasonable man, yes. I see no evils in the world—except, of course, natural evils—that cannot be remedied by freedom, self-government, and English institutions. I think so, not because I am an Englishman, but as a matter of commonsense.
>
> KEEGAN: You feel at home in the world then?
>
> BROADBENT: Of course. Don't you?
>
> KEEGAN (*from the very depths of his nature*): No.
>
> BROADBENT: Try phosphorus pills. I always take them when my brain is over-worked. I'll give you the address in Oxford Street.

At the end of the play, when Larry Doyle again expresses his contempt for dreaming—it is Shaw's own contempt for illusions, for idealism—and Broadbent tells us he has dreamt of heaven as a dreadful place, "a sort of pale blue satin," Keegan gives us *his* dream. It is Shaw's own ideal, which he hopes is no illusion:—

> In my dreams it is a country where the State is the Church and the Church the people: three in one and one in three. It is a commonwealth in which work is play and play is life: three in one and one in three. It is a temple in which the priest is the worshipper and the worshipper the worshipped: three in one and one in three. It is a godhead in which all life is human and all humanity divine: three in one and one in three.

But Father Keegan is obviously even madder than Captain Shotover. He summarizes his own vision: "It is in short the dream of a madman." To which Shaw's Englishman retorts: "What a regular old Church and State Tory he is! He's a character: he'll be an attraction here. Really almost equal to Ruskin and Carlyle." To which Shaw's other half, Larry Doyle, adds: "Yes: and much good *they* did with all their talk!"

Shaw's dream of a better world, his impatience with dreams of a better world, his idealism and his anti-idealism, his knowledge of the world of "Englishmen" and his alienation from this world—all these are implicit in the last pages of *John Bull's Other Island.* These are not pages of the Bernard Shaw the public knows. They are pages of the man who once wrote haughtily: "My heart knows only its own bitterness." They are pages of one whom the poet A.E. called a "suffering and sensitive soul."

We are now in a position to see what Shaw's career means over and above the well-attested fact that he wanted to be taken seriously and was not taken seriously. We can see that Shaw is a clear case of misunderstood genius. But, lest the story sound too much like that of the perennial "clown with a broken heart," we must see also that Shaw never relaxed into self-pity; that his celebrated gayety is precisely a prophylactic against such relaxation; that, alienated as he was, Shaw made a very special and subtle adjustment. He turned his alienation to artistic and moral profit. He is one of the very few great modern artists who have not been dismayed by their own estrangement.

Our times suffer from sick conscience, and our geniuses suffer with the times. Modern artists are mainly of two types. The first, to use Flaubert's figure, wants to vomit at the thought of the horror of our epoch, which it nevertheless looks straight in the eyes. The second looks in the other direction and calls loudly for literary Uplift, Patriotism, and something Wholesome. Shaw belonged to the first group. He vomited, but eventually emerged from the *vomitorium* with an incredibly optimistic smile on his face. Had he decided to join the second group? No, but he had

decided that vomiting did no good, that the facts had to be faced but that they had also to be changed, and that if one is alienated from one's environment one can recognize the fact and work out a plan of campaign.

Shaw's older contemporary, Nietzsche, had come to a similar conclusion but had followed up his affirmations of health by losing his reason. Shaw found a happier though in some ways a no less desperate solution: he pretended to have no reason to lose. If modern life was as unreasonable as *King Lear,* Shaw would cast himself as the Fool. Trace the word *mad* through his plays and you will find that the finest characters and the finest actions usually have it applied to them.

Accordingly I do not think Shaw can find a place in the paradise of the middle-brows despite his cheerful and moralistic manner. To be sure, there are subterraneous realms which Shaw never enters, and we cannot find in him what we go to Dostoevsky, Proust, or Kafka for. Yet, like Ibsen, Shaw has had "a strange, fairy-tale fate," strange because in some ways so close to his age and in others so remote from it, strange because it was so hard for him to *communicate.* The problem of communication in the arts is never simple; the artist is one who tries to communicate the incommunicable. For the *modern* artist the problem, I think, is especially acute, and Shaw resorted to some very bizarre shifts. Living in this queer age, he found he had to give the impression that his highest quality—a sort of delicate spirituality, purity, or holiness—was fooling when what he meant was that his fooling was holy. The devil's advocate was a saint. The clown was a superman.

Unlike Nietzsche, who finished few of his major works, Shaw has been able to give his very remarkable mind full expression. Although the ninety-year campaign of his life has not abolished war or even capitalism, it has at least made us the beneficiaries of some of the best pamphlets and plays in the language. And in them is recorded for all time a great spirit.

I have reiterated the fact that, on his own confession, Shaw has been a failure as a propagandist. I would not say he is a failure as a teacher. (The teacher not only *need* not be a propagandist; I would say he *cannot* be a propagandist—defining a teacher as one who helps people to learn, learning being something a man has to do for himself.) *John Bull's Other Island* does not solve the Irish problem. It does not, as Mr. Odet's *Waiting for Lefty* tried to do, send the audience

rushing out to take action. Nor does it present a situation with the merely external truth ("objectivity") of naturalists like Galsworthy. When Shaw feels the importance of a human situation, he presents it truthfully—that is to say, in all its many-sidedness—and with a passionate accuracy that betokens commitment without prejudice. This is teaching. Shaw's plays are not, though they seem to be, entertainments with propaganda awkwardly added. Their "propaganda" is itself a high art, their art is itself didactic. When they are faulty it is the "entertainment" that is awkwardly added—added to the art, added to the didacticism, added as a sheer redundancy.

The fact that Shaw really wrote his plays because he "had to" (and not to change the world) was in the end the saving of Shavian drama both as art and as teaching. Writing merely what he *had* to write, Shaw will leave us a rich legacy. He has obeyed the Life Force, lived out his Destiny, worn the mask of the madman "G.B.S." without really knowing why. We may learn in time not to despise even the mask, much less Bernard Shaw, as we have learned (I hope) not to despise the Bohemian mask of Oscar Wilde and the Diabolical mask of Nietzsche, two other lonely, estranged teachers of our times. The influence of a propagandist may be prodigious, as we learned from the case of Josef Goebbels. But that was not all we learned from the case of Josef Goebbels. The influence of teachers is lamentably small—or the world would not be in its present state. Yet to the extent that we believe that influence negligible we are cynics. To the extent that we find in that influence a solace and a hope we are men.

LITERARY CRITICISM

SOCIAL CRITICISM

POETS, TEST TUBES, AND THE HEEL OF ELOHIM

by HYATT HOWE WAGGONER

SEVERAL years ago, rather early in the war, we began to hear about the emergence of "foxhole religion," alleged by some to be a healthy sign of a much-needed religious revival, by others to be a temporary and not particularly edifying manifestation of fear psychology. Soldiers, we read, who had never been to church began to pray; aviators attributed the appearance of sea birds to Providence.

And the news, whether we read it with approval, disapproval, or mere amusement, did not come as such a surprise as it would have, say, fifteen years earlier. For we had become accustomed through the preceding decade to books by famous scientists proving that science was not materialistic, by philosophers creating systems compatible with faith, by laymen discovering the church. A number of our young literary intellectuals had renounced the world; one at least was rumored to have entered a monastery. Aldous Huxley had been assuring us for several years that time must have a stop, and Reinhold Niebuhr, arguing that the only remedy for futility was Christian orthodoxy, seemed to many to be the philosopher whose influence might succeed that of the pragmatists.

The signs of this "new failure of nerve," as John Dewey has somewhat scornfully termed the increased interest in religion among the intellectuals, have been widely apparent only in the last dozen years or so. But thirty years before Dr. Link announced his rediscovery of religion, thirty years before it had become a commonplace that our technical knowledge had outrun our moral wisdom, the poets were viewing science and all its works with alarm. They were calling for not less knowledge of means but more knowledge of ends. They were asking ultimate questions

From THE UNIVERSITY OF KANSAS CITY REVIEW, *Clarence R. Decker, Editor*

Copyright, 1946, by The University of Kansas City Review.

and turning, frequently, to religion for the answers. It was indeed some forty years or more ago that Yeats and Frost and Robinson, the outstanding elder masters of the poetry of our century, began rebelling against our scientific civilization, and each succeeding poetic generation has seemed equally allergic to a culture that proudly claims natural science as its base and semantics as its apex.

Yet the fundamental patterns of our society have probably been even less affected by the criticisms of the poets than the later lives of most of the soldiers have been altered by foxhole piety. The criticisms of the disaffected bards have touched us lightly, those whom they have reached at all. *Language in Action* and *For the Time Being,* semantics and poetic piety, may have competed recently for our attention, but both sides of the quarrel know that the semanticist commands the explicit allegiance of most of our intellectuals and may count upon the unconscious agreement with him, on basic principles, of the bulk of our citizenry.

Why then have so many of the poets displayed an attitude toward science compounded of fear and condescension? Why have they so consistently, and for so long, preferred the semantic blurbs of talk about eternity to the precision, the actual communication, of talk, say, about genes? Should not Eliot have been able to predict—as very likely he did—that many of his followers would waver and fall out of line when he began to advise us that "In order to arrive there, To arrive where you are, to get from where you are not, You must go by a way wherein there is no ecstasy"?

The way that Eliot and many of the poets would have us go is not the way we have been going. Despite foxhole religion, despite the conversion to faith of some very prominent intellectuals and literary people, despite even Sir James Jeans and Arthur Compton, the majority of us, having never experienced the despair of the "modern temper," have never felt the temptation to renounce the world; being unaware of the intellectual and scientific grounds for nihilism, we have no need to denounce reason and embrace faith. And this divergence of ways between the poets and the rest of us helps to make the poets strangers in our society, contributes at least a little to their being as a group probably as maladjusted a lot as college professors.

For ever since the Renaissance, when leeches counted the ribs of cadavers and were amazed to discover that, contrary to sound

reasoning based on Biblical evidence, men have the same number of ribs on both sides (so that God must have replaced in Adam the rib which he removed and used to make Eve), Western man has been more and more concerned with the seen and the tangible and with the abstract systems which a specialized group, the scientists, have built on the evidence gathered by the senses. The unseen, the non-material, apparently incapable of practical use and further discredited by the failure of its special champions to meet successfully the challenge of the scientists, was long ago relegated, for all *practical* purposes, to the limbo of the fancy, there to be dealt with by priests, professors of the humanities, and poets.

By the middle of the nineteenth century science had gone beyond its simple—and quite understandable—disinterest in the presentiments of intuition and had definitely proved, so its most enthusiastic and popular interpreters thought, that not only intangible but tangible experience as well had to go. Mass and velocity, it seemed, were absolutely real; but such things as the sound of a dog barking or of the Jupiter symphony, the redness of the rose and the taste of pickles had a highly doubtful status, existing, if they could be said to exist at all, only in the mind, as a species of illusion; and holiness was, scientifically, hocus-pocus.

And science, succeeding in the realm where it sought success, was believed. Philosophies were built on its implications, systems were contrived to explain its unique access to truth, magazines and societies were formed to spread the new gospel and to belabor the unconvinced. On positivism (which declares that only scientific evidence is real evidence, that credence can be given only to the publicly demonstrable) and on materialistic naturalism (which starts by accepting positivism and goes on to show, on undeniably adequate grounds, that science has never yet uncovered any non-material cause, that everything that science has investigated through the centuries has been found to be explainable, if at all, mechanistically)—on these two scientific twins our culture has been built.

And on these two concepts it continues to rest, only slightly shaken by the explosions of a world apparently bent on blowing itself to pieces. The implications of the recent "successful" utilization of atomic energy for the purpose of mass destruction have, it is true, disturbed us and occasioned a good deal of discussion, but we continue to be reassured by the voices that tell us that the cure for badly used science is more science. Dr. Harlow Shapley,

for instance, in a recent article in *Harper's* reminds us that science is not simply a body of knowledge, that it is not even just a method; it is—and he tells us that we all know this—"a basic way of life, more inclusive of all the arts of living and knowing than the schoolbooks have told us." Like the famous scientists on a Sunday afternoon national hook-up, Dr. Shapley believes that the way to the "fuller and more fruitful life" must be sought in the scientific laboratory. Scientists, he says, not statesmen, should plan the peace and organize the world. And Dr. Shapley's voice as he proceeds with his argument is calm and assured; there is no shrillness in it, for he knows that most of us either already agree or can easily be convinced.

Now recent interpretations of science have, to be sure, made nineteenth century scientific materialism seem as out of date as a haircloth sofa—at least among the major scientists, who write the books we laymen read. (One suspects that most high school and many college teachers of science still have more in common with Tyndal, who said he could understand nothing of which he could not construct a mechanical model, than they have with Weyl and Planck and Whitehead.) The scientists have at last, we are relieved to read, found a place for man in the world. We may at least tentatively, if we wish, cease worrying about being in an "alien universe." Some famous scientists have even gone so far as to argue that values, those elusive intangibles we live by, far from being unreal, should become the subject of scientific study. Eagerly we await the day when Dr. X, psychologist, will submit incontrovertible proof that Mozart's music is more beautiful than Beethoven's and *ought* to be preferred to the deaf master's. More eagerly still, though perhaps a little uneasily, we anticipate the public demonstration by Dr. Y, political scientist, that we *ought* to vote the Democratic—or could it be the Republican?—ticket. Still more gratifying will be the publication of decisive proof, no doubt by a sociologist, that hedonism is a *better* way of life than asceticism.

The newer interpretations of science, then, tend to agree that values are real and important; they disagree on whether or not science can deal with values. But whichever is the case, science and reliable knowledge, we are assured, are synonymous. Only the scientist, then, has knowledge that can be depended upon to help us. And what the scientist knows has thus far in the world's history always been concerned with matters of fact, not with matters of value. Even now that "matter" has evaporated into

"energy patterns," physicists must cease being physicists and become amateur theologians if they wish to write about the status of man's values in the "mysterious universe." Or again, even if we should persuade ourselves that the famous principle of indeterminacy proves—by some wild *non-sequitur*—the freedom of the will, the question would still remain, at least until the scientists settle it, if they can do so before we all blow ourselves up with convenient pocket-sized atomic bombs, what shall we *will?*

Now the poets have been concerned with this problem—the place of value in a world of fact—all through the forty-six years of our century when *scientism* has been riding the wave. They were concerned with it long before it became the fashion for young literary intellectuals to be concerned with it. They were concerned with it before, and they have been no less concerned with it after, the development of quantum physics. While the naturalistic spirit has been penetrating ever deeper and deeper into all the literate strata of our population, the poets have never ceased to address themselves to problems wholly outside the province and traditionally inconsistent with the outlook of natural science. Perhaps one of the reasons why the writing of poetry is one of the least profitable of all the seldom profitable learned occupations these days is that so many of the poets are concerned with matters that almost every sound, well-educated, and well-adjusted citizen knows are either unreal or unimportant—or just about to be dealt with and disposed of in the laboratory. For no age, not even the middle of the seventeenth century, has produced poetry more preoccupied with religious issues. The poetic sensibility of our age could almost be said to be a religious sensibility. Yeats escaped from meaninglessness into occultism. Robinson searched unavailingly for the Light and tried to adapt to an age of positivistic naturalism the "far-sent Message of the years." Eliot long ago became more pious than a bishop. Hart Crane, terribly disturbed by the implications emanating from the laboratory, listened in mystic abandon to "the sounding heel of Elohim." Auden has gone along with Huxley and Heard in search of a modern faith. Jeffers, with a great show of scientific materialism, has found an alien God that shows Itself in the beauty of hawks and stars. And even common-sense Frost, avowedly unconcerned with things transcendental, has worried the problem of Providence from almost all possible points of view, most recently that

of Job and his wife. All of which brings us back to where we started; the poets are and have been for a long time far more concerned with religious and metaphysical issues than the society in which they live and for which they write. Why?

Perhaps because poets as a group are, though a psychologist might describe them as maladjusted, actually better integrated than the rest of us. Ever since the ability to compose verses ceased to be a social accomplishment expected of all polished gentlemen, the craft of poetry has demanded a good deal more than technical dexterity: it has demanded "wit," or a "sense of something far more deeply interfused," or personal emotion, or prophecy, or social criticism, or an ability to tap the unconscious and reveal its secrets. It has demanded, in other words, that the poet employ all his powers, not merely his metrical skill, in his work.

Thus it may be that while the rest of us have gone on living more and more schizoid lives, the poet has been forced by public expectation and the nature of his occupation to continue being a whole man. Eliot may be right that personal emotion is pernicious in poetry, but still one could make a good case, I think, for the argument that poets since the early eighteenth century, Eliot himself included, have been more directly responsive in their work to their feelings, their intuitions, the subtle influences of the lymphatic currents, than bankers, engineers, real-estate salesmen, or machinists are in their work. They have actually concerned themselves very largely, that is—whether they should have done so or not—with those very promptings and secret undebatable sentiments outlawed by science and semantics.

And since all men, including semanticists and physicists, hunger for meaning, for the very kind of general meaning that cannot, in scientific terms, exist, the poets, attending to those intuitions and emotional convictions which alone seem to them capable of supplying general meaning, have allowed an aspect of their consciousness which most of us today suppress to mould their work. They have written so much religious and metaphysical poetry because they have tended to remain whole men, working not with just a part of themselves, as an assembly-line worker uses chiefly his hands and a banker chiefly his conscious intellect and the promptings of the profit motive, but with all they are and know.

Or again—and there may be many partial answers to that *why?*—the modern poetry-reading public expects the poet to deal with sensate experience, with sight and sound, smell and taste, the immediate *feel* of things. It expects that abstractions, general

conceptions, will be expressed concretely, in terms of experience. Eliot has formulated the law of the "objective correlative," and many of those unacquainted with *The Sacred Wood* have made essentially the same demand. The poet today, then, must constantly concern himself, if only as a matter of technique, with the immediately presented data of experience, not with ramifying abstractions and systems of logic or of utility, not with formulae for computing stress, not with interest-rate tables. He must concern himself with Prufrock's feeling of indecision and the look of his thinning hair, with the glossy smoothness of the apple's skin, with the cry of the children in the ruins.

But concrete experience has meaning—indeed, has form, has existence—only in terms of values. And valuing one thing more means valuing another less. Even on the rudimentary level this is so: the phenomenon of attention, without which "experience" would be an indescribable blur, means exclusion as much as it means concentration. To what sound do we listen, of what sight are we aware? To exclude and to admit—unconsciously for the most part, of course—is to place values on things. But discrete values always imply a unifying value, lesser values a greater value, for value-objects compete for our attention, conflict, exclude each other. Which shall we prefer? So the poets listen for the sounding heel of Elohim, hoping that it will tell them which are the good, the right, the preferable value-objects, hoping that if they hear it aright it will give direction and meaning to experience. Having found that science does not deal with value problems, has in fact nothing of the least use to say about them, and having found that experience is instinct with values, the poets begin to talk in semantic blurbs, begin to search for a supreme and unifying set of values in metaphysics or theology.

Finally, some men appear to have direct experiences of a special sort which seem to them to have religious significance. They feel the presence of unseen powers, they sense, with Wordsworth, a transcendent unity behind the welter of phenomena, or they see, like Blake, an angel in the branches of a tree. Most men do not seem to have these disturbing, comforting, or just puzzling experiences; but some men do, and in our day instead of going into the church they often become poets. If they are the sort of people for whom such experiences are frequent—and if frequent they can hardly be other than important—they are unlikely, for obvious reasons, to go into one of the better-adjusted, more typical, and better-paid occupations. They may become academic

philosophers or professors of English, novelists, priests—or poets. So poetry, which in our day attracts such people (the mechanisms of escape and regression, we hear the psychologist murmur)—is religious and metaphysical in a culture in which for the dominant majority religion and metaphysics are matters of indifference.

And so it is that a psychologist friend of mine confesses to me periodically his inability to read poetry. His confession usually runs something like this: "I simply can't read poetry. The greater you say the poetry is, the more impossible I find it to read. The problems that Eliot and Auden concern themselves with are probably real problems all right, but they are certainly not to be solved by throwing overboard all modern knowledge. And all the solutions your poets suggest are impossible for the modern mind. Why can't poets think in the terms in which the rest of the educated public think? They seem to be still living in the Middle Ages."

Perhaps they are. The new medievalists might say that the poets' backwardness puts them far ahead of us in the quest of wisdom. Or again perhaps because their craft has demanded a unified sensibility they are simply offering us what some men in all periods, classic, medieval, and atomic, have had to offer: wholeness of vision, breadth and inclusiveness of perspective, sensibility equally attuned to spittle and to spirit.

Or it may be that the only conclusion one can safely draw is that those who like to read contemporary poetry had better, for the sake of their enjoyment, prepare to be tolerant of Eliot's piety and Auden's mystic search and certainty—and prepare, too, for a good deal more of the same in the near future.

MILITARY SCIENCE

MILITARY POLICY AND THE ATOMIC BOMB

by BERNARD BRODIE

WHAT are the criteria by which we can appraise realistic military thinking in the age of atomic bombs? The burden of the answer will depend primarily on whether one accepts as true the several postulates: (1) The power of the present bomb is such that any city in the world can be effectively destroyed by one to ten bombs. (2) No adequate defense against the bomb exists, and the possibilities of its existence in the future are exceedingly remote. (3) The atomic bomb not only places an extraordinary military premium upon the development of new types of carriers but also greatly extends the destructive range of existing carriers. (4) Superiority in air forces, though a more effective safeguard in itself than superiority in naval or land forces, nevertheless fails to guarantee security.[1] One might go further and say that since none of them is obviously untrue, no program of military preparedness which fails to consider the likelihood of their being true can be regarded as comprehensive or even reasonably adequate.

It is of course always possible that the world may see another major war in which the atomic bomb is not used. The awful menace to both parties of a reciprocal use of the bomb may prevent the resort to that weapon by either side, even if it does not prevent the outbreak of hostilities. But even so, the shadow of the atomic bomb would so govern the strategic and tactical dispositions of either side as to create a wholly novel form of war. The kind of spatial concentrations of force by which in the past great decisions have been achieved would be considered too risky. The whole economy of war would be affected, for even if the governments were willing to assume responsibility for keeping the

[1] The author argues the validity of these several postulates in another section of *The Absolute Weapon.*

From THE ABSOLUTE WEAPON: *Atomic Power and World Order, edited by Bernard Brodie, pages 83 to 107*

Copyright, 1946, by Yale Institute of International Studies. By permission of Harcourt, Brace and Company, Inc.

urban populations in their homes, the spontaneous exodus of those populations from the cities might reach such proportions as to make it difficult to service the machines of war. The conclusion is inescapable that war will be vastly different because of the atomic bomb whether or not the bomb is actually used.

But let us now consider the degree of probability inherent in each of the three main situations which might follow from a failure to prevent a major war. These three situations may be listed as follows:

(a) a war fought without atomic bombs or other forms of radioactive energy;
(b) a war in which atomic bombs were introduced only considerably after the outbreak of hostilities;
(c) a war in which atomic bombs were used at or near the very outset of hostilities.

We are assuming that this hypothetical conflict occurs at a time when each of the opposing sides possesses at least the "know-how" of bomb production, a situation which, as argued in the previous chapter, approximates the realities to be expected not more than five to ten years hence.

Under such conditions the situation described under (a) above could obtain only as a result of a mutual fear of retaliation, perhaps supported by international instruments outlawing the bomb as a weapon of war. It would *not* be likely to result from the operation of an international system for the suppression of bomb production, since such a system would almost certainly not survive the outbreak of a major war. If such a system were in fact effective at the opening of hostilities, the situation resulting would be far more likely to fall under (b) than under (a), unless the war were very short. For the race to get the bomb would not be an even one, and the side which got it first in quantity would be under enormous temptation to use it before the opponent had it. Of course, it is more reasonable to assume that an international situation which had so far deteriorated as to permit the outbreak of a major war would have long since seen the collapse of whatever arrangements for bomb production control had previously been imposed, unless the conflict were indeed precipitated by an exercise of sanctions for the violation of such a control system.

Thus we see that a war in which atomic bombs are not used is more likely to occur if both sides have the bombs in quantity

from the beginning than if neither side has it at the outset or if only one side has it.[2] But how likely is it to occur? Since the prime motive in refraining from using it would be fear of retaliation, it is difficult to see why a fear of reciprocal use should be strong enough to prevent resort to the bomb without being strong enough to prevent the outbreak of war in the first place.

Of course, the bomb may act as a powerful deterrent to direct aggression against great powers without preventing the political crises out of which wars generally develop. In a world in which great wars become "inevitable" as a result of aggression by great powers upon weak neighbors, the bomb may easily have the contrary effect. Hitler made a good many bloodless gains by mere blackmail, in which he relied heavily on the too obvious horror of modern war among the great nations which might have opposed him earlier. A comparable kind of blackmail in the future may actually find its encouragement in the existence of the atomic bomb. Horror of its implications is not likely to be spread evenly, at least not in the form of overt expression. The result may be a series of *faits accomplis* eventuating in that final deterioration of international affairs in which war, however terrible, can no longer be avoided.

Nevertheless, once hostilities broke out, the pressure to use the bomb might swiftly reach unbearable proportions. One side or the other would feel that its relative position respecting ability to use the bomb might deteriorate as the war progressed, and that if it failed to use the bomb while it had the chance it might not have the chance later on. The side which was decidedly weaker in terms of industrial capacity for war would be inclined to use it in order to equalize the situation on a lower common level of capacity—for it is clear that the side with the more elaborate and intricate industrial system would, other things being equal, be more disadvantaged by mutual use of the bomb than its opponent. In so far as those "other things" were not equal, the disparities involved would also militate for the use of the bomb by one side or the other. And hovering over the situation from beginning to end would be the intolerable fear on each side that the enemy might at any moment resort to this

[2] One can almost rule out too the possibility that war would break out between two great powers where both knew that only one of them had the bombs in quantity. It is one of the old maxims of power politics that *c'est une crime de faire la guerre sans compter sur la supériorité,* and certainly a monopoly of atomic bombs would be a sufficiently clear definition of superiority to dissuade the other side from accepting the gage of war unless directly attacked.

dreaded weapon, a fear which might very well stimulate an anticipatory reaction.

Some observers in considering the chances of effectively outlawing the atomic bomb have taken a good deal of comfort from the fact that poison gases were not used, or at least not used on any considerable scale, during the recent war. There is little warrant, however, for assuming that the two problems are analogous. Apart from the fact that the recent war presents only a single case and argues little for the experience of another war even with respect to gas, it is clear that poison gas and atomic bombs represent two wholly different orders of magnitude in military utility. The existence of the treaty outlawing gas was important, but at least equally important was the conviction in the minds of the military policy-makers that TNT bombs and tanks of gelatinized gasoline—with which the gas bombs would have had to compete in airplane carrying capacity—were just as effective as gas if not more so. Both sides were prepared not only to retaliate with gas against gas attack but also to neutralize with gas masks and "decontamination units" the chemicals to which they might be exposed. There is visible today no comparable neutralization agent for atomic bombs.

Neither side in the recent war wished to bear the onus for violation of the obligation not to use gas when such violation promised no particular military advantage. But, unlike gas, the atomic bomb can scarcely fail to have fundamental or decisive effects if used at all. That is not to say that any effort to outlaw use of the bomb is arrant nonsense, since such outlawry might prove the indispensable crystallizer of a state of balance which operates against use of the bomb. But without the existence of the state of balance—in terms of reciprocal ability to retaliate in kind if the bomb is used—any treaty purposing to outlaw the bomb in war would have thrust upon it a burden far heavier than such a treaty can normally bear.

What do these conclusions mean concerning the defense preparations of a nation like the United States? In answering this question, it is necessary first to anticipate the argument that "the best defense is a strong offense," an argument which it is now fashionable to link with animadversions on the "Maginot complex." In so far as this doctrine becomes dogma, it may prejudice the security interests of the country and of the world. Although the doctrine is basically true as a general proposition, especially when applied to hostilities already under way, the political facts of life

concerning the United States government under its present Constitution make it most probable that if war comes we will receive the first blow rather than deliver it. Thus, our most urgent military problem is to reorganize ourselves to survive a vastly more destructive "Pearl Harbor" than occurred in 1941. Otherwise we shall not be able to take the offensive at all.

The atomic bomb will be introduced into the conflict only on a gigantic scale. No belligerent would be stupid enough, in opening itself to reprisals in kind, to use only a few bombs. The initial stages of the attack will certainly involve hundreds of the bombs, more likely thousands of them. Unless the argument of postulates (2) and (4) above is wholly preposterous, the target state will have little chance of effectively halting or fending off the attack. If its defenses are highly efficient it may down nine planes out of every ten attacking, but it will suffer the destruction of its cities. That destruction may be accomplished in a day, or it may take a week or more. But there will be no opportunity to incorporate the strength residing in the cities, whether in the form of industry or personnel into the forces of resistance or counter-attack. *The ability to fight back after an atomic bomb attack will depend on the degree to which the armed forces have made themselves independent of the urban communities and their industries for supply and support.*

The proposition just made is the basic proposition of atomic bomb warfare, and it is the one which our military authorities continue consistently to overlook. They continue to speak in terms of peacetime military establishments which are simply cadres and which are expected to undergo an enormous but slow expansion *after* the outbreak of hostilities.[3] Therein lies the essence of what may be called "pre-atomic thinking." The idea which must be driven home above all else is that a military establishment which

[3] General H. H. Arnold's *Third Report to the Secretary of War* is in general outstanding for the breadth of vision it displays. Yet one finds in it statements like the following: "An Air Force is always verging on obsolescence and, in time of peace, its size and replacement rate will always be inadequate to meet the full demands of war. Military Air Power should, therefore, be measured to a large extent by the ability of the existing Air Forces to absorb in time of emergency the increase required by war together with new ideas and techniques" (page 62). Elsewhere in the *Report* (page 65) similar remarks are made about the expansion of personnel which, it is presumed, will always follow upon the outbreak of hostilities. But *nowhere* in the *Report* is the possibility envisaged that in a war which began with an atomic bomb attack there might be no opportunity for the expansion or even replacement either of planes or personnel. The same omission, needless to say, is discovered in practically all the pronouncements of top-ranking Army and Navy officers concerning their own plans for the future.

is expected to fight on after the nation has undergone atomic bomb attack must be prepared to fight with the men already mobilized and with the equipment already in the arsenals. And those arsenals must be in caves in the wilderness. The cities will be vast catastrophe areas, and the normal channels of transportation and communications will be in unutterable confusion. The rural areas and the smaller towns, though perhaps not struck directly, will be in varying degrees of disorganization as a result of the collapse of the metropolitan centers with which their economies are intertwined.

Naturally, the actual degree of disorganization in both the struck and non-struck areas will depend on the degree to which we provide beforehand against the event. A good deal can be done in the way of decentralization and reorganization of vital industries and services to avoid complete paralysis of the nation. More will be said on this subject later in the present chapter. But the idea that a nation which had undergone days or weeks of atomic bomb attack would be able to achieve a production for war purposes even remotely comparable in character and magnitude to American production in World War II simply does not make sense. The war of atomic bombs must be fought with stockpiles of arms in finished or semifinished state. A superiority in raw materials will be about as important as a superiority in gold resources was in World War II—though it was not so long ago that gold was the essential sinew of war.

All that is being presumed here is the kind of destruction which Germany actually underwent in the last year of the second World War, only telescoped in time and considerably multiplied in magnitude. If such a presumption is held to be unduly alarmist, the burden of proof must lie in the discovery of basic errors in the postulates submitted at the beginning. The essence of that argument is simply that what Germany suffered because of her inferiority in the air may now well be suffered in greater degree and in far less time, so long as atomic bombs are used, even by the power which enjoys air superiority. And while the armed forces must still prepare against the possibility that atomic bombs will not be used in another war—a situation which might permit full mobilization of the national resources in the traditional manner—they must be at least equally ready to fight a war in which no such grand mobilization is permitted.

The forces which will carry on the war after a large-scale atomic bomb attack may be divided into three main categories

according to their respective functions. The first category will comprise the force reserved for the retaliatory attacks with atomic bombs; the second will have the mission of invading and occupying enemy territory; and the third will have the purpose of resisting enemy invasion and of organizing relief for devastated areas. Professional military officers will perhaps be less disturbed at the absence of any distinction between land, sea, and air forces than they will be at the sharp distinction between offensive and defensive functions in the latter two categories. In the past it was more or less the same army which was either on the offensive or the defensive, depending on its strength and on the current fortunes of war, but, for reasons which will presently be made clear, a much sharper distinction between offensive and defensive forces seems to be in prospect for the future.

The force delegated to the retaliatory attack with atomic bombs will have to be maintained in rather sharp isolation from the national community. Its functions must not be compromised in the slightest by the demands for relief of struck areas. Whether its operations are with aircraft or rockets or both, it will have to be spread over a large number of widely dispersed reservations, each of considerable area, in which the bombs and their carriers are secreted and as far as possible protected by storage underground. These reservations should have a completely independent system of inter-communications, and the commander of the force should have a sufficient autonomy of authority to be able to act as soon as he has established with certainty the fact that the country is being hit with atomic bombs. The supreme command may by then have been eliminated, or its communications disrupted.

Before discussing the character of the force set apart for the job of invasion, it is necessary to consider whether invasion and occupation remain indispensable to victory in an era of atomic energy. Certain scientists have argued privately that they are not, that a nation committing aggression with atomic bombs would have so paralyzed its opponent as to make invasion wholly superfluous. It might be alleged that such an argument does not give due credit to the atomic bomb, since it neglects the necessity of preventing or minimizing retaliation in kind. If the experience with the V-1 and V-2 launching sites in World War II means anything at all, it indicates that only occupation of such sites will finally prevent their being used. Perhaps the greater destructiveness of the atomic bomb as compared with the bombs used against the V-1 and V-2 sites will make an essential difference in

this respect, but it should be remembered that thousands of tons of bombs were dropped on those sites. At any rate, it is unlikely that any aggressor will be able to count upon eliminating with his initial blow the enemy's entire means of retaliation. If he knows the location of the crucial areas, he will seek to have his troops descend upon and seize them.

But even apart from the question of direct retaliation with atomic bombs, invasion to consolidate the effects of an atomic bomb attack will still be necessary. A nation which had inflicted enormous human and material damage upon another would find it intolerable to stop short of eliciting from the latter an acknowledgment of defeat implemented by a readiness to accept control. Wars, in other words, are fought to be terminated, and to be terminated definitely.

To be sure, a nation may admit defeat and agree to occupation before its homeland is actually invaded, as the Japanese did. But it by no means follows that such will be the rule. Japan was completely defeated strategically before the atomic bombs were used against her. She not only lacked means of retaliation with that particular weapon but was without hope of being able to take aggressive action of any kind or of ameliorating her desperate military position to the slightest degree. There is no reason to suppose that a nation which had made reasonable preparations for war with atomic bombs would inevitably be in a mood to surrender after suffering the first blow.

An invasion designed to prevent large-scale retaliation with atomic bombs to any considerable degree would have to be incredibly swift and sufficiently powerful to overwhelm instantly any opposition. Moreover, it would have to descend in one fell swoop upon points scattered throughout the length and breadth of the enemy territory. The question arises whether such an operation is possible, especially across broad water barriers, against any great power which is not completely asleep and which has sizable armed forces at its disposal. It is clear that existing types of forces can be much more easily reorganized to resist the kind of invasion here envisaged than to enable them to conduct so rapid an offensive.

Extreme swiftness of invasion would demand aircraft for transport and supply rather than surface vessels guarded by sea power. But the necessity of speed does not itself create the conditions under which an invasion solely by air can be successful, especially against large and well-organized forces deployed over consider-

able space. In the recent war the specialized air-borne infantry divisions comprised a very small proportion of the armies of each of the belligerents. The bases from which they were launched were in every case relatively close to the objective, and except at Crete their mission was always to co-operate with much larger forces approaching by land or sea. To be sure, if the air forces are relieved by the atomic bomb of the burden of devoting great numbers of aircraft to strategic bombing with ordinary bombs, they will be able to accept to a much greater extent than heretofore the task of serving as a medium of transport and supply for the infantry. But it should be noticed that the enormous extension of range for bombing purposes which the atomic bomb makes possible does not apply to the transport of troops and supplies. For such operations distance remains a formidable barrier.

The invasion and occupation of a great country solely or even chiefly by air would be an incredibly difficult task even if one assumes a minimum of air opposition. The magnitude of the preparations necessary for such an operation might make very dubious the chance of achieving the required measure of surprise. It may well prove that the difficulty of consolidating by invasion the advantages gained through atomic bomb attack may act as an added and perhaps decisive deterrent to launching such an attack, especially since delay or failure would make retaliation all the more probable. But all hinges on the quality of preparation of the intended victim. If it has not prepared itself for atomic bomb warfare, the initial devastating attack will undoubtedly paralyze it and make its conquest easy even by a small invading force. And if it has not prepared itself for such warfare its helplessness will no doubt be sufficiently apparent before the event to invite aggression.

It is obvious that the force set apart for invasion or counter-invasion purposes will have to be relatively small, completely professional, and trained to the uttermost. But there must also be a very large force ready to resist and defeat invasion by the enemy. Here is the place for the citizen army, though it too must be comprised of trained men. There will be no time for training once the atomic bomb is used. Perhaps the old ideal of the "minute man" with his musket over his fireplace will be resurrected, in suitably modernized form. In any case, provision must be made for instant mobilization of trained reserves, for a maximum decentralization of arms and supply depots and of tactical authority,

and for flexibility of operation. The trend towards greater mobility in land forces will have to be enormously accelerated, and strategic concentrations will have to be achieved in ways which avoid a high spatial density of military forces. And it must be again repeated, the arms, supplies, and vehicles of transportation to be depended upon are those which are *stockpiled* in as secure a manner as possible.

At this point it should be clear how drastic are the changes in character, equipment, and outlook which the traditional armed forces must undergo if they are to act as real deterrents to aggression in an age of atomic bombs. Whether or not the ideas presented above are entirely valid, they may perhaps stimulate those to whom our military security is entrusted to a more rigorous and better-informed kind of analysis which will reach sounder conclusions.

In the above discussion the reader will no doubt observe the absence of any considerable role for the Navy. And it is indisputable that the traditional concepts of military security which this country has developed over the last fifty years—in which the Navy was quite correctly avowed to be our "first line of defense"—seem due for revision, or at least for reconsideration.

For in the main sea power has throughout history proved decisive only when it was applied and exploited over a period of considerable time, and in atomic bomb warfare that time may well be lacking. Where wars are destined to be short, superior sea power may prove wholly useless. The French naval superiority over Prussia in 1870 did not prevent the collapse of the French armies in a few months, nor did Anglo-French naval superiority in 1940 prevent an even quicker conquest of France—one which might very well have ended the war.

World War II was in fact destined to prove the conflict in which sea power reached the culmination of its influence on history. The greatest of air wars and the one which saw the most titanic battles of all time on land was also the greatest of naval wars. It could hardly have been otherwise in a war which was truly global, where the pooling of resources of the great Allies depended upon their ability to traverse the highways of the seas and where American men and materials played a decisive part in remote theaters which could be reached with the requisite burdens only by ships. That period of greatest influence of sea power coincided with the emergence of the United States as the unrivaled first sea power of the world. But in many respects all

this mighty power seems at the moment of its greatest glory to have become redundant.

Yet certain vital tasks may remain for fleets to perform even in a war of atomic bombs. One function which a superior fleet serves at every moment of its existence—and which therefore requires no time for its application—is the defense of coasts against sea-borne invasion. Only since the surrender of Germany, which made available to us the observations of members of the German High Command, has the public been made aware of something which had previously been obvious only to close students of the war—that it was the Royal Navy even more than the R.A.F. which kept Hitler from leaping across the Channel in 1940. The R.A.F. was too inferior to the Luftwaffe to have stopped an invasion by itself, and it was important largely as a means of protecting the ships which the British would have interposed against any invasion attempt.

We have noticed that if swiftness were essential to the execution of any invasion plan, the invader would be obliged to depend mainly if not exclusively on transport by air. But we also observed that the difficulties in the way of such an enterprise might be such as to make it quite impossible of achievement. For the overseas movement of armies of any size and especially of their larger arms and supplies, sea-borne transportation proved quite indispensable even in an era when gigantic air forces had been built up by fully mobilized countries over four years of war. The difference in weight-carrying capacity between ships and planes is altogether too great to permit us to expect that it will become militarily unimportant in fifty years or more.[4] A force which is able to keep the enemy from using the seas is bound to remain for a long time an enormously important defense against overseas invasion.

However, the defense of coasts against sea-borne invasion is something which powerful and superior air forces are also able to carry out, though perhaps somewhat less reliably. If that were the sole function remaining to the Navy, the maintenance of huge fleets would hardly be justified. One must consider also the possible offensive value of a fleet which has atomic bombs at its disposal.

The atomic bomb enormously extends the effective range of bombing aircraft, and even today the cities of every great power are inside effective bombing range of planes based on the

[4] See Bernard Brodie, *A Guide to Naval Strategy*, 3rd ed., Princeton, Princeton University Press, 1944, p. 215.

territories of any other great power. The future development of aircraft will no doubt make bombing at six and seven thousand miles range even more feasible than it is today, and the tendency towards even higher cruising altitudes will ultimately bring planes above the levels where weather hazards are an important barrier to long flights. The ability to bring one's planes relatively close to the target before launching them, as naval carrier forces are able to do, must certainly diminish in military importance. But it will not wholly cease to be important, even for atomic bombs. Apparently today's carrier-borne aircraft cannot carry the atomic bomb, but no one would predict that they will remain unable to do so. And if the emphasis in vehicles is shifted from aircraft to long-range rockets, there will again be an enormous advantage in having one's missiles close to the target. It must be remembered that in so far as advanced bases remain useful for atomic bomb attack, navies are indispensable for their security and maintenance.

Even more important, perhaps, is the fact that a fleet at sea is not easily located and even less easily destroyed. The ability to retaliate if attacked is certainly enhanced by having a bomb-launching base which cannot be plotted on a map. A fleet armed with atomic bombs which had disappeared into the vastness of the seas during a crisis would be just one additional element to give pause to an aggressor. It must, however, be again repeated that the possession of such a fleet or of advanced bases will probably *not be essential* to the execution of bombing missions at extreme ranges.

If there should be a war in which atomic bombs were not used —a possibility which must always be taken into account—the fleet would retain all the functions it has ever exercised. We know also that there are certain policing obligations entailed in various American commitments, especially that of the United Nations Organization. The idea of using atomic bombs for such policing operations, as some have advocated, is not only callous in the extreme but stupid. Even general bombing with ordinary bombs is the worst possible way to coerce states of relatively low military power, for it combines the maximum of indiscriminate destruction with the minimum of direct control.[5]

[5] There has been a good deal of confusion between automaticity and immediacy in the execution of sanctions. Those who stress the importance of bringing military pressure to bear *at once* in the case of aggression are as a rule really less concerned with having sanctions imposed quickly than they are with having them appear certain. To be sure, the atomic bomb gives the necessity for quickness of military response a wholly new meaning; but in the kinds of aggression with which the UNO is now set up to deal, atomic bombs are not likely to be important for a very long time.

At any rate, if the United States retains a strong navy, as it no doubt will, we should insist upon that navy retaining the maximum flexibility and adaptability to new conditions. The public can assist in this process by examining critically any effort of the service to freeze naval armaments at high quantitative levels, for there is nothing more deadening to technological progress, especially in the navy, than the maintenance in active or reserve commission of a number of ships far exceeding any current needs. It is not primarily a question of how much money is spent or how much manpower is absorbed but rather of how efficiently money and manpower are being utilized. Money spent on keeping in commission ships built for the last war is money which might be devoted to additional research and experimentation, and existing ships discourage new construction. For that matter, money spent on maintaining a huge navy is perhaps money taken from other services and other instruments of defense which may be of far greater relative importance in the early stages of a future crisis than they have been in the past.

The Dispersion of Cities as a Defense Against the Bomb

We have seen that the atomic bomb drastically alters the significance of distance *between* rival powers. It also raises to the first order of importance as a factor of power the precise spatial arrangement of industry and population *within* each country. The enormous concentration of power in the individual bomb, irreducible below a certain high limit except through deliberate and purposeless wastage of efficiency, is such as to demand for the full realization of that power targets in which the enemy's basic strength is comparably concentrated. Thus, the city is a made-to-order target, and the degree of urbanization of a country furnishes a rough index of its relative vulnerability to the atomic bomb.

And since a single properly aimed bomb can destroy a city of 100,000 about as effectively as it can one of 25,000, it is obviously an advantage to the attacker if the units of 25,000 are combined into units of 100,000. Moreover, a city is after all a fairly integrated community in terms of vital services and transportation. If half to two-thirds of its area is obliterated, one may count on it that the rest of the city will, under prevailing conditions, be effectively prostrated. Thus, the more the population and industry of a state are concentrated into urban areas and the larger

individually those concentrations become, the fewer are the atomic bombs necessary to effect their destruction.[6]

In 1940 there were in the United States five cities with 1,000,000 or more inhabitants (one of which, Los Angeles, is spread out over more than 400 square miles), nine cities between 500,000 and 1,000,000, twenty-three cities between 250,000 and 500,000, fifty-five between 100,000 and 250,000, and one hundred and seven between 50,000 and 100,000 population. Thus, there were ninety-two cities with a population of 100,000 and over, and these contained approximately 29 per cent of our total population. Reaching down to the level of 50,000 or more, the number of cities is increased to 199 and the population contained in them is increased to some 34 per cent. Naturally, the proportion of the nation's factories contained in those 199 cities is far greater than the proportion of the population.

This is a considerably higher ratio of urban to non-urban population than is to be found in any other great power except Great Britain. Regardless of what international measures are undertaken to cope with the atomic bomb menace, the United States cannot afford to remain complacent about it. This measure of vulnerability, to be sure, must be qualified by a host of other considerations, such as the architectural character of the cities,[7] the

[6] In this respect the atomic bomb differs markedly from the TNT bomb, due to the much smaller radius of destruction of the latter. The amount of destruction the TNT bomb accomplishes depends not on what is in the general locality but on what is in the immediate proximity of the burst. A factory of given size requires a given number of bombs to destroy it regardless of the size of the city in which it is situated. To be sure, the "misses" count for more in a large city, but from the point of view of the defender there are certain compensating advantages in having the objects to be defended gathered in large concentrations. It makes a good deal easier the effective deployment of fighter patrols and antiaircraft guns. But the latter advantage does not count for much in the case of atomic bombs, since, as argued in the previous chapter, it is practically hopeless to expect fighter planes and antiaircraft guns to stop atomic attack so completely as to save the city.

[7] The difference between American and Japanese cities in vulnerability to bombing attack has unquestionably been exaggerated. Most commentators who stress the difference forget the many square miles of predominantly wooden frame houses to be found in almost any American city. And those who were impressed with the pictures of ferro-concrete buildings standing relatively intact in the midst of otherwise total devastation at Hiroshima and Nagasaki will not be comforted by Dr. Philip Morrison's testimony before the McMahon Committee on December 6, 1945. Dr. Morrison, who inspected both cities, testified that the interiors of those buildings were completely destroyed and the people in them killed. Brick buildings, he pointed out, and even steel-frame buildings with brick walls proved extremely vulnerable. "Of those people within a thousand yards of the blast," he added, "about one in every house or two escaped death from blast or burn. But they died anyway from the effects of the rays emitted at the instant of explosion." He expressed himself as convinced that an American city similarly bombed "would be as badly damaged as a Japanese city, though it would look less wrecked from the air."

No doubt Dr. Morrison is exaggerating in the opposite direction. Obviously there

manner in which they are individually laid out, and above all the degree of interdependence of industry and services between different parts of the individual city, between the city and its hinterland, and between the different urban areas. Each city is, together with its hinterland, an economic and social organism, with a character somewhat distinct from other comparable organisms.

A number of students have been busily at work evolving plans for the dispersal of our cities and the resettlement of our population and industries in a manner calculated to reduce the number of casualties and the amount of physical destruction that a given number of atomic bombs can cause. In their most drastic form these plans, many of which will shortly reach the public eye, involve the redistribution of our urban concentrations into "linear" or "cellular" cities.

The linear or "ribbon" city is one which is very much longer than it is wide, with its industries and services as well as population distributed along its entire length. Of two cities occupying nine square miles, the one which was one mile wide and nine long would clearly suffer less destruction from one atomic bomb, however perfectly aimed, than the one which was three miles square. The principle of the cellular city, on the other hand, would be realized if a city of the same nine-square-mile size were dispersed into nine units of about one square mile each and situated in such a pattern that each unit was three to five miles distant from another.

Such "planning" seems to this writer to show a singular lack of appreciation of the forces which have given birth to our cities and caused them to expand and multiply. There are always important geographic and economic reasons for the birth and growth of a city and profound political and social resistance to interference with the results of "natural" growth. Cities like New York and Chicago are not going to dissolve themselves by direction from the government, even if they could find areas to dissolve themselves into. As a linear city New York would be as long as the state of Pennsylvania, and would certainly have no organic meaning as a city. "Solutions" like these are not only politically and socially unrealistic but physically impossible.

Nor does it seem that the military benefits would be at all com-

---

must be a considerable difference among structures in their capacity to withstand blast from atomic bombs and to shelter the people within them. But that difference is likely to make itself felt mostly in the peripheral portions of a blasted area. Within a radius of one mile from the center of burst it is not likely to be of consequence.

mensurate with the cost, even if the programs were physically possible and politically feasible. We have no way of estimating the absolute limit to the number of bombs which will be available to an attacker, but we know that unless production of atomic bombs is drastically limited or completely suppressed by international agreement, the number available in the world will progress far more rapidly and involve infinitely less cost of production and use than any concurrent dissolution or realignment of cities designed to offset that multiplication. If a city three miles square can be largely destroyed by one well aimed bomb, it will require only three well spaced bombs to destroy utterly a city nine miles long and one mile wide. And the effort required in producing and delivering the two extra bombs is infinitesimal compared to that involved in converting a square city into a linear one.

Unquestionably an invulnerable home front is beyond price, but there is no hope of gaining such a thing in any case. What the city-dispersion-planners are advocating is a colossal effort and expenditure (estimated by some of them to amount to 300 billions of dollars) and a ruthless suppression of the inevitable resistance to such dispersion in order to achieve what is at best a marginal diminution of vulnerability. No such program has the slightest chance of being accepted.

However, it is clear that the United States can be made a good deal less vulnerable to atomic bomb attack than it is at present, that such reduction can be made great enough to count as a deterrent in the calculations of future aggressors, and that it can be done at immeasurably less economic and social cost and in a manner which will arouse far less resistance than any of the drastic solutions described above.

But first we must make clear in our minds what our ends are. Our first purpose, clearly, is to reduce the likelihood that a sudden attack upon us will be so paralyzing in its effects as to rob us of all chance of effective resistance. And we are interested in sustaining our power to retaliate primarily to make the prospect of aggression much less attractive to the aggressor. In other words, we wish to reduce our vulnerability in order to reduce the chances of our being hit at all. Secondly, we wish to reduce the number of casualties and of material damage which will result from an attack upon us of any given level of intensity.

These two ends are of course intimately interrelated, but they are also to a degree distinguishable. And it is necessary to pursue that distinction. We should notice also that while most industries

are ultimately convertible or applicable to the prosecution of war, it is possible to distinguish between industries in the degree of their immediate indispensability for war purposes. Finally, while industries attract population and vice versa, modern means of transportation make possible a locational flexibility between an industry and those people who service it and whom it serves.

Thus it would seem that the first step in reducing our national vulnerability is to catalog the industries especially and immediately necessary to atomic bomb warfare—a relatively small proportion of the total—and to move them out of our cities entirely. Where those industries utilize massive plants, those plants should as far as possible be broken up into smaller units. Involved in such a movement would be the labor forces which directly service those industries. The great mass of remaining industries can be left where they are within the cities, but the population which remains with them can be encouraged, through the further development of suburban building, to spread over a greater amount of space. Whole areas deserving to be condemned in any case could be converted into public parks or even airfields. The important element in reducing casualties is after all not the shape of the individual city but the spatial density of population within it.

Furthermore, the systems providing essential services, such as those supplying or distributing food, fuel, water, communications, and medical care, could and should be rearranged geographically. Medical services, for example, tend to be concentrated not merely within cities but in particular sections of those cities. The conception which might govern the relocation of services within the cities is that which has long been familiar in warship design—*compartmentation*. And obviously where essential services for large rural areas are unnecessarily concentrated in cities, they should be moved out of them. That situation pertains especially to communications.

It would be desirable also to initiate a series of tests on the resistance of various kinds of structures to atomic bomb blast. It might be found that one type of structure has far greater resistance than another without being correspondingly more costly. If so, it would behoove the government to encourage that kind of construction in new building. Over a long period of years, the gain in resistance to attack of our urban areas might be considerable, and the costs involved would be marginal.

So far as safeguarding the lives of urban populations is con-

cerned, the above suggestions are meaningful only for the initial stages of an attack. They would permit a larger number to survive the initial attacks and thereby to engage in that exodus from the cities by which alone their lives can be safeguarded. And the preparation for such an exodus would involve a vast program for the construction of temporary shelter in the countryside and the planting of emergency stores of food. What we would then have in effect is the dispersal not of cities but of air-raid shelters.

The writer is here presenting merely some general principles which might be considered in any plan for reducing our general vulnerability. Obviously, the actual content of such a plan would have to be derived from the findings of intensive study by experts in a rather large number of fields. It is imperative, however, that such a study be got under way at once. The country is about to launch into a great construction program, both for dwellings and for expanding industries. New sources of power are to be created by new dams. The opportunities thus afforded for "vulnerability control" are tremendous, and should not be permitted to slip away—at least not without intensive study of their feasability.

Those who have been predicting attacks of 15,000 atomic bombs and upward will no doubt look with jaundiced eye upon these speculations. For they will say that a country so struck will not merely be overwhelmed but for all practical purposes will vanish. Those areas not directly struck will be covered with clouds of radioactive dust under which all living beings will perish.

No doubt there is a possibility that an initial attack can be so overwhelming as to void all opportunity of resistance or retaliation, regardless of the precautions taken in the target state. Not *all* eventualities can be provided against. But preparation to launch such an attack would have to be on so gigantic a scale as to eliminate all chances of surprise. Moreover, while there is perhaps little solace in the thought that the lethal effect of radioactivity is generally considerably delayed, the idea will not be lost on the aggressor. The more horrible the results of attack, the more he will be deterred by even a marginal chance of retaliation.

Finally, one can scarcely assume that the world will remain either long ignorant of or acquiescent in the accumulations of such vast stockpiles of atomic bombs. If existing international organization should prove inadequate to cope with the problem of controlling bomb production—and it would be premature to predict that it will prove inadequate, especially in view of the favorable

official and public reception accorded the Board of Consultants' report of March 16, 1946—a runaway competition in such production would certainly bring new forces into the picture. In this chapter and in the preceding one, the writer has been under no illusions concerning the adequacy of a purely military solution.

Concern with the efficiency of the national defenses is obviously inadequate in itself as an approach to the problem of the atomic bomb. In so far as such concern prevails over the more fundamental consideration of eliminating war or at least of reducing the chance of its recurrence, it clearly defeats its purpose. That has perhaps always been true, but it is a truth which is less escapable today than ever before. Nations can still save themselves by their own armed strength from subjugation, but not from a destruction so colossal as to involve complete ruin. Nevertheless, it also remains true that a nation which is as well girded for its own defense as is reasonably possible is not a tempting target to an aggressor. Such a nation is therefore better able to pursue actively that progressive improvement in world affairs by which alone it finds its true security.

MINORITIES

COLLEGE QUOTAS

by DAN W. DODSON

IN military parlance, American higher education today stands at "operation crossroads." Most of our colleges and universities are rooted in what they proudly call their traditions. This means that sentiments, memories and a conception of self as an institution were developed for an era which has passed. That era contained many stereotypes and misconceptions which have come into disrepute in these later years.

The first institutions of higher education were largely under private or religious auspices. They were supported by philanthropy and tuition. By a system of scholarships and grants-in-aid, they tried to serve the underprivileged as best they could, and many of us were the recipients of such help. These institutions, in order to survive, however, had to become and stay fashionable. Scholarship standards had to be maintained; but what was more important, the schools had to draw students who would reflect the schools' culture and traditions.

Unfortunately, state institutions have felt that they had to compete with the pattern set by the already established colleges and universities. Thus, sororities and fraternities and social stratification on their campuses tended to stamp out the hope of genuinely democratic relationships, and established instead a reasonable facsimile of what had already been created under private auspices. Thus, traditions in American higher education are identified only secondarily with the struggle for human rights, and only incidentally with the fight for the opportunity for all youth to develop their personalities to the fullest. Primarily, they are rooted in the creation and perpetuation of an elite.

Such a heritage is today in contradistinction to the growing realization which has come as a result of the war: that the weaknesses of our society stem to a large extent from prejudices that preclude for many the final realization of their potentialities.

From THE AMERICAN SCHOLAR, *Hiram Haydn, Editor*

Copyright, 1946, by the United Chapters of Phi Beta Kappa.

The fact that the shortage of doctors resulted from prejudice and economic limitations which kept hundreds of worthy young people from preparing for that profession illustrates how this thing has worked. The payoff came when it was revealed that Germany's weakness partly resulted from prejudices which forced her to expel the very people whose creativeness subsequently made such an enormous contribution to the development of the Atomic Bomb.

Today, our society as a whole sees the relationship between social welfare and prejudices which thwart the development of the capacities of individuals. This threat to the basic concepts of democracy is so plain that almost all of us, except the vested interests, have seen it. The question is whether or not the colleges and universities have seen it and are willing to bring their practices into line with present day insights, even though some of their most precious traditions be jeopardized.

Dr. Frank Kingdon, in an article in the *American Mercury* for October, 1945, summarized the discriminatory practices as they exist in the medical schools. I need not dwell upon his figures to any appreciable extent, but he indicates that the enrollment of Jewish students in medical schools has been reduced by roughly 50 per cent in the last twenty years. The class of 1937 in these schools included 794 Jewish students, the class of 1940 only 477. Four schools pointed to in the data presented by Dr. Kingdon indicate the pattern: in the class of 1920, forty-six Jewish students were admitted at the College of Physicians and Surgeons of Columbia University, in 1936, six, and in 1940, eight; Long Island University in 1932 had 42.24 per cent Jewish enrollment, and in 1938, 14 per cent; Syracuse University "dropped" from 19.44 per cent in 1936 to 6 per cent in 1942. At Cornell University Medical School, 40 per cent of the entering medical class of twenty-five years ago were Jewish; today only 5 per cent of new admissions are Jewish. In 1941, Cornell enrolled only three Jewish students in a total class of eighty-four.

It should be pointed out that the three New York City medical schools mentioned above reflected, before the initiation of restrictions, a Jewish percentage approximating the Jewish population of the city, with some allowance for the fact that proportionately speaking, a slightly higher percentage of Jewish youth sought medical training than would be true for the total population. The survey further lists medical institutions which discriminate not only against Jews, but Negroes, Italians and, in some in-

stances, Catholics (other than the Catholics represented in the minority groups here listed).

Available data are not at hand at present on the other professional schools of these universities. It is well known, however, that a survey conducted by Horner in 1944 recommended to most of the dental colleges along the Eastern Seaboard that they bring their student population more in line with the ethnic composition of the nation—in other words, that these schools reduce drastically the number of Jewish students enrolled.

The report, which was confidential, got to the press in the case of Columbia University, and considerable discussion followed; but the extent to which these institutions have accepted the recommendation is not known. There is some proof at the present time that schools of law and of engineering have, in given cases, resorted to appropriate methods to hold down enrollments of those whom they consider as having less desirable ethnic backgrounds.

Many schools are not so open in admitting that they practice discrimination. Several, in order to hold down enrollment of youths representing certain ethnic backgrounds, have undoubtedly hidden behind the screen of national quotas, under the pretext of spreading their contribution to the entire United States. Regional quotas, however defensible they may be as an educational device, can be, and in my opinion are, used in many instances as a pretext for practicing discrimination. The Mayor's Committee on Unity of New York City found them in operation not only in medical schools, but in some of the law schools as well. It is more difficult to justify such regional quotas in professional schools than it would be in undergraduate institutions, for the selfishness of the majority group is much more apparent.

There is little doubt that back of the program to limit professional preparation of youth of certain ethnic groups stand the powerful organizations representing these professions. If these groups were not dignified by the term "profession," their practices would be brought under the same type of public scrutiny that has come to regulate discrimination in business and trade unions. For instance, there is not in New York State a single employer or union that can legally debar any qualified individual from its membership on the basis of race, creed or color. When an occupation is dignified by the term "profession," however, the practices tend to be more subtle, and effective elimination of

competition in these occupations is achieved by putting the onus on the professional schools whose handmaidens they are.

The picture on the undergraduate level is much more confusing. In New York City, the Mayor's Committee on Unity was rather well convinced that in at least two outstanding undergraduate institutions effective devices were used to keep down enrollment of youths of given ethnic backgrounds.

One of the most forthright statements, and perhaps most honest, is that of Dr. Ernest M. Hopkins just before he left the presidency of Dartmouth. Dr. Hopkins is quoted in the *New York Post* of August 7, 1945, saying "Dartmouth is a Christian college founded for the Christianization of its students." He added that the quota system had been set up to prevent anti-Semitism—a phenomenon which he thought was a definite possibility in this country! He further said, "I know definitely that this [cordial attitude toward present Jewish students] would be changed overnight in Dartmouth, or in any other college, if Dartmouth were to disregard the fact that it would become an urban college, which it does not want to become, and would lose its racial tolerance, which it is desperately anxious not to lose, were we to accept unexamined the great blocs of Jewish applications which come in, for instance, from the New York high schools and other great metropolitan centers."

It seems that Dr. Hopkins is saying that Dartmouth College does not have confidence enough in its native stock population to believe that they would receive equally qualified young people of different ethnic backgrounds from their own if they came in any numbers. Consequently, Dartmouth College must utilize its resources first and primarily to maintain the status of Dartmouth College as a socially acceptable institution; only secondarily is Dartmouth interested in bringing together in her halls the persons best qualified to profit by college experience. This means that the institution has decided for the men who attend Dartmouth that they would rather associate with mediocre students, and compete with them for the honors which the College has to bestow, than to associate with the best qualified people to be obtained—in which case the honors they won would be bestowed because of really superior achievement.

Another college president, a few days ago, speaking with reference to the situation in New York State, was quoted as saying that it was impossible to admit more than 20 per cent of the student body from ethnic backgrounds different from the majority

group without starting an exodus of the dominant native group from the school. In order to keep his enrollment balance and to keep the "better element" of his school from leaving, he was forced to find measures to keep down his enrollment of Jews and Negroes. He pointed to an outstanding performer on one of his athletic teams and said there had been an application from another individual, apparently equally well qualified, but that he dared not admit him lest the institution become looked upon as the mecca for minority group peoples—and the athletic teams not continue to attract outstanding majority group athletes.

When one examines the record of his institution, however, it is apparent that the argument is being used by an administration to cover up practices much worse than those admitted. The college, for instance, during the administration of this president, has reduced the number of Jewish students in its medical school to a negligible percentage. They have enrolled their first and only Negro student within the last two or three years. They have been equally adamant about not accepting Italian students.

The question which now presents itself is the validity of the arguments used by these institutions. Let us grant that there are, on college and university faculties and administrations and, even more important, on directing boards, many individuals who are blinded by their hatreds or fears of various minority groups, and who would resort to any subterfuge to keep members of these minority groups to an absolute minimum. There can be no doubt, however, that there are also many sincere proponents of various discriminatory practices who genuinely believe that these practices work for the best interests of all. In any case, an argument has to be examined on its own merits, not on the merits of who propounds it or why. We must consider these arguments honestly and objectively. To refute them may not be sufficient to guarantee fair educational opportunities for all; not to refute them means, however, to abandon all hope of achieving universally fair educational opportunities by any democratic process.

What, then, are the arguments? How do they measure up?

1. The schools are caught in the toils of the prejudices of the potential student body. If more than a given percentage of a particular minority group are admitted to a particular school, there is a grave risk that other students will stay away from that school so that it will soon be overwhelmed by minority groups.

It is not necessary here to go into the question of the degree to which this is a factually sound principle or the degree to which it

is a mere supposition which ignores, for example, the fact that American youth is notoriously more progressive than their elders who run the schools. It is evident that this argument fails to examine the reasons for a possible piling-up effect of minority group students in particular schools. Students who are excluded by some schools must inevitably gravitate to the schools which do admit them. The answer to this argument is not to perpetuate quota systems, but to open *all* of the schools to students who compete freely for admission solely on the basis of their relevant personal qualifications, so that minority students are more widely distributed in the population.

2. The schools are caught in the toils of the prejudices of American society. Graduates who are members of certain minority groups do not find employment in their fields of study as readily as do other graduates. The democratic solution would seem to be to warn the prospective student of the difficulties which confront him and permit him to make his own decision, rather than to make the decision for him. The schools, however, cannot afford to do this. A good part of the appeal of a school is determined by the degree to which its graduates find placement. A large proportion of graduates who do not find employment in their fields of study injures the reputation of the school and hinders it from obtaining well-qualified students.

The answer to this argument is, again, that if *all* of the schools opened their gates no one school would be unduly handicapped. The argument is a better argument against quota systems than for them, because the quota systems of some schools create a special hardship and handicap for those schools which strive to conform to the American tradition of equal educational opportunity for all.

The problem is to get all of the schools to drop their quota systems.

3. Discrimination in employment is not of equal potency in all fields of endeavor. The result is that students from minority groups gravitate toward certain fields which are relatively open to them. This alleged fact brings on arguments four and five.

It would be well to note, however, that the alleged fact is itself not well established. While it is argued, for example, that 15 per cent of the nation's physicians are Jewish as compared to only 4 per cent of the nation's population, account is not taken of the fact that both physicians and Jews tend to be heavily concentrated in the urban areas. Gross statistics can be extremely misleading if not subjected to further analysis.

A measure of the sincerity of this argument and of the argument based on it, is the concern which its proponents display with regard to bringing the number of Negro physicians to the "proper" 10 per cent.

In general, it should be added that the choice of field of specialization is determined, not only by considerations of prospective employment possibilities, but also by other considerations such as interest and aptitude. The relative weights of these factors are not known. It is certain, however, that many a prospective engineer would sooner drop his studies entirely if thwarted in his educational endeavors, than turn to a possible career in, say, medicine, law or social work. Many another would gamble against a near certainty of unemployment or inferior employment in his chosen field.

> 4. Because of the tendency to gravitate toward particular fields, a system of free competition, as postulated in the rebuttal to argument one, would not exist. As a consequence, the percentage of students from minority groups would rise above the critical point and other students would be driven away; these fields would then be overwhelmed by the minority groups.

It should be noted that this argument assumes far stronger and deeper prejudices in the student body than does argument one. It assumes, not merely that the prospective student would be willing to give up the school which is most suitable for him, but actually to give up the career of his choice merely in order not to be compelled to associate with fearful numbers of Negroes, Jews or members of other hated minority groups. If there actually be any students who are so profoundly hate-ridden, one may seriously question their suitability for any professional career.

The answer to this argument is to open *all* of the schools, not to close them. The opening of the schools will establish *natural* proportions, as determined by interest and aptitude, of the various groups who compose our people, rather than the arbitrary proportions which now prevail.

In dealing with the four preceding arguments, no account was taken of the role of colleges and universities in civilized culture. The schools are not the custodians of the forces of darkness, of ignorance, of bias, bigotry and hate. The schools cannot afford, not if they are to serve as centers of enlightenment, passively to accept the ill-founded prejudices of our society, to say nothing of actively abetting them. If the student body suffers from preju-

dices, these prejudices must be actively fought by and in the schools, not accepted and condoned. If the forces of bigotry and hate sap the human resources of our people, the schools must bring their considerable moral force to bear in the fight to correct resultant social inequities. The schools, moreover, have more than moral force in their armamentaria: they may reasonably regulate the size of their student bodies to the demands of society. They are thus placed in a position to meet society with an ultimatum: "Either you accept these Negro and Jewish engineers, doctors, lawyers, who are among the best that we can produce, or do without. We can no longer compromise with bigotry without compromising ourselves."

5. The disproportionate number of minority group members in certain professional fields is a potent force making for anti-minority group feeling and fascism, as in Germany, Japan, Italy and Spain!

Apart from the fact, which has already been alluded to, that it is difficult to establish and evaluate the forces pertaining to proportionate distribution of minority groups in the professions, this argument overlooks another fact, that discriminatory quotas, themselves create anti-minority group feelings. John Seth Arsenian in an article in *Psychiatry* has pointed out that, as a result of such quotas, the minority group members who do manage to get through the barriers are much more rigorously selected than those coming from dominant groups. This means, for example, that the average Jewish student is apt to be far superior to the average Gentile student—not because Jews are superior, but because only the *better* Jews can get in. As a consequence, the average Gentile may be constantly "outsmarted" by Jews and, almost inevitably, comes to resent them. Dr. Arsenian points out many other closely related effects of the quota system in the creation of hostile and derogatory feelings toward Jews.

6. It is educationally sound practice to encourage the intermingling of students of all kinds and from all over the country. It is, therefore, necessary to institute geographical quotas, which limit the number of students accepted from any one locality, and which, while not aimed at any minority groups, nevertheless work hardships on such minority groups as happen to be concentrated in particular localities.

In many cases, the second part of this argument is frankly admitted as a subterfuge for achieving minority group quotas in a "polite" way. A rigorous test of the sincerity of this argument for forced intermingling is again the question as to what extent

its advocates would be willing to guarantee to Negroes their 10 per cent. In many cases, however, it is sincerely intended and must be dealt with as such.

The first part of the argument, while sound, cannot justify the pursuit of a practice which unduly deprives members of minority groups of their educational opportunities. It is indeed a sad commentary upon the majority group in American life when a Jewish population constituting less than 5 per cent of the total of our nation are, because of ambition and preparation, such a threat to the majority group that they are resented, and that undemocratic methods are used by the majority to exclude them from equal opportunities for competition.

Somewhere along the road to democracy, American higher education got impeded by a burden of traditions inconsonant with the very ideals ostensibly perpetuated by these traditions—and the schools were left behind. It is time old habits were sloughed off, and *all* young people given the opportunity to join hands in the great search for that new set of social relationships which will reveal the path of peace and light to a mankind groping and confused. It cannot be done by quota systems in old line, tradition-bound colleges and universities.

MUSIC

AESTHETIC IDEAS AS THE BASIS OF MUSICAL STYLES

by HUGO LEICHTENTRITT

MUSIC is not able to use the aspects of nature, the visible, material world directly as the starting point of its creative impulses. In this respect the other arts, painting, sculpture, poetry and drama differ considerably from music, as they spring from the model of the outward world, which they depict, describe or interpret. Lacking this immediate model, music must get its problems not from concrete reality, but from the world of the spirit, from ideas, sentiments, and emotions. It is the aim of this essay to point out at least a few of these fundamental ideas from which were derived what we call the various styles in the history of music. Some of these basic ideas are mathematical in their nature; others are architectural, philosophical, psychological, poetic and dramatic. In spite of their different origin all these ideas, as they are applied to art, become aesthetic ideas.

All music is dominated by the idea of "up" and "down," high and low, or rising and falling, though strictly speaking there is actually no up and down at all in the world of sound. What we call higher or lower sounds are in reality only different frequencies of vibrations, air waves not discernible in space at all, but only in time. Yet the attributes of space are universally applied to an art existing in time only, for practical reasons, symbolically, and for the sake of an easily explainable theory of music. When in ancient Greek music the twenty-four letters of the alphabet were made to serve likewise as the names for the twenty-four tones of the Greek system of vocal music, the idea of up and down was not yet connected with this nomenclature. But already in that early stage it was found necessary to take refuge in the idea of high and low when the twenty-four tones were subdivided into groups

From THE JOURNAL OF AESTHETICS AND ART CRITICISM, *Thomas Munro, Editor*

Copyright, 1945, by The Journal of Aesthetics and Art Criticism.

of four tones each. For these tetrachords the names of "hypaton" (low), meson (middle), hyperbolaion (high) were invented as practical marks of distinction.

A still greater importance was attached to these terms of space when the *eight-tone* groups, the *octaves* were introduced into the theory of music, and when to them the name of *"Scala"* was given. Here is added to the rather vague, indefinite concept of high and low the idea of a strictly regulated progress from one tone to its neighbor. Also in this "scala," (staircase) on which the tones promenade up and down according to a certain norm, distinctions are made. In a certain scale each tone may be equally distant from its next neighbor, in another scale this equality of distance or interval is replaced by two or even three kinds of intervals. Thus the "chromatic" scale is composed only of half tones, twelve within an octave. The "diatonic," so-called major scale introduces two different kinds of intervals, half tones and whole tones, following each other in a certain norm: 2 whole tones plus 1 half tone; 3 whole tones plus 1 half tone. In what we call a "minor scale" an interval of one and one-half tones is added to the whole and half tones.

A great variety of scales, based on whole and half tones, is manifest in the literature of music; indeed the study of scale formation has become a favorite topic of modern musical research. The importance of scales for the art of music is easily understood as soon as one has comprehended the fact that scales are an essential aesthetic factor. On the structure of the various scales the character, expressive value and style of melody depend largely. The scale indeed is comparable to the *alphabet* in language; scale is a reduced alphabet. The severe, ecclesiastic, sublime expression of Gregorian chant is conditioned by its diatonic church modes, a rejuvenation of the ancient Greek modes. Major and minor scales have determined the melodic invention of more recent music of a song and dance type, in the seventeenth, eighteenth and nineteenth centuries. The emotional ecstasy of romantic melody is a consequence of the chromatic scale mixed with major and minor. The chromatic half tone, used more profusely, is a realistic echo of wailing, sighs, of question, melancholy soliloquy, anxiety and agitation as well as sensuous delight. The works of Chopin, Schumann, Liszt, and Wagner offer abundant examples. The pentatonic scale with its holes and jumps, its five tones, instead of the seven of the major scale, is largely responsible for the strange charm, the far-away mood of the music of the distant

East, China, Siam, India, and Java as well as the northern tinge of ancient Scotch, Irish, Finnish, and Russian melodies.

From Oriental music Debussy has taken over his six-tone scale, with six whole tones to the octave, which in this case is not any more the eighth tone of the scale, but the seventh tone. The absence of half tones in this scale and the upsetting of the octave balance give these hexatonic melodies their exotic tinge. Arabic and other Asiatic music makes use also of quarter and three-quarter tones, which in the European system and notation have no place at all. They cannot be reproduced on any of the European instruments, but only by phonographic records, nor can they be indicated by our system of notation.

The possibilities of scale formation are far from exhausted. The great musician Ferruccio Busoni has found out by experimental trial that in the tempered tuning of our modern piano more than one hundred and ten different scales are possible between the tone C and its higher or lower octave. Most of these scales do not even possess a name and have hardly ever been exploited in actual melodies. Nicolas Slonimsky has been very inventive in tracking down novel scale formations in a highly stimulating volume of scale studies. This means that plenty of new types of melody are still possible.

Another idea of vital importance for music is the conception of *motion*. With motion the idea of rhythm is inseparably linked. The involuntary bodily functions of the heart beat, pulse, breathing and circulation of the blood stream are one source of rhythm, as employed in music. Another source is derived from the voluntary activities of the animal body: walking, marching, dancing, jumping, creeping, limping, crouching, and running, etc. Music is very apt in translating into its own terms these numerous types of motion, so that they may be recognized. Though motion is perceptible both in space and in time, yet motion in music generally occurs only in time. Motion in space cannot be perceived by the ear, but only by the eye. Only when music is linked with drama, in an opera scene or ballet, motion in time and in space are combined. Motion is indeed an important attribute of style, different styles being dominated and characterized by certain well-defined types of motion and rhythm. Thus the ecclesiastic Ambrosian hymn of mediaeval times, the model for the later German Protestant chorale and the English hymn tune, has a solemn rhythm, due to its broad, slowly moving tones, its absence of sharp, cutting accents. These hymn melodies are adapted to

the measured steps in a solemn religious procession. With stronger accents on the down beats and a little faster motion this procession rhythm is changed to a march rhythm, of which music has quite a variety, from the funeral march to the festive, military and quick-step march. With the march one generally couples the dance. In both march and dance music the ideas of *repetition* and *"symmetry"* are added to motion. A certain rhythmic pattern characterizes every type of dance, and this characteristic pattern is repeated as often as required, sometimes repeated in the literal sense, more frequently, however, repeated not on the identical notes, but in what are called transpositions, either higher or lower, or repeated with slight variants.

The principle of repetition is one of many rudimentary, constructive ideas latent in the musical mind and applied by instinct already in early stages of human civilization. Such primitive ideas, however, become aesthetic factors only when applied not instinctively any more, but with consciousness and knowledge of facts. Repetition in music, very much like repetition in architecture, is a means of obtaining the effects of continuity, coherence, order and symmetry. It is, therefore, evidently a primary factor of importance for artistic work. Of all constructive ideas repetition is the simplest and most elementary one, because the easiest thing to do for the mind with any idea just uttered is to repeat it. Thus any characteristic pattern of motion, a *"motive"* in musical terminology, may be repeated exactly, once, twice or many times.

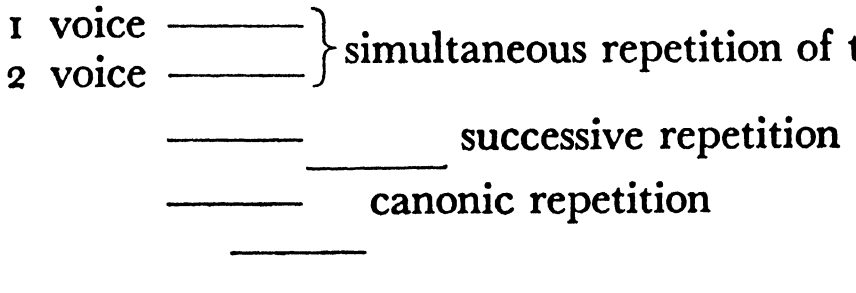
This is what primitive people in remote parts of the globe have done and are still doing in their music as a first step towards a more involved art. But also in highly developed art music this kind of constant repetition of a motive is still practiced at present. Russian music delights in these so-called "ostinato" phrases, now, however, changed from a primitive, monotonous device into a much more ingenious procedure, as a "basso ostinato," a constantly repeated phrase in the bass, accompanied by ever-changing counter melodies, "counterpoints" in the higher parts. The "Crucifixus" in Bach's B-minor Mass shows the aesthetic possibilities of basso ostinato in the most exalted manner. In a lyric, idyllic mood Chopin's "Berceuse" is a masterpiece of basso ostinato. Other much-admired examples occur at the close of the first movement of Beethoven's Ninth Symphony and at the very beginning of Wagner's "Die Walküre."

When a short ostinato phrase of one or two measures is expanded into a coherent theme of eight or more measures, and

when this bass theme is constantly repeated, with ever new counterpoints in the upper parts, the form of the *passacaglia* or *Chaconne* is obtained. Some of the greatest and most ingenious music in existence is moulded into this form. Bach in his organ passacaglia and his chaconne for violin solo, and Brahms in the finale of his Fourth Symphony represent the culmination accessible to this structural plan.

Only a few of the inexhaustible manifestations of motion in music can be briefly touched in a short essay. The most up-to-date variant of that idea has been the introduction of the machine-like "motoric" motion, with speed and force combined. The master craftsman of this new "motoric" music is Stravinsky. He applied it most convincingly in his ballet "Petrouschka," with its world of mechanical dolls assuming human passions. In this exceptional case the soulless but brilliant motoric music was legitimate. It has later been abused for burlesque, grotesque, and satirical effects. It represents a modernized variant of the older, more amiable, humorous and gay "moto perpetuo," of which we find outstanding samples in a few Haydn quartet finales, in the finale of Weber's C-major piano sonata, in Paganini's brilliant Moto Perpetuo, in Schumann's Toccata and in Rimsky-Korsakoff's "Flight of the Bumble-Bee."

Another ingenious and advanced variant of the repetition principle is *canon,* one of the oldest and most important forms of musical structure. In canon the same tune is exactly repeated by several voices. The different voices participating do not, however, sing the same tune simultaneously, nor does one of them wait until its predecessor has finished the tune, but the repetition of the tune is started by the second voice somewhere midway, just a little after the first voice has started the tune, but before it has finished it. A simple diagram may illustrate the different types of repetition.



This overlapping of melodic lines raises a number of new problems of a harmonic, contrapuntal, rhythmical nature with which the masters of the art had to grapple for at least three centuries,

roughly from 1300 to 1600. Only one of these novel problems can be treated briefly here.

In canon the principle of *strict imitation* of one voice or instrument by another had been developed. Netherlandish masters devised besides canon a method of *free imitation,* relaxing the rigid constraint of canon and thus opening a road to new possibilities. Not any more a whole tune but only a short phrase of one or two measures is stated by one voice and reiterated exactly or approximately by several other voices in succession. The result is not a canon, but a dialogue based on the identical thematic matter, thus ensuring logical coherence. Fugue also is based on the principle of free imitation, as well as the form of the motet. Every sonata, quartet, and symphony makes constant use of this principle. In its most concentrated type it is found in the fugue, which may be compared to an animated conversation of three or four people on a certain theme. The conversation is not dominated by one leading speaker. All participants discuss the main theme in dialogue, none of them being superior or inferior in the contents of his part, and all of them are intent on speaking logically, remaining always close to the theme, not allowing themselves to be far diverted from it. How to produce the effect of *logical coherence* in music is indeed one of the most amazing discoveries. Imagine the material of sound, nothing but air waves, and associate with this fleeting, unsubstantial motion of the air the idea of logical coherence! It seems absurd at first sight, and for thousands of years the problem was never even approached, just on account of this apparent absurdity. Yet the invention of counterpoint, the conception of constructive music, of architecture and form pointed out the right direction for the solution of this gigantic, unheard-of problem.

The principle of *symmetry* was taken over into music from the metres, verses and rhymes of poetry. The metrical schemes of Greek and Latin poetry have dominated music for centuries, especially in the form of song.

With symmetry must be coupled its opposite, *asymmetry.* The asymmetric principle is derived from the prose recitation in a language, with its irregular accents and subdivisions. This musical *recitative* in its oldest form is a descendant both of Greek drama and the Hebrew psalmody. It became the main pattern of the declamatory Gregorian chant of the mediaeval Christian church, as the so-called *accentus,* whereas the Ambrosian Hymns

preserved the metrical symmetry of ancient poetry, in the style of *concentus.*

In the later development of the art of music, in the polyphonic, contrapuntal styles, still later in the instrumental sonata and symphonic styles, the ideas of symmetry and asymmetry were mixed in an endless variety of combinations. The aim of this mixture was to impart to the music both the stability of symmetry and the interesting animation of asymmetry. Too much symmetry becomes tiresome; an excess of asymmetry endangers the coherence, tends towards a vague formlessness. But in mixing asymmetric phrases at well-chosen points into a symmetrical melodic line, new, interesting effects were gained. The details of this mixture, never yet adequately formulated and described, would fill a sizable chapter in a book on the constructive laws of music, the evolution of musical forms. The simplest samples of such a mixture may be found in plain, songlike melodies, where the prevalent four-bar phrase is occasionally replaced by a three-bar or five-bar phrase, with the result of diminution or enlargement of a certain phrase.

A great complication of this method occurs in the "free rhythms" of Netherlandish polyphonic music in the sixteenth century where the different voices in a motet or partsong often sing in different time simultaneously, thus mixing 4/4 with 3/4 or 6/8 time, in a manner upsetting the common measure. This mingling of irregular, unexpected accents and different time results in a fascinating interplay of accents, lost in modern music with its regular bar-lines. It is comparable to the play of the small waves on the surface of a river, or to the fascinating motion of clouds in the sky, producing always changing, unpredictable patterns.

A discovery of immense artistic value and incalculable consequences was made in the Gothic Age of France and later during the sixteenth century in Italy when the dimensions of space were for the first time utilized for music. So far in mediaeval times music had been in one dimension only, one-part music, without accompaniment. Gregorian chant, purely linear, melodic, without any addition of chords or harmony, is indeed the ideal realization of the first one of the three dimensions of space: length, width or breadth, depth.

These three dimensions in musical terms would be: (1) Linear extension or melodic line = length or height. (2) Harmonic or

contrapuntal filling out, *accompaniment* = breadth. (3) Dynamic and color effect = depth. Melody and rhythm are the only attributes of the linear element of length, horizontal extension, as we find it in Gregorian chant and the troubadours' songs of the thirteenth century. The combination of Gregorian chant and troubadours' song in the French motet of 1200, a startling novelty in spite of its harmonic crudeness, added to the dimension of length for the first time the element of breadth. Vertical extension, or breadth, is provided by the opposition of one or two counter-melodies to the Gregorian theme in the tenor. If Gregorian chant is comparable to the groundplan of a one-room bungalow, as an architect sketches it on a sheet of paper, the French motet of *ars antique* may be likened to the façade of a structure of three widely different stories, one placed on top of the other. This combination of two dimensions of space was so fundamentally novel and striking in effect that it must be considered one of the great basic discoveries of lasting value to all later music.

The Gothic idea of a complex musical structure distinguishes European from antique and oriental music, and in its enormous consequences it is certainly the most fruitful idea ever applied to the art of music. In its most primitive aspect the combination of length and width is perceived when one plays with both hands on the keyboard of a piano or an organ: the right hand represents the horizontal element of linear extension, length; the left hand, accompanying, adds the element of breadth. Quite appropriately even the aspect of the two staves in piano music suggests length and breadth.

For three centuries music was contented with these two dimensions, exploited in the most refined and ingenious manner by the Netherlandish masters in their linear, contrapuntal art, which one may liken to a "white and black" design.

A principle peculiar to music and hardly applicable in any other art is that of *inversion.* It is used in three meanings in music. Reading a melody backward, from its close to its start, in so-called *retrograde* or *cancer,* crab *motion,* is a device frequently applied in contrapuntal music. Bach's fugues and canons are full of such inversions, but also in recent music it is not rare, and the leader of radically modern music, Arnold Schönberg, makes the "crab" inversion one of the pillars of his sensational "twelve tones system." This kind of inversion is comparable to reading in a book a sentence backward. But whereas in a language this

inversion generally makes no sense, it may in music make good sense, under certain conditions, by evolving from a melody an entirely new and different melody, without changing a single note, merely by retracing the melody's path from the positive, plus direction, geometrically speaking, in the opposite, negative, minus direction. In architecture and in the ornamental arts this kind of inversion is also used, but in a much more restricted sense, when a certain geometrical or ornamental pattern is turned about its axis from right to left, as a pendant to the original pattern,—the ordinary mirror inversion. Here the effect of symmetry in opposite directions is intended; still the pattern remains essentially the same, whereas in music a crab inversion changes the effect and the expression of the original melody fundamentally.

Besides this inversion from right to left, the inversion from high to low, top to bottom, is also a much-used device in music. The so-called double and triple, invertible counterpoints depend on this idea. This kind of inversion is not applicable in a tune without accompaniment. It presupposes two voices that may be exchanged, a soprano becoming a bass, and vice versa, like turning a sleeve inside out. If three voices are written according to the rules of triple counterpoint the same three parts can be exchanged with each other in six different combinations, every time with a different effect, according to the formula:

a-b-c, b-a-c, c-a-b
a-c-b, b-c-a, c-b-a.

Four parts written in quadruple counterpoint: a-b-c-d, even admit of twenty-four exchangeable combinations. The five-part triple fugue in C sharp minor in the first part of Bach's Well Tempered Clavichord shows the artistic possibilities of three themes in ever changing inversions and combinations in the most eminent degree.

The third species of inversion answers every step or leap upward in the theme by a corresponding leap downward in the inversion, and vice versa. The piece thus inverted becomes an entirely new piece, with altogether different harmonies. What Bach achieves with inversions of all three kinds in the "Art of Fugue" and in the *Musikalisches Opfer* is unique in its kind and has no parallel anywhere in the world, either in nature or in any other art. Some of these mirror fugues, canonic fugues in inversion and augmentation and diminution of the theme are technical virtuoso feats never surpassed in the ease and elegance with which

the greatest structural complications are treated. To find a parallel to some of these pieces one would have to imagine a whole house turned upside down, with the roof below and the basement on top, yet not falling apart, but preserving its coherence and orderly arrangement, its logic of structure. The reflection of a house in a pond would be a parallel. But while this reflection is only an illusion of the eye, the musical inversion has concrete reality.

From the spectacular progress of Renaissance painting in Italy, music profited immensely in the sixteenth century by adopting the principle of color, and adding to the dimensions of length or height and width also *depth* and background, perspective, so to speak. Plastic effect, projecting of contours in space, light and shade, color impressions, dynamic and agogic effects, forte, piano, sforzato accents, crescendo and diminuendo, ritardando, accelerando, etc. are new attainments, invented by the masters of the Italian madrigal. The incitement for these innovations came from the picturesque Italian poetry, the canzone and sonetti of Petrarch, Tasso and their schools, that served as texts for the madrigal writers. This was the age of tone painting. Composers exercised their imagination and inventive power to suggest to the listener the pictures evoked by the poetry. The new, colorful chromatic harmony, introduced by Luca Marenzio, Claudio Monteverdi, Gesualdo Principe di Venose, the three greatest madrigalists, was of great assistance in these coloristic efforts, but also the cut of the melodic line, rhythm, dynamic accents and polyphonic structure were powerful means for tone-painting.

In an aesthetic sense the problem of *expression* has become a central problem. Art acquires value in proportion to what it expresses. Expression is the opposite of impression. To express something one first has to be impressed, and in order to impress somebody else one has to express something. Impression is made possible by the senses of seeing, hearing and feeling. Thus we get in a general way realistic, objective impressions from the physical, outer world, the experiences of daily life. The problem of art is to translate these sensual impressions into expressions fit to impress others in their turn.

The elaborate history of musical expression has not yet been written. Yet the headlines of the chapters in such a book may be briefly sketched out here. The importance of emotional expression was stressed in Greek antiquity by Plato when he defined the expressive character of the various modes and scales, the

sensuous, dissolute, Asiatic Phrygian mode, as opposed to the more constrained, manly, native Dorian mode. Perhaps the oldest more detailed description of the expressive power of music is given by St. Augustine in his commentary on the Twenty-second Psalm. In enthusiastic and inspired words he describes the effect of the jubilant strains in the brilliant coloraturas traditional for this psalm in the Jewish temple service: "One who is jubilant does not utter words but sounds of joy without words." This "jubilus" was taken over into Gregorian chant, together with its opposite, the wailing "tractus," expressive of sorrow by coloraturas of different character. In both cases we are concerned with coloraturas; i.e., more or less extended chains of tones sung on one syllable, a vowel. The precise expression of the words in their meaning was something of less importance to mediaeval music. The declamatory psalmody sufficed for centuries. Only around 1500 Netherlandish music began to tackle the problem of the words. In the meantime the newly discovered Gothic art of counterpoint, polyphony, was fascinated with expressing the entirely new ideas of construction in terms of space dimensions, as above explained. Attention was called to the words of the text in a new sense when the humanistic tendencies of the Renaissance, the more profound study of Greek and Latin literature made the masters of music also conscious of the rhetoric and expressive power of the words in antique poetry. Josquin de Près is credited with the idea of the so-called *wortgezeugte,* word-engendered motives; i.e., thematic phrases that take their rhythm, accent, tempo and mood from the dominating words of a motet, translating these rhetoric features into musical terms faithfully and thus multiplying their expressive value by the recurrence of the same motives in the dialogue of the voices.

All the new art styles with their different demands on expression, are also reflected in music. The Romanesque ideal dominates Gregorian chant, the Gothic mind builds up its elaborate polyphonic structures, the Renaissance mentality adds the rhetoric element and a little later, in the Italian madrigal, the concepts of tone-painting, of color, light and shade in the sound quality, plus illustrative effects. The Baroque taste adds pomp and grandeur, in polychoral structures, of which we find the most striking examples in Heinrich Schütz' Concerti ecclesiastici, in Handel's oratorios and Bach's Passion music. A few only of the numerous attributes of Baroque style in music can be hinted at in this rapid review. They have been described at greater length in a chapter

of the author's book, *Music, History and Ideas.* The new Baroque interest in sumptuous, resplendent colors, in *clair-obscur,* the fascinating effects of light and shade has been transferred to music in the amazing, chromatic harmony of Monteverdi around 1600, which found its parallel only in the romantic music of Chopin, Liszt and Wagner. The severity of the Gregorian modes, the orderly structure of the major and minor tonalities are suggestive of a linear art of drawing clear outlines, whereas the new Baroque chromaticism suggests color, by deliberately obscuring the purity of the linear design. Monteverdi can be coupled with Rembrandt.

When in the middle of the eighteenth century rationalism began to invade the European mentality, we see the reflex of this new philosophy also in music in a new analysis of expression, manifest in the new doctrine of thematic invention in the symphonies of the Mannheim School and of Philipp Emanuel Bach, the direct predecessors of Haydn and Mozart. Here the various "affetti" are mixed as in a bottle, as ingredients of melody rapidly changing its emotional expression within a very few measures.

In a similar manner one might continue to point out the influence of dominating aesthetic ideas in Gluck, Beethoven, the great romanticists of the nineteenth century, in Wagner, Brahms, Debussy and Stravinsky. But to do this would by far exceed the limits set to a magazine article and must be left to a later occasion. Enough, however, it is hoped, has been said here to show to what an extent the growth and change of the art of music depend or aesthetic ideas born in the sphere of the intellect and transferrec in a hardly explainable creative process to the sphere of imagination, the real soil of art. Yet this soil is in constant need of fertilizers and of ploughing over the ground, and the aesthetic ideas though apparently dry, act as fertilizers with often amazing effect

PHILOSOPHY

THE THEORY OF HAMLET

by JAMES FEIBLEMAN

IT WOULD be difficult, outside the field of science, to find any problem which has been settled perfectly and irrevocably, once and for all. Even within science those who are able to count upon a kind of ultimate inquisitiveness refuse to accept absolutely any solution to a given problem, even though the degree of the probability of their acceptance begins closely to approach absolute acceptance as a limit. In the case of literary interpretation in general and of Shakespearean interpretation in particular, the amount of controversy has been gigantic; and in the case of Shakespeare in general and of *Hamlet* in particular, it is perhaps still larger.

There is, for instance, the problem of discovering and defining Shakespeare's philosophy, and there are the subordinate problems of discovering and defining the philosophy set forth in each of the various plays. The repeated attempts to read Shakespeare as the advocate of this or that philosophy have gone down to ignominious defeat before the quotation of this or that contradictory passage. So Shakespeare has been described as a man who held no philosophy—or as one who held all philosophies.

Those who find that Shakespeare's work embraces a number of contradictory meanings are apt to be the same scholars who emphasize the contradictoriness of the meanings in favor of the truth of one or another of them, while neglecting to observe the importance of the notion that the conflicting meanings are also *embraced.* The conflicting meanings are caught up in the embrace—of what? Presumably, in the embrace of some more inclusive meaning. But just what is that inclusive meaning? Those who have proffered answers to this question have agreed upon the term, humanism, without understanding that this does not decide the question so long as humanism itself is open to many interpretations. Our special problem in this essay is the philo-

From the JOURNAL OF THE HISTORY OF IDEAS, *Philip P. Wiener, Editor*

Copyright, 1946, by Journal of the History of Ideas.

sophical theory of *Hamlet,* and we shall see the term, humanism, occurring here also. But the larger question must for the moment be exhibited in a lesser, albeit a still complex, one: what is the meaning not of Shakespeare as a whole but of that part of Shakespeare which is exhibited in the play, *Hamlet*?

It is well to remember that the embracing of meanings which conflict seems to the limited critic to be accomplished only at a price, which price seems to him to be the unity of the whole. Most advocates of partisan and narrow positions are advocates of half-truths, who assume that their half-truths are the whole of truth. Thus they are not wrong, except in the claims they make for the field of applications of their partial truths. We can find no solution by easy sublation, either; for to submerge the half-truths altogether in the higher unity of the meaning of the whole is to lose them at the lower level where as half-truths they are indeed true. What Shakespeare could do, and what gives him his peculiarly universal appeal, was to sublate half-truths by a greater truth while maintaining them at the lower level as half-truths. In order to illustrate the misinterpretation by critics of these half-truths, let us sample some of the most typical of Shakespearean interpretations.

To the critic of Shakespeare born into the nineteenth century, with but few exceptions the tragedy of *Hamlet* was a tragedy of the things of the mind, and all the events of the play were held to be subservient to the development, or disintegration, of Hamlet's mind and, as a consequence, also of his character. The struggle takes place between one resolution and another, between intellect and will or between will and action; whatever conflict be chosen for the analysis of the Prince's character, it is always cast in psychological terms; and this psychological conflict in Hamlet himself is always understood to be the chief motive of the play.

Among the English critics, we may single out as typical of the best the remarks made by Coleridge and Hazlitt. For Coleridge, "the character of Hamlet may be traced to Shakespeare's deep and accurate science (*sic*) in mental philosophy. . . . In Hamlet he seems to have wished to exemplify the moral necessity of a due balance between our attention to the objects of our senses and our meditation on the workings of our minds,—an equilibrium between the real and the imaginary worlds. In *Hamlet* this balance is disturbed; his thoughts and the images of his fancy are

far more vivid than his actual perceptions, and his very perceptions, instantly passing through the *medium* of his contemplations, acquire, as they pass, a form and a color not naturally their own. Here we see a great, an almost enormous, intellectual activity, and a proportionate aversion to real action consequent upon it, with all its symptoms and accompanying qualities."

There is no need to expatiate upon the subjective, psychological, and mentalistic preoccupation which is so evident in Coleridge's analysis. There are many philosophical assumptions here which presumably Coleridge, like most of his generation, took so fully for granted that he was not aware of them. One instance will suffice to show this. The "real" and "imaginary" worlds of Coleridge, as he explains in context, are the mental and the physical, the world of concepts and images, on the one hand, and the world of actual things, on the other. But these are epistemological terms, so that the contrast, in its importance, amounts to a reduction of the ontological to the epistemological. There are three worlds, not two, to all except the crudest of nominalistic empiricists. There is the world of the subject, which is mental, and there is the world of the object, which is physical; but these are both epistemological worlds. There is also the ontological world which is independent of both subject and object, the world of universals and values. The critics of nineteenth-century Europe shared with its philosophers an implicit belief in the sole reality of the two epistemological worlds, a belief which went so deep that it was never even called into question. Then, again, the play, *Hamlet,* we must remember, is a "tragicall historie," and history can occur, even in the case of a single character, only somehow objectively out in the world. Since there is an interaction between Hamlet and his world in that each has an effect upon the other, the history cannot be entirely a matter of what went on in Hamlet's mind.

It would be useless to seek relief from this intense psychologizing by taking refuge in the interpretation of Hazlitt. For Hazlitt merely shifts the meaning of the play from Hamlet's mind to our own. The speeches and sayings of Hamlet are "as real as our own thoughts. Their reality is in the reader's mind. It is *we* who are Hamlet." (W. Hazlitt, *Characters of Shakespeare's Plays.*) Whoever has suffered the melancholy mood, the withdrawal, in brief, the problems, of Hamlet, is himself Hamlet. Of course, this is only another way of saying that the greatness of the play rests upon the sympathetic reactions which it arouses in the spec-

tators, and that the universality of the problem of *Hamlet* accounts for its appeal.

The main theme of *Hamlet* is Hamlet, for German commentators as well as for the English; and, further, in the man, Hamlet, the psychological states are solely and exclusively important. It would be foolish to argue that Hamlet's mind can be left out of the play, for this is far from the truth; but it is quite another thing to argue that everything can be left out of the play except Hamlet's mind. Hamlet's mind is occupied with real problems, that is to say, with problems having an objective reference. What is the problem which occupies Hamlet's mind, and what is its objective frame of reference? Before we can attempt answers to these questions, it will be well to glance at some of the German interpretations.

German thought in the nineteenth century was too deeply under the influence of the nominalistic Kantian philosophy to produce anything in the way of literary criticism that could avoid the spell of subjectivism which Kant had cast over all his fellows. Goethe—in *Wilhelm Meister*—has chided his countrymen for failing to understand that the external relations of the play, that is, those things which do not depend upon the central character but upon accidents, are as important as the internal relations, that is, those things which depend solely upon the central character. By distinguishing between internal and external relations, and further by insisting upon the external relations, Goethe went a long way toward counteracting the intense subjectivism of the German criticism, but to no avail. Goethe himself saw the whole play as the depicting of "a great deed laid upon a soul unequal to the performance of it," and those who came after him tended to revert to the subjectivistic view.

Herder, in *Literatur und Kunst,* calls *Hamlet* a tragedy "which is to lead us into the very soul of Hamlet." For Schlegel, Hamlet was "a tragedy of thought inspired by continual and never-satisfied meditation on human destiny." The German critics seem unable to get away from the mentality of Hamlet, the central character of the play, a psychological part of the play which they tend to confuse with the whole. Despite the corrective influence of occasional insights into the detached and objective meaning of *Hamlet* (insights which would seem to indicate that with the proper metaphysical orientation much might have come from the same writers of inestimably greater value than what actually did come), the burden of the Germans was that the meaning of

the play is entirely directed toward and wholly exhausted by events in the mind of its central character.

The psychological interpretation of *Hamlet* was revived for a last flicker of life in the second decade of the twentieth century, though this time in a new guise under the auspices of the Freudian psycho-analysts. According to this interpretation, Hamlet is a man who has repressed the cause of his own hesitancy. He maintains a strong sexual attitude toward his mother, in terms of which much can be explained. The hesitancy, as well as the sex feeling, is due to the attitude toward his father as a rival for the affections of his mother. Ophelia is the sufferer from his reaction against all women, which occurs as a result of his filial experiences. In all probability, Shakespeare himself attempted to get rid of the same difficulty, one which he would have had if he had not written the play. It is, of course, an incorrigibly psychological theory, since it, too, assumes that the problem of the play, *Hamlet,* is something entirely indwelling in the body and mind of the character, Hamlet. We are still concerned with a play which is supposed to center about the psychological motives of its chief character, though these motives are no longer conscious but subconscious, and motives prompted no longer by the spirit but now by the flesh.

According to the English critic A. C. Bradley, the key to *Hamlet,* the play, lies in the psychological character of its leading figure. The character of Hamlet will explain whatever meaning the play possesses. Hamlet, says Bradley in *Shakespearean Tragedy,* is an intellectual, and as such he is naturally grieved at his father's death, horrified by his mother's overhasty and incestuous marriage, and also naturally unbalanced by the appearance of the ghost. The events which do happen in the play are those which would happen, given the effect upon the character of a sensitive intellectual prince of the more or less devastating events which already have happened. Bradley assumes, of course, that the problem of Hamlet is the problem of his character, and that his character explains the play. The shortcoming of Bradley's interpretation is that it does not interpret very much. It does not venture and hence it does not gain. We may admit what Bradley has to say—all, that is, but its limitations—and still wish to prepare ourselves for a search into the meaning of the play as a whole.

It has occurred to some timid souls that it would be a daring thing to dislike *Hamlet* and boldly to say so. *Hamlet* is admit-

tedly strong medicine. To be repelled by the play is not an unusual experience; but to state the dislike and to assume that such a statement constitutes a profound criticism, is to have the courage merely of cowardice. The best known of the criticisms of this kind are concerned with psychological questions bordering on that of character. T. S. Eliot, for instance, asserts in *Hamlet and His Problems,* that the play is unsatisfactory because the emotions of Hamlet are in excess of the dramatic situations which are presumed to have evoked them. His criticism is not a basic one, even if it were true; and, in addition, he is far from having proved it. Hamlet's emotional sprees admittedly are tremendous, but so are the events which call them forth. Tragedies which influence the lives of so many people are not trivial tragedies, and there is no reason why their effect should be thought of as limited to the production of trivial emotions.

Much the same comment could be made upon the suggestion that the characters in Shakespeare's plays mark a refinement over the hand-me-down plots. Character is always that which would work itself out in practice, were it not for the fortuitous elements in events. In this connection may be mentioned again the caution of Goethe, who said that in the interpretation of *Hamlet* the external relations of the play must not be sacrificed to the internal relations of its protagonist. H. A. Werner, in his study *Über das Dunkel in der Hamlet-Tragödie,* even goes so far as to suggest that the hero of the drama should be studied from the viewpoint of the tragedy as a whole, and not the reverse. Many of the psychological and subjective theories of the interpretation of *Hamlet* are ingenious and all are interesting, but in the end they lead to a bankruptcy which suggests that the answer does not lie here and that we should somehow look beyond the subject.

There are such things as non-subjective theories of the meaning of *Hamlet.*

The first is, surprisingly enough, to be found as an exception among those same nineteenth-century Germans against whom we have so vigorously inveighed for their intense subjectivism. The exception is Karl Werder. Werder launched a keen attack upon those subjectivistic critics who had blamed Hamlet's inward deficiencies for creating an obstacle to his own actions in the play, and who had further assumed that the stumbling-block of such deficiencies, together with the confusion consequent upon it, constitutes the theme of the play. Werder insisted that the

objective nature of Hamlet's problem itself precluded the performance of his revenge on Claudius for the murder of King Hamlet. What was required of Hamlet "simply was not *possible,* and this for reasons entirely *objective.* The situation of things, the force of circumstances, the nature of his task, directly forbid it, and so imperatively, that he was compelled to respect the prohibition, if he were to keep his reason; above all, his poetic and dramatic, aye, and his human, reason. The critics have been so absorbed in the study of his character, that the *task* imposed upon him has been lost sight of. Here is the fundamental mistake." (Karl Werder, *Vorlesungen über Shakespeare's Hamlet,* 1875.)

Werder goes on to argue that against the social and political background of Hamlet's day, or perhaps even of Shakespeare's, the murder of Claudius by Hamlet, followed by Hamlet's seizing of the throne, would have been condoned neither by the courtiers nor by the masses of the people, unless indeed there had been some way in which Hamlet could have proved that his motive had been revenge, and his actions called for by the previous murder of his father by Claudius, a proof which would not be sufficiently supported by Hamlet's contention that he had learned of the earlier deed from the ghost of his own father. Therefore the action of the play, including Hamlet's own hesitation, is a purely objective result of circumstances and conditions prevailing in the social world at the time that the mandate was forced upon him.

This theory, however, does not adequately explain Hamlet's psychology. Hamlet's thoughts as revealed by his speeches and actions, and particularly by his soliloquies, cannot be successfully overlooked, as they are in Werder's theory.

The later objective theory is that which is offered for our consideration by the contemporary Marxists. The Russian critic A. A. Smirnov, in *Shakespeare: A Marxist Interpretation,* sets forth an interpretation based on the assumption of the economic determinism of history. Hamlet, according to this interpretation, is a character not of an earlier Denmark, but of Shakespeare's own day in Elizabethan England. He is a character enveloping within the fictive frame of his problems the socio-economic dilemma with which Shakespeare correctly felt his own person to be confronted. Shakespeare lived at a time when the corruptions of a declining feudalism were beginning to manifest themselves. He was disgusted with them, naturally enough. But, as a true humanist, he was equally disgusted with the socio-economic force

which he saw was rapidly rising to the fore; and he viewed with dismay the increase in naked self-interest revealed by the efforts at primary accumulation of the rising bourgeoisie. Hamlet had no faith in the masses because of their political immaturity. He was repelled by the practical philistinism of the bourgeoisie. Shakespeare could find no solution to this choice of evils; he expressed himself in the character of Hamlet, who took refuge from the impossible choice in madness. Hamlet is a man of action delayed by the necessity of choosing between equally distasteful alternatives; a humanist who is able to discover in his own situation no humanistic alternative.

The Marxist interpretation makes up for one of the deficiencies of the Werder interpretation, for the former does attempt to embrace and explain the subjective field of Hamlet's mind in terms of the socio-economic events which cause it to be what it is. But Smirnov confuses occasion with cause, and he reads the accidents of history deterministically. On the first score, there is little doubt that Marxist theory has done scholarship a great turn by pointing out that while the economic level of social events is not the highest, yet it is the most reliable, in the sense that it is the level on which all other social events rest. The economic level, in other words, furnishes the occasion to other levels, but not the cause, since the distinction between occasion and cause is a perfectly valid one. An event may have one or more occasions, but it can have only one cause; occasion is historical, while cause is logical. The socio-economic events which have occasioned Hamlet's lapse into madness may be, as Smirnov says, the occasions of that madness; but the assumption of Smirnov's theory, to be good orthodox Marxism, has to make the further claim that the socio-economic events are also the cause of the madness; and this is something else again.

On the second score, we find another fallacy which has to do with that part of Marxist theory which is described as historical determinism; it is in brief, the theory which asserts that the way things have happened is the way they have to happen. This theory is blasted altogether by the sheer novelty of events; for it is true that events resemble each other in many ways, yet no two events are exactly alike. History is a mixture of chance and cause; yet we are no more justified in confusing chance and cause than we are in confusing occasion and cause. Chance is not the same as cause and never will be; indeed, respectable theories of history try to separate out the pattern of history from actual history, i.e.,

its underlying cause which is independent of chance. Smirnov's Hamlet, then, is a prince who emerges from the maze of history only to discover that social events have offered him two stimuli in the shape of economic alternatives which he finds equally distasteful. It could never have happened otherwise. Faced with two disagreeable opposites of feudalism and primary accumulation, Hamlet becomes a neurotic or psychotic; he retires to the insanity which inhibits purposive action. But in stating this simple answer to a difficult problem, Smirnov, like the earlier objectivist in *Hamlet* interpretation, Werder, has exchanged one knowledge end-term for another. He has rejected the subjective interpretation of *Hamlet* for an objective interpretation. But in so doing he has not got rid of the principal dilemma; for both objectivists and subjectivists view the problem of *Hamlet* as though the answer must necessarily be found in the relation between the mind of Hamlet and the world about him. Is it his mind which works on the events at least so far as he is concerned (subjective version); or is it the social events at court which work on his mind (objective version)?

Before we can answer this question, it may be wise to examine some of the other objective theories of interpretation which have been employed in the attempt to discover the true meaning of *Hamlet*: the dramatic interpretation and the symbolic interpretation.

The dramatic interpretation of *Hamlet* rests on the assumption that the play can be totally explained as a dramatic problem; J. M. Robertson, for instance, in *The Problem of Hamlet,* holds that the proper explanation of *Hamlet* is to be made in terms of Shakespeare's attempt to use, and improve on, older material. All of the difficulties and special features of the play are caused by the effort of Shakespeare to create out of the somewhat intractable material of the sources in Kyd and Belleforest an esthetic masterpiece. E. E. Stoll in *Hamlet: An Historical and Comparative Study,* also wishes to explain Hamlet's delay in carrying out his revenge solely as a stage and dramatic device. And, again, J. D. Wilson in *What Happens in Hamlet,* in much the same vein considers that the meaning of the play is that one which it held for Shakespeare's contemporaries, more particularly for his audiences. Hamlet is a *stage* character, that explains everything; and we only come to grief in trying to pretend that there is more meaning in Hamlet than we should expect to find in a stage character.

The difficulties of such a view appear to be obvious. These critics also are taking the occasion of the play for its cause. Of course, Hamlet *is* a stage character. But does that limit his meaning rather than increase it? To assume that the problem of artistic invention which presented itself to Shakespeare when he was busy adapting Kyd and Belleforest to his own purposes, or that the practical problem of putting the play on the stage successfully, constitutes and indeed exhausts whatever meaning the play may have, is to confuse the occasion with the cause. Shakespeare is dead, and *Hamlet* is not; and whatever Shakespeare may have meant by the play is probably an answer we shall never know with any certainty, while what *Hamlet* means *Hamlet* itself is still here to tell us.

The last type of artistic theory which we shall consider is the symbolic interpretation. Unfortunately, these have been few in number. We may, however, consider one of the better known. G. W. Knight states in *The Wheel of Fire* that Hamlet is a symbol —*the* symbol, in fact, the symbol of Death. Truth is evil. The climax of the play occurs in the first act, when the ghost appears. The rest of the play, contrary to the usual procedure, is a reverberation of this original explosion, and ends only with what Knight calls an "act of creative assassination." There is nothing essentially wrong with this particular symbolic approach. But Shakespeare was too profound a playwright to employ a symbolism so crude. Death is after all a figure allegorical in the most obvious sense of the term, whereas Shakespeare's characters were nothing if not human. If they had other meanings, and there were few of them which did not, those other meanings can never be explained so simply.

The objective school is never altogether satisfactory in any one of its branches. The subjectivists are partial, and so are the objectivists. Neither school has recognized that the alternatives are not exhausted by this choice, unless we assume as they assume that the choice has to be made up from the relation between Hamlet's mind and the world. This is an epistemological relation, but there is no reason why we could not just as well appeal to the higher relationships of ontology. As soon as we make this resolve, we are led to grasp the immediate and important fact that the subject and the object do not exhaust the alternatives in ontology as they seem to do in epistemology. For ontology has the power of contributing a third realm. This third realm is that of logical

and axiological possibility, a realm of real being, a whole from which actuality selects its parts, a realm of ideals and perfections. In this realm, there is no change, no conflict, and no partiality, albeit its status is only that of possibility and not of a superior kind of actuality. *Hamlet,* in short, lends itself also to a realistic interpretation, and by realism here is meant a belief in the independence of elements in the ontological realm of being.

The realistic interpretation of *Hamlet,* using realism in the philosophical sense rather than in that current literary sense which means its direct opposite, does not depend upon the specific reading of particular passages in the play. It is notorious that Shakespeare, like the Bible, will support almost any kind of realism. We must, however, if we wish to claim any validity for the realism of Hamlet, find it in the play as a whole, in the very meaning of the play, rather than in the import of those few speeches in which it appears to be stated explicitly.

The Hamlet of realism is a Hamlet who understands the nature of the two ontological orders; he understands them, that is to say, as real things. Hamlet is no philosopher; he is rather a thoughtful prince who insists upon basing his impulsive actions upon previous rationality, by thinking about the actions which shall be expected of him a little while before they are expected. He *believes* in the two ontological orders, and that very deeply.

Let us suppose that he comprehends or, still better, that he feels the relationship between the two orders in terms of what-is and what-ought-to-be. The realm of being is the realm of what-ought-to-be; the realm of actuality or existence is the realm of what-is. Now, assuredly, what-is is not altogether what-ought-to-be. Hamlet, as a human being, lives to some extent at both levels. Reflectively, he is able to contemplate things-as-they-ought-to-be, while at the same time he lives in an actual world of things-as-they-are. He is delayed in his action of revenge for the murder of his father by the necessity for, and the difficulty of, seeing how the ideal can be made actual. In the words of one critic, "He is the prince of philosophical speculators, and because he cannot have his revenge perfect, according to the most refined idea his wish can form, he misses it altogether."

Now, that is not the end of the story. For while Hamlet is endeavoring to discover the *modus operandi* for bringing the two worlds together—the world of the perfect and the ideal on the one hand, and the world of imperfection and conflict on the other —and for making the ideal actual, events force his hand. He is

driven to impulsive action by what happens around him. Having been desirous of the murder only of Claudius, he becomes willy nilly the murderer of Polonius and Laertes as well as of Claudius, to say nothing of the deaths of Ophelia and Gertrude, for which he is responsible, even though unintentionally so. Through his absolute and uncompromising attitude and his unwillingness to accept anything less than perfection, he becomes a victim of the logic of events, just as do the characters in the tragedies of Aeschylus.

He who demanded too much of events is rewarded by becoming their helpless victim. Instead of directing events, he follows them blindly; and instead of a will which imposes his plans to some extent upon others, he allows chance to direct his adventures altogether. He had been unwilling to meet actuality halfway; he had refused to act in accordance with the nature of things which dictates that actuality shall never be perfect and that ideals mediated in their application are yet better than no ideals at all; and so actuality, conflict, irrationality took their revenge upon him in the way in which the limitations of everything actual demand: he became not a leader but one led, not a king but a corpse; together with the corpse of that same King whose place in life he had wished to take, but wished to take only upon conditions laid down by himself to life in general, and which life in general had been unwilling to accept.

The moral is that the man of contemplation, who endeavors to carry into actual practice the absolute and uncompromising variety of idealism, will end with the worst sort of impulsive, irrational, and unconsidered action: undecided, immediate, and arbitrary action. The tragedy of Hamlet is the tragedy of the reversal of rôles of him, who, unlike Aristotle, does not admit that while one hundred is the goal, fifty is yet nearer to one hundred than is ten, and five times more desirable, even to those who long for the hundred, and who recognize the compromise involved in accepting anything less. Reason must guide the intuition. But, having reasoned, we must be prepared to act from the reason-dictated intuitions without hesitation, almost after the fashion of the impulsive man of action whose intuitions have not had the benefit of any prior reasonings at all. To act from reason directly is to commit the fallacy of rational dogmatism, and to aid in earning reason itself a bad name.

In offering here one more interpretation of the meaning of *Hamlet,* the intention is to make a positive contribution to inter-

pretation, but with the equipment of philosophy rather than with that of scholarship. In brief, this interpretation depends upon the metaphysical assumption that Hamlet is the "actual thing" *par excellence*. He has the human power of self-awareness, which all other things lack. As a consequence of this lack, actual things other than human beings are helpless playthings of the logic and chance of events. Human beings are, exceptionally, to some extent masters of their destiny. When, however, they hesitate or fail to take advantage of their power of self-awareness, or ratiocination, in order to exercise the limited control over their environment which as thinking beings they enjoy, they become, at the social level, the same helpless playthings of the logic and chance of events as the non-human actual things always are. To possess the power to reason constitutes the first human prerogative; and to possess the ability to apply the results of that reasoning, by means of what may be called enlightened impulse, to relevant occasions for action constitutes the second human prerogative. To deny the second is to vitiate the intention of the first, and hence to precipitate chance in events shorn of their natural logic. Such at least is one possible interpretation, a philosophical one, of the meaning of the play.

PHYSICS

A PHYSICIST SURVEYS THE SCENE

by I. I. RABI

NEARLY five years ago, on November 6, 1940, I left my laboratory and classroom at Columbia University to work with a number of other physicists from different parts of the country on the secret development of new weapons of war. Before this paper appears in print, thanks largely to the "atomic" bomb, I hope and expect to be back in my laboratory and, together again with students and colleagues, to resume a life project which was interrupted by "a call to armaments."

Before the war these physicists almost never had occupied themselves with problems and questions which in any direct way could be called immediately practical. They directed their whole attention to discovering and understanding the laws of the physical universe in a clear, consistent, logical, and often mathematical scheme. They made it their code to communicate these results to others in the most frank, direct, and expeditious manner. Inseparably connected with their scientific work—and no small part of it—was the upbringing of future scientists.

Yet these very men were largely responsible for the discovery and practical development of at least two of the most remarkable and terrible weapons of this war: radar and the so-called atomic bomb. To apply the adjective "terrible" to radar may occasion some surprise to those who only have read or thought about electronic devices in terms of their beneficial peacetime applications. The crews of Japanese ships, however, who found themselves being shelled with devastating accuracy during the darkest hours of night by our warships, and the Germans who experienced saturation bombing from airplanes which were invisible above a dense cover of clouds, will readily testify to the weird and uncanny terror which an unseen but deadly enemy can inspire. The potentialities of this extraordinarily facile and protean instrument of war are disquieting to anyone who appreciates the degree

From THE ATLANTIC MONTHLY, *Edward Weeks, Editor*
Copyright, 1946, by I. I. Rabi.

to which radar will heighten the surprise value and accuracy of any weapon.

Speaking for the group of men who created these weapons, I would say that we are frankly pleased, terrified, and to an even greater degree embarrassed when we contemplate the results of our wartime efforts. Our terror comes from the realization—which is nowhere more strongly felt than among us—of the tremendous forces of destruction now existing in an all too practical form. By this I do not mean to suggest that we who helped to create the new weapons are now overcome with a sense of guilt or regret. These instrumentalities were natural consequences of the scientific knowledge at our disposal, and as such were inevitable. They did help us to win a bitter war in which we were attacked in a most cowardly fashion.

Returning from wartime occupations to his laboratory and classroom, the physicist looks forward to an era of peace and regards anew the future of his science. From the lessons of this war, we know that his science, as he understands it, is possible only in an environment undisturbed by war or even by the threat of war. The physicist has become a military asset of such value that only with the assurance of peace will society permit him to pursue in his own quiet way the scientific knowledge which inspires, elevates, and entertains his fellow men.

Thus, by the very success of his efforts in this war, the physicist has been placed in an embarrassing position. The inheritor of the tradition of Galileo, Newton, Faraday, Maxwell, Gibbs, Rutherford, Michelson, and Einstein now is hailed as the messiah who will bring us a new world with push-button facilities, new industries, an expanding economy, and jobs for all. He is assailed with equal fervor by a thoughtful group of citizens who condemn him as the Frankenstein of our time and who hope that he will be placed in protective custody until we have solemnly taken thought of how one should live in an atomic age.

Industry, with considerable success, is trying to lure the physicist from his academic hide-out with glittering pieces of silver and with the promise of unlimited scientific equipment and corps of assistants. Meanwhile our rejuvenated military forces are building giant laboratories (any one of which can use up all of our currently available and really well-trained physicists), and hope to stock them with men who can continue their scientific research and still adhere to the well-meaning but completely impossible regulations of the Civil Service Commission.

The *New York Times* proposes to alleviate man's lot by corralling the scientist in large research institutions, which it fondly imagines are of an industrial nature, where he would have as overseers and public guardians a group of wise men who know the important problems better than the scientist himself. Out of this pleasant hell there presumably would emerge cures for cancer and the common cold, rocket devices which would make a trip to the moon a week-end possibility for desk-weary stenographers, and so on. With childish faith in the capabilities of science and a complete lack of any understanding of the nature of scientific creation, the erudite news writer apparently believes that the theory of relativity or quantum mechanics could have been produced on order from wise men in Washington who by some sublime divination realized the necessity for these theories and were able to convince the Director of the Bureau of the Budget that the results would justify the expenditure of the taxpayers' money.

The universities hope the physicist will return to satisfy the needs of students. It has become obvious to the heads of institutes of learning that the future generation of scientists will be a sorry lot if the best teachers leave the academic circles for more lucrative positions in military or industrial laboratories.

The embarrassment of the physicists stems not only from the fact that they are unaccustomed to being courted with such ardor, but also from their realization, admitted readily by four out of every five, that in the past five years, apart from the development of certain techniques which may be useful in later research, the progress of the science of physics has been less than moderate. The same profound questions which furrowed the brows of physicists before the war and forced them to spend long days and nights in their laboratories are still with us. The physicist returning from the war has no vast amount of literature to digest before he can bring himself up to date in his field, because his own dusty files contain virtually the last words written upon the subject.

With atomic bombs and radar in mind, the skeptic may well ask what the physicist thinks he has been doing these past five years, if not physics. In a more heated vein, he may inquire just what are these problems which the physicist considers to be so important and yet which are so remote from practical possibilities that the intense research work of the war years has not touched upon them perceptibly.

These are probing questions. To answer them the physicist must attempt to explain the two aspects of his science. There is, first, the creative intellectual activity which constantly pushes back the boundaries of our understanding of natural phenomena; second, the industrial activity which applies the results of scientific knowledge and understanding to satisfy material human needs and whimsies. The first is the science of physics proper, and the second is the side of physics which has been called the inheritance of technology. If the science of physics lags, the inheritance of technology is soon spent. In these war years, the inheritance of technology has been exploited to the point where further substantial progress can come only from an advance in the science of physics.

In the past, the science of physics was fifty years ahead of important technological application. For example, Faraday's experiments on the fundamentals of electromagnetic induction preceded the rise of the electrical industry by half a century. The growth in numbers, size, and quality of our modern industrial research laboratories and the great improvement of our schools of technology are bringing technological application very close to scientific discovery, as we can see from the fact that the infant science of nuclear physics has already resulted in the atomic bomb.

The essential unpredictability of the laws of nature beyond our experience, as exemplified in the great discoveries of the past, makes scientific research a venture, literally, into the unknown. To set out a detailed program with practical goals for truly scientific research is like trying to make a map of a country no one has ever seen and the very existence of which is in grave doubt. Pure science cannot have any goal other than the appeasement of the human spirit of intellectual adventure.

Radar and the atomic bomb are two results of a planned program of research which made use of known facts and principles. The atomic bomb is an offspring of twentieth-century physics, while radar in principle is the child of nineteenth-century physics wedded to twentieth-century technology. Radar is the easier of the two devices to understand, since everyone is familiar with its stepfather, the radio.

In the latter part of the last century Heinrich Hertz, in Germany, succeeded in demonstrating experimentally the existence of what now are popularly known as radio waves. The existence

of such radio waves had been predicted by Maxwell, who, on the basis of Faraday's electrical experiments, had written a set of mathematical relations defining their properties, which actually were the same as those of visible light, except for differences in wave length. Maxwell had predicted the existence of these waves, but had given no clue as to how to generate them. Hertz's tremendous discovery, however, showed that visible light was just a special wave-length region of an infinite spectrum of radio waves and that these waves all originated from the motions of electrical charges.

Hertz's contributions to scientific knowledge resulted in a spectacular unification of a very large variety of isolated phenomena, including light, radio waves, and the motion of electricity—the intellectual tool which has made the whole art of radio possible. The further development of the art and science of radio was concerned with the generation, control, and detection of radio waves. A series of successively brilliant inventions gave us wireless telegraphy, then the radio telephone and radio broadcasting, and finally the "soap opera." One invention, the three-element vacuum tube of De Forest, was so outstanding in its consequences that it almost ranks with the greatest inventions of all time. Very few of our modern developments would have been possible without it.

Radar was implicit in Hertz's original experiments, but it had no practical development until the need arose for a new warning device to forestall surprise attacks by aircraft. Assuming that it took approximately fifteen minutes for a defending force to get its fighter planes off the ground and organized in a position where they could intercept attacking enemy bombers, it was obvious at the outbreak of the war that a warring nation must be warned of the approach of enemy planes within a minimum safety zone of seventy-five miles (at this distance a plane traveling three hundred miles an hour would be only fifteen minutes away). Such an aircraft-detection device obviously would have to work day or night and in all types of weather. Many persons working in different countries, isolated from one another by walls of secrecy, arrived at practically the same solution at almost the same time. From this, one may be inclined to believe that the problem was not exceptionally profound.

The principle of radar was known throughout the scientific world before the war. The concentration of scientific talent on

the development of the technological tools of radar resulted in a tremendous amount of progress in a very few years.

This development was concerned chiefly with the production and utilization of shorter and shorter radio waves, which could be directed as more concentrated beams, in order to obtain increasingly fine details of the objects under radar observation. In other words, the Army wanted to know not only that aircraft were approaching, but the number, type, and disposition of the planes, while the Navy wanted to know whether the invisible and unidentified object caught in the radar beam was a sampan, a battlewagon, or just a rock jutting out of the water. The aiming of anti-aircraft guns by radar was the next (and still secret) step.

It is a fundamental law of physics that in order to produce narrow beams of radio waves the antenna on the transmitter must be many times larger than the wave length of the radio beam. Therefore, to avoid immense antenna structures, such as those which can be seen around any commercial radio station here in the United States, it was necessary to utilize shorter and still shorter wave lengths. The need for less antenna was urgent, because radar sets were installed aboard ships as small as destroyers and in the limited interiors of fighter planes. From the conventional idea of antenna strung between two poles, there eventually evolved antennas which were more like searchlight mirrors and were no larger than an oversized salad bowl.

Borrowed from television and adapted to radar was the cathode-ray tube in which the echoes were displayed on the screen of the tube in a form instantly recognizable by the operator. In its final wartime form, radar could take a picture of groups of planes seventy-five miles away or draw a map of a city through thirty thousand feet of cloud layers.

All in all, we now have in radar something which resembles television, except that the picture on the screen is an object as seen through the medium of radio waves, rather than through light waves. Unlike a beam of light, the radio waves are invisible and can penetrate great layers of clouds, smoke, and haze. The future uses of the art of radar lie in two directions: from the ground, and from the air. In the first instance, radar enables us to see aircraft in the sky regardless of darkness, fog, or the fact that the plane may be many miles away. We can look forward

with confidence to the day when there will be no more "lost" planes circling in vain for a place to land.

The control towers on commercial airfields of the future will be able to tell a fog-enshrouded pilot where he is and guide him to a safe landing place. More than that, the radar-equipped man on the ground will be able to direct the course of the plane without the assistance of the pilot. It is a short step from having a man on the ground tell an invisible pilot what to do to having apparatus which controls the movements of the plane without human intervention. From the standpoint of commercial aviation, radar will be a lifesaving device, but the reader also can imagine the deadly possibilities latent in man's ability to build pilotless aircraft, buzz bombs, rockets, and jet-propelled missiles, each loaded with atomic bombs and able to follow an invisible beam to a predetermined target. He has only to envisage himself on the receiving end of this delivery line to get the feeling that this is a small world and hiding places are very few.

Even more eerie than the possibility that invisible-eyed groundlings will be kings of all they survey in the air is the second prospect of future radar, that men in the sky will spy upon us from afar and know our every movement. Few objects of any size can escape the radar eye. Ships in even the loneliest waters cannot escape detection by high-flying observation planes, nor can trucks move at night without registering a change on a distant radar screen. Nations in a radar world will have little privacy, and the gap between the very advanced nations, technologically speaking, and the more backward ones is becoming so great that the former, with very slight inconvenience, can wipe out the latter.

As a peacetime instrument, however, flying radar will have multiple uses. Airmen rapidly and accurately can map vast uncharted regions of the world. Clouds will not deter the bird's-eye view which man will have of waterways, mountains, and impassable jungles. Wherever pilots fly, they will have before them a visual image of the terrain that lies unseen below them. There will be no such thing as "visibility zero"; the radar screen will become an exact aerial road map.

It has been said that every weapon of war brings its own countermeasures, and this is true of radar. However, one should not permit himself to be lulled into a sense of security because of this fact. Only after the impact of a new weapon has been felt can work on the development of countermeasures begin. The rapid rate in which weapons recently have been developed has left the

invention of effective defensive devices far behind. It is safer to be on the offensive than on the defensive, and the past few years have proved that a small margin of technical superiority often wins the battle.

The story of the atomic bomb must be told in a very different manner from that of radar. In the first place, the principles involved are still new to even the most technically-minded persons; and, secondly, they are intimately associated with the very structure of matter itself. One must start with the physicists' picture of the structure of matter as it was in 1919, the year that Rutherford in England effected the first artificial transmutation of nitrogen into oxygen.

On the basis of numerous experiments and close mathematical reasoning, it was believed, and nothing discovered since has changed this view, that all matter is made of unit structures, or atoms. Each chemical element has its kind of atom. The atoms themselves have structures of increasing complexity as one goes up the scale of atomic weight from hydrogen to uranium, but the architectural scheme is similar for all elements. Each atom has a central massive core, or nucleus, which contains almost all of the mass (weight) of the atom. The nucleus carries a charge of positive electricity and is very small in size—nuclei come about a million million to the inch. Surrounding the nucleus and moving under the intense electrical attraction of its positive charge are the electrons, which are very light, all identical in charge and mass, and negatively charged. Viewed as a whole, the atom is regarded as remotely similar to our planetary system with a massive central sun, the nucleus, surrounded by its electrons, like planets. Here the similarity ends, because the "planets" are not at all identical, and gravitational attraction plays little or no part in atomic structure. The electrical forces in the atom are vastly greater.

The number of electrons which surround the nucleus depends only on the amount of electrical charge on the nucleus. This charge is a definite number of times greater than the charge on the electron, and it is positive instead of negative. The number of electrons is equal to the number of units of positive charge which the nucleus carries. The structure as a whole is therefore electrically neutral, or uncharged, because the positive charges on the electrons balance out. It was hard then, and is now, to define the size of the atom exactly, but in general there are approximately

one hundred million atoms to the inch, so that each is ten thousand times larger than the nucleus alone.

The difference between chemical elements is only in the amount of electrical charge which they carry on the nucleus, and consequently in the number of electrons which surround it. Most chemical elements have more than one variety of nucleus. These varieties of the same chemical element have different nuclear masses (atomic weight), but they all have the same positive charge. These varieties were given the name of isotopes.

The various elements and their isotopes have masses which are approximately an integral number of times the mass of the hydrogen nucleus. Hydrogen was discovered to be the simplest element of all, with a nucleus carrying only one unit of positive charge and consequently surrounded by only one electron. This nucleus was found to be of such importance that it was given a special name—proton. The ratio between the proton and electron mass was 1840 to 1. The electrical charges were equal in amount, but the proton was positive and the electron was negative.

As far as can be observed, chemical elements are usually stable over periods of billions of years in the sense that iron remains iron, and oxygen remains oxygen, without changing to something else. A few exceptions were noted, however, of which radium is still the most famous. Without any external intervention, radium, a metal, spontaneously transmutes itself into another element known as radium emanation, a gas. In the process of transmutation, the radium emits a helium nucleus known as an alpha particle. This splitting of radium into radium emanation and helium (alpha particles) occurs *within the nucleus itself.*

The alpha particle given off during the self-transmutation of radium was identified as the nucleus of helium, the second element in the table of elements, and was found to have two positive charges but a mass of approximately four in proton units. Since it comes out of the radium nucleus and is positively charged, the alpha particle gathers high speed from the intense electrical repulsion of the highly charged nucleus of radium emanation and therefore comes out with a great deal of kinetic energy—the energy of motion.

Since radium and some other elements were known to disintegrate naturally, it was concluded that the nuclei were complicated structures of unknown units, and there were great hopes of inducing transmutations artificially. When physicists tried to induce artificial transmutations, however, even the intense heat of the

electric spark produced no change in any of the nuclei. But in 1919, using alpha particles as fast bullets which could overcome the repulsion of the positive charge on the nucleus, Rutherford fired alpha particles directly into nitrogen nuclei and caused them to change into oxygen nuclei.

The reaction which Rutherford brought about artificially is worth studying very carefully, because a more complicated element, oxygen, was built up from two simpler elements, helium (alpha particles) and nitrogen. From this experiment, physicists learned that not only alpha particles but also protons could emerge from a nucleus.

Atomic nuclei are most extraordinary and fascinating objects. Contained in a very small space are a number of unit positive charges which exert great forces of intense mutual repulsion. Yet nuclei are found in general to be extremely stable structures. Under the intense mutual repulsion of the positive charges alone they would blow up instantaneously. It was therefore concluded that there must be some unknown intense forces of attraction which hold these antipathetic components together. What these forces are and how they arise was, and *still is,* one of the great mysteries of the science of physics. Since scientists could not understand the forces which held nuclei together, they could not understand how much energy was released in a nuclear reaction.

The way to calculate the amount of energy released in a nuclear reaction was discovered not through nuclear experiments but in a manner which is an interesting illustration of how different developments within a science dovetail to form the whole structure. In 1905, Einstein enunciated the theory of Special Relativity from a general consideration of the nature of clocks, the measurement of time, and the remarkable consistency of the velocity of light as measured on different systems moving relatively to one another. As a straightforward deduction from this theory, he enunciated the equivalence of mass and energy.

For our purposes, it can be stated from Einstein's theory that if there is a change in the energy of some system, such as a nucleus or a collection of nuclei, there will be a perfectly definite equivalent change in mass. This statement gives us one of the most powerful tools in nuclear physics, because it enables us to find the energy released during a nuclear reaction by measuring the change in mass after the reaction. If one can measure accurately the original mass of a nucleus and the masses of the products of

a reaction, the difference in the mass will immediately give the amount of energy which has been released for use.

From 1919, the year of the Versailles Treaty and Rutherford's experiments with artificial transmutation, our story of the development of nuclear physics jumps to 1939, the year of the outbreak of World War II and of the discovery of the nuclear fission of uranium. Those twenty years between two wars were among the most revolutionary in the history of physics. They marked the experimental verification of Einstein's Theory of General Relativity and the complete revision of our concepts of space, time, and gravitation.

During this period there arose the wondrous intellectual structure which is known as quantum mechanics, which gave us complete and quantitative insight into atoms and molecules and finally wedded physics and chemistry into one science. The scientific, philosophical, and moral implications of quantum mechanics, with its rejection of the classical doctrine of causality, have not yet been exhausted by our generation and are hardly known to the educated public.

The greatest experimental development during the brief period of peaceful scientific progress was in the field of nuclear studies. The outstanding event was the discovery of the neutron by the English physicist Chadwick in 1932. The neutron is what really makes the atomic bomb tick. It was a brand-new particle previously unknown to physics. The neutron is just perceptibly greater than the proton mass. It is just a bare nucleus without a positive charge, and consequently has no negatively charged electron surrounding it. Since it is neutral, the neutron is not affected by the electrons which surround the nucleus of an atom, and when it is employed as an atom-splitting bullet it can only be stopped or deflected by the nucleus itself. Hence the neutron can readily penetrate inches of lead or other dense material.

This great discovery made it possible to begin to understand the structure of atomic nuclei. They are now assumed to be composed of neutrons and protons, usually of more neutrons than protons. Two chemical elements, such as oxygen and nitrogen, differ from one another by the number of protons in the nucleus, which determines the total nuclear charge. Atoms with the same number of protons in their nuclei, but with different numbers of neutrons, have the same chemical properties and, as explained earlier, are known as isotopes. Some elements have as many as twelve different isotopes. Uranium, which until recently was con-

sidered the heaviest of all elements and the last in the periodic table of elements, has been found to have three important isotopes, which have mass numbers 238, 235, and 234. The charge on each isotope corresponds to 92 protons, and the rest of the mass is furnished by neutrons.

Fermi and his school of physicists in Italy were among the first to realize the power of the neutron as an experimental tool for the study of nuclei. Since the neutron carries no charge, there is no strong electrical repulsion to prevent its entry into nuclei. In fact, the forces of attraction which hold nuclei together may pull the neutron into a nucleus. When a neutron enters a nucleus, the effects are about as catastrophic as if the moon struck the earth. The nucleus is violently shaken up by the blow, especially if the collision results in the capture of the neutron. A large increase in energy occurs and must be dissipated, and this may happen in a variety of ways, all of them interesting.

Following Fermi's lead, physicists all over the world took up with vigor the sport of bombarding nuclei with neutrons. Neutrons were easily obtained. For a few thousand dollars, furnished by a benevolent foundation, one could buy or rent a quantity of radium salt, which gave a very handy neutron source in compact and portable form when it was mixed with powdered beryllium. The neutrons came from the disintegration of beryllium by the fast radium alpha particles. Later on, the cyclotron became a more powerful and more controllable source of neutrons.

The discovery of neutrons began a dramatic sequence of events which led to the atomic bomb. Fermi and his associates commenced around 1934 to study the effects on uranium of neutron bombardment and capture. The results of their experiments were most puzzling. It was assumed that the elements which were produced by the nuclear reaction were in general of greater atomic weight and charge than uranium, but no logically consistent and clear account of the phenomena could be made. The problem continued to baffle scientists until 1939, when Hahn and Strassmann in Germany announced early in that year that *barium* was one of the products of the bombardment of uranium with neutrons.

The gold strike on the Klondike was as nothing compared with the effect of the Hahn-Strassmann announcement on the tight little world of physicists. All over the globe, physicists unleashed their cyclotrons, their Geiger counters, and their ionization chambers, and by the end of the year nearly one hundred articles had

appeared on the consequences of this discovery by Hahn and Strassmann. One hundred articles is a large number when one considers that usually some sort of experimentation has to be done or some calculations made before a scientific article can be written.

Why all this pother? The answer is simply this: while all other nuclear disintegration previously observed had resulted in the release of an alpha particle, a proton, or a neutron, the emergence of barium from a nuclear reaction was a vastly different matter. Barium has only a little more than half the mass of uranium. The immediate conclusion, soon justified by experimentation, was that the uranium had split into two nuclei of almost equal mass as a result of the neutron capture. Each nucleus had a large positive charge of approximately 40. The two halves therefore flew apart with an enormous release of kinetic energy, and the process was aptly named fission in analogy to the biological splitting of cells. The amount of energy released during the fission process was easily determined by Einstein's statement of the relation between changes of mass and energy. The sum of the masses of the two fragments was less than the original mass of uranium, which means energy release.

The amount of energy released by the nuclear reaction was found to be two hundred million electron volts, as compared with that released by chemical reactions, which ordinarily is less than five electron volts. The nuclear reaction therefore released more than forty million times as much energy as a chemical reaction between atoms. It did not take the physicists more than a few minutes to realize the implications of these experiments. As an instance, I was residing in Princeton, on sabbatical leave from Columbia, when Professor Bohr, the great Danish theoretical physicist, arrived with advance news of the Hahn-Strassmann experiments. The next morning I visited Columbia and told the news to my colleague Fermi, who had by that time left Italy to join our faculty. By nightfall he was already speculating on the size of the crater which would be produced if one kilogram of uranium were to disintegrate by fission. Similar scenes were occurring all over the world. The race for the atomic bomb was on.

The two-billion-dollar questions which had to be answered before the atomic bomb could be realized were: (1) Did all three uranium isotopes undergo fission, and if not, which of the three was the important one? (2) Were any neutrons released during

the violent fission process, and if so, how many on the average? (3) Did the remaining non-fissionable isotopes absorb neutrons to any great degree.

As was stated in the official report on the development of the atomic bomb, it was known by 1940 that only U235 (Uranium 235) was important for fission by neutrons of all speeds and that neutrons of certain speeds were captured by U238 to produce U239. It also was known by this time that the average number of neutrons emitted per fission was somewhere between one and three, and that these neutrons were mostly of high speed. These facts were very encouraging and fortunate for our side in this war, because they showed that an atomic bomb was possible and also so expensive that the enemy could not produce it. The reasoning runs like this:—

If more than one neutron is released during the fission process, the fission of one uranium nucleus will produce enough neutrons to set off more than one other uranium nucleus, and the whole process will multiply rapidly with explosive effect, producing what is called a chain reaction. The chain reaction will die out, however, like a fire in wet wood if less than one neutron is produced per fission or if the neutrons, while passing through the uranium, are absorbed to a sufficient degree by some process which does not produce fission. It is clear that the chunk of uranium has to be large enough for the neutron to do its work by colliding with a fissionable nucleus before it can escape through the surface of the uranium. Also, another important point, the neutrons must be fast to give the chain reaction time enough to consume an appreciable portion of the uranium by disintegration before the gigantic energy release blows the entire bomb apart.

Fortunately for our side, the atomic bomb was bound to be extremely expensive to produce. U235 is only one part in 140 of the mixture of isotopes which ordinarily is bulk uranium. U238, which is 99.3 per cent of bulk uranium, absorbs neutrons and thus would stop the reaction. To make a bomb, pure U235 was needed, and relatively lots of it. The separation of U235 from U238 in bulk was never attempted before and turned out to be a peculiarly difficult and costly process. To ordinary peacetime thinking, it would have been termed impossible because of the expense. Here lay our good fortune, because, unlike any other nation, we had the manpower, the money, and the time to do the task. If the abundant U238 had been the important agent in atomic bombs, our cities would have been obliterated before we

entered the war, because our enemies, although short on resources, were fully aware of all the possibilities.

Another side to the development of the atomic bomb is still more eerie. The capture of a neutron by U_{238} yields U_{239}, which has a property, in common with some other nuclei, of spontaneously increasing its positive charge. The increase occurs in two successive steps by a process which essentially entails the creation of electrons. The electrons are ejected from the nucleus, which becomes an entirely new element, plutonium, of mass 239 and charge 94, instead of the 92 charge of uranium. This element is found nowhere on the face of the earth and represents an entirely new creation. It was suspected and later proved that plutonium also possesses the requisite fission properties to be the new material for a bomb. Plutonium had the advantage over U_{235} because it was an entirely different element from U_{238} and consequently, once made, could be separated from U_{238} by cheap chemical methods.

As a nation we can congratulate ourselves on having leaders in this country who were bold enough to appropriate the vast sums necessary to make this new element, atom by atom, through the bombardment of U_{238} with neutrons, when no certainty existed that the process would prove successful or that plutonium would be useful in an atomic bomb. Although most people feel, now that success has been achieved, that the effort was justified, one can imagine the fury of the defenders of the treasury if the gamble had turned out otherwise.

I have said that, as a result of the war, science has advanced only moderately, despite these great technical developments. It is not my purpose, nor would it be right, to minimize the vast industry, the keen insight, the resourcefulness, and the imagination of the scientists and engineers who performed these gigantic deeds of scientific valor. Extensive areas of scientific knowledge were consolidated by their efforts, and new scientific tools of a power previously unknown were forged in their laboratories. Our advance in pure science, when we get back to it, may be greatly accelerated by the use of the new techniques developed during the war, if those whose business it is to supply the funds will stand the expense and not insist upon calling the tune.

It might be well at this point to recall some of the still unanswered fundamental scientific questions which physicists were asking themselves in 1940. More than a quarter of a century has

passed, for example, since Onnes in Holland discovered the phenomenon of superconductivity. Briefly stated, he found that some metals, such as lead, when cooled to temperatures of a few degrees above absolute zero, suddenly lost all trace of electrical resistance. Once a current was started on a loop of wire at this temperature, the current continued indefinitely. Why? The question is all the more tantalizing since we understand quite well the factors which cause ordinary electrical resistance. One wonders whether the Onnes discovery is an accidental phenomenon or a profound one. All our ideas concerning the conductivity of electricity in metals remain in doubt until this problem is solved. If one were able to produce a resistanceless wire, its effect on the electrical industry would be revolutionary.

The great scientific objective of nuclear physics has been the elucidation of the forces which hold the aggregate of neutrons and protons together within their nucleus despite the strong electrical repulsions of the constituent protons. This primordial force which makes matter as we know it exist at all is unlike gravity or electrical forces, which fall off inversely as the square of the distance between force centers. It is a very short-range force which acts only over distances of about the size of the nucleus and then decreases very abruptly. Yukawa, a Japanese scientist, has suggested that the unknown force may have a connection with a new particle of mass intermediate between the electron and proton. Such a particle, the mesotron, has indeed been found since in cosmic rays and has become a fascinating field of study in itself.

Mesotrons seem to appear in a manner which would delight the professional magician. Apparently very rapidly moving protons, such as are to be found in cosmic rays, produce mesotrons when they collide with the nuclei of oxygen and nitrogen, the chief components of the earth's atmosphere. It cannot be said that the mesotrons are ejected from these nuclei, or from the cosmic-ray protons; they simply appear as if by an act of creation during the violent collision. The phenomenon is very new; and for all we know, there may even be a wide variety of mesotrons. The energy which is represented by the mass of the newly created mesotron comes at the expense of the kinetic energy of the fast proton.

The mesotrons themselves seem to be real enough. They have an electrical charge of the same amount as the electron and a mass about two hundred times as great. They produce good, healthy, visible tracks in a Wilson cloud chamber and give every

evidence of definite, real, concrete existence. Yet, after a brief period of about one millionth of a second, they disappear into limbo, and all that is left is a very ordinary electron and some short-wave light energy of the X-ray variety.

These discoveries and unanswered questions pertaining to the nature of mesotrons and nuclear forces represent the first isolated tentacles which will encompass an interesting field of the physics of the future. Very few advances along these lines of research were recorded during the war years.

To probe still deeper, it is an experimental fact that matter is made up of small units like electrons, neutrons, and perhaps other particles still unknown. One asks oneself why electrons should be all alike. Why should electricity come out in certain definite units like the electron, no more, no less? There exists a positive electron, called the positron, which was discovered by Anderson in California about the same time that the neutron was discovered. The particle is in all respects just like the electron, except that its charge is positive. A positron and an electron can unite in mutual annihilation. All that comes off is some short-wave radiation like X-rays of energy corresponding to the Einstein relation between mass and energy. Conversely, radiation can be destroyed to produce a positron-electron pair. Why does it turn out that these two have exactly the same charge and mass, no matter where or how produced? This is a property of light or electronic radiation which radar research does not touch.

Looking back now to the period before 1932, we seem to have been living in a simple, innocent world. We had the electron, the proton, and light, and all the observable properties of matter were to be worked out in terms of the interplay of these factors. Then in rapid succession there were discovered the positron, the neutron, and the possible varieties of mesotrons, which had hardly entered anyone's thought before. These particles are all real in the sense that we can obtain direct experimental effects from any of these single isolated particles. But there is another particle which, if it did not exist, would have to be invented. This one is called the neutrino and, because of its postulated nature, no one has yet devised an experiment by means of which it might be observed.

The need for the neutrino arises from the method which physicists employ to balance their books. In the physicist's notebooks there are at least four entries in which the credit and debit sides

of the ledger must balance; otherwise the life of the physicist would hardly be worth living, so lawless would natural phenomena appear. The entries come from the so-called conservation theorems. The first of these is the conservation of charge, which states that the total net amount of charge remains constant. If a new positive charge appears somewhere, an equal amount of negative charge will also appear to balance it. The mutual annihilation of an electron-positron pair does not change the total charge.

The second conservation theorem is the law of the conservation of energy, now well known to all. This law states that if energy or mass disappears in one way it must reappear in an equal amount in another. The two other conservation laws—the conservation of momentum and the conservation of spin—are not so familiar but are just as important.

It has been known for a long time that in certain radioactive processes, such as the one in which U239 changes into plutonium by emitting two electrons in successive steps, the last three conservation laws are not fulfilled. The sums of the energy, momentum, and spins of the end products (that is, of the transformed nucleus, the ejected electron, and the radiation) do not balance with what was on the nucleus in the first place. Rather than give up these cherished conservation theorems, we assume that another particle, happily named the neutrino, emerges at the same time as the electron and shares the energy, momentum, and spin with it in such a way as to balance the books. The mass which the neutrino has to have in order to do the job for which it was designed is practically zero.

Admittedly, all this may be rather fancy scientific figure-skating, but such speculations have the habit of turning out to be right. Only further research will reveal whether the neutrino must remain a ghost or whether it will take on the flesh and blood of direct experimental confirmation.

We do not know the answers to these questions or to other questions equally searching and fundamental. The development of radar or the atomic bomb was almost irrelevant to them. The answers will surely come if the science of physics continues, and probably from the most unexpected sources. The process of fission was found through chemical analysis; the positron was discovered, of all places, in the study of cosmic rays. After the discoveries are made, it is hard to see how they could have been missed. In the study of natural phenomena, man is a very nearsighted crea-

ture, and even the most profound and original man can see but a very short distance. It is a great adventure where close study, patience, intuition, and luck each plays a part. It is the last frontier left to the free spirit of man in a crowded world.

The physicist returns from the war to cultivate his science. The answers to his questions will not be the end of all wisdom and knowledge. When scientific enigmas die, they give birth to twins. We are the inheritors of a great scientific tradition and of a beautiful structure of knowledge. It is the duty of our generation to add to the perfection of this structure and to pass on to the next generation the best traditions of our science for the edification and entertainment of all mankind.

POETRY

RECENT AMERICAN POETRY

Selected by Oscar Williams

THE MIND IS AN ENCHANTING THING

by MARIANNE MOORE

is an enchanted thing
    like the glaze on a
katydid-wing
        subdivided by sun
        till the nettings are legion.
Like Gieseking playing Scarlatti;

like the apteryx-awl
    as a beak, or the
kiwi's rain-shawl
        of haired feathers, the mind
        feeling its way as though blind,
walks along with its eyes on the ground.

It has memory's ear
    that can hear without
having to hear.
        Like the gyroscope's fall,
        truly unequivocal
because trued by regnant certainty,

it is a power of
    strong enchantment. It
is like the dove—
        neck animated by
        sun; it is memory's eye;
it's conscientious inconsistency.

It tears off the veil; tears
    the temptation, the
mist the heart wears,
        from its eyes,—if the heart
        has a face; it takes apart
dejection. It's fire in the dove-neck's

iridescence; in the
inconsistencies
of Scarlatti.
Unconfusion submits
its confusion to proof; it's
not a Herod's oath that cannot change.

From *Nevertheless* by Marianne Moore. By permission of the writer and The Macmillan Company, publishers.

ELEGY

On Gordon Barber, Lamentably Drowned in his Eighteenth Year

by GENE DERWOOD

When in the mirror of a permanent tear
Over the iris of your mother's eye
I beheld the dark tremor of your face, austere
With space of death, spun too benign for youth,
Icicle of the past to pierce her living sigh—
I saw you wish the last kiss of mother's mouth,
Who took the salted waters rather in the suck
Of seas, sighing yourself to fill and drench
With water the plum-rich glory of your breast
Where beat the heart escaping from war's luck.

Gordon, I mourn your wrist, your running foot,
Your curious brows, your thigh, your unborn daughters,
Yet mourn more deep the drought-caught war dry boy
Who goes, a killer, to join you in your sleep
And envy you what made you blench
Taking your purple back to drought-less waters.
What choke of terror filled you in the wet
What fierce surprise caught you when play turned fate
And all the rains you loved became your net,
Formlessly yielding, yet stronger than your breath?
Then did you dream of mother or hopes hatched
When the cold cramp held you from nape to foot
And time dissolved, promise dissolved, in Death?
Did you cry 'cruel' to all the hands that stretched
Not near, but played afar, when you sank down
Your sponge of lungs hurt to the quick
Till you had left the quick to join the dead,
Whom, now, your mother mourns grief-sick.
You were too young to drown.

Never will you take bride to happy bed,
Who lay awash in water yet no laving
Needed, so pure so young for sudden leaving.

Gone, gone is Gordon, tall and brilliant lad
Whose mind was science. Now hollow his skull
A noble sculpture, is but sunken bone,
His cells from water come by water laid
Grave-deep, to water gone.
Lost, lost the hope he had
Washed to a cipher his splendour and his skill.

But Gordon's gone, it's other boys who live afraid.

Two years, and lads have grown to hold a gun.
In dust must splendid lads go down and choke,
Red dry their hands and dry their one day's sun
From which they earthward fall to fiery tomb
Bomb-weighted, from bloodying children's hair.

Never a boy but takes as cross Cain's crime
And goes to death by making death, to pass
Death's gate distorted with the dried brown grime—
Better the watery death than death by air
Or death by sand
Where fall hard fish of fear
Loud in unwetted dust.

Spun on a lucky wave, O early boy!
Now ocean's fish you are
As heretofore.
Perhaps you had sweet mercy's tenderness
To win so soon largesse of choice
That you, by grace, went gayly to the wave
And all our mourning should be to rejoice.

By permission of the writer.

SONNET AT CHRISTMAS

by ALLEN TATE

Again the native hour lets down the locks
Uncombed and black, but gray the bobbing beard;
Ten years ago His eyes, fierce shuttlecocks,
Pierced the close net of what I failed: I feared

The belly-cold, the grave-clout, that betrayed
Me dithering in the rift of cordial seas;
Ten years is time enough to be dismayed
By mummy Christ, head crammed between his knees.

Suppose I take an arrogant bomber, stroke
By stroke, up to the frazzled sun to hear
Sun-ghostlings whisper: Yes, the capital yoke—
Remove it and there's not a ghost to fear
This crucial day, whose decapitate joke
Languidly winds into the inner ear.

By permission of the writer.

THE THOUGHT

by JOHN HOLMES

It idled along the hedges, hummed, scuffed a while.
The sky was slower than history, with enormous real
Nations of cloud gathering to darken and to pass.
The thought shaped itself slowly, as at noon a boy
Whittles a stick, wonders what in the world to do.
And the wood worked, thought grew, and said, You.

You, said the thought, are the pine wood you cut.
Knife rounding or notching this shapes all wood.
Sticks in India are less, the blade is in the body
Of all trees that in Dublin or Poland ever stood.
You, the thought said, lying awake last night,
Slept when your man in Norway could sleep at last
After staring his dark down. You, said the thought,
Must sweep up the curly whittlings of world's waste.
And the high joy of the carving done, dagger or doll,
They laugh for in Spain by a farm-wall the same day.
How they know no one knows, but here too we are full
Of blood and sun, why not gay if a Spaniard is gay.

Everywhere I can hear it laughing and running hard,
Bleeding, too, where the too-easy blade went wrong.
Though I cut myself, though I make the wound a word,
Who brings bandages for those hurt I live among?
Gay, bloody, or lying awake a year long, what I do
Is done in London and the Japanese islands, what
You are this unhistorical minute will be done to you.
Sooner or later. As the prophets said. A long thought.

By permission of the writer.

TOWER SONG

by FREDERIC PROKOSCH

O who is knocking on the prison door?
Is it the Lynx? The Unicorn? The Boar?
The ivy shudders on the rotting tower.
Is it the Cobra rising from the shore?

O who is crawling up the wintry stair?
Is it Medusa, with her coiling hair?
The mirror trembles, but I dare not rise.
Is it the Hydra roaming from her lair?

O who is creeping down the unlit hall?
The coolness spreads, the curtains rise and fall.
Is it the Bird of Yearning who has come?
A vulture's head lies shadowed on the wall.

O who is crouching by the lonely bed?
Is it the Lion with the human head?
The fog descends; the silent verdict falls.
Is it the final vengeance of the dead?

We live and die, we love and are afraid;
We pray, as once our jungle fathers prayed.
The Ape approaches, and the Lizard calls:
We crawl toward the unutterable shade.

By permission of the writer.

FETES, FATES

by JOHN MALCOLM BRINNIN

They come with, ah, fell footfall,
The merry wrist, thigh, lip and all their creatures,
Guests of my board and bed,
Companions of intolerable pleasure,
Self-sainted tongue, taut ankle, swiveled head
Who by blood's stream and vessel
Make picnic of my will,
Eating its music with an insect measure,

Unravelling its laws
Piecemeal until, in the disgrace of nature,
Whim is my wantonness
And wit's my jack-of-all.

Their host and cage long since,
I am death's head about them where they take
The welcome of my house,
Yet cannot be blindstruck, nor turn my back
When all my flying fragments kiss and toss
Sense to its blunted sense,
Love on its dear love's clowns.
To mend me, mind me, bind me where I break—
Heart's blood, mind's apse of light—
Is all my will; all, all, my lack:
Those meshings make my fate,
Those hungers call my dance.

Goodnight, when the door swings
And the great lock's shuttle tooth comes down
On darkness and hail fellow,
Goodnight, my smile, insatiate eye, bald frown,
Goodnight. In colder carnivals we'll follow
Our one pleasaunce among
A quietude, ere long,
That will our disparateness so bundle down
In earthen intimacy,
My ways and will and yours will move as one
When guest by host shall lie
Lengthwise, and right by wrong.

By permission of the writer.

THE LAY OF THE BATTLE OF TOMBLAND

by DUNSTAN THOMPSON

"Whatever you want is yours,"
Said the Man with the Lopside Head;
"Girls, diamonds, and motor cars,
If you'll love me, love me in bed."

So he prayed, and the sirens sang
Their wrongs, O sang to me
Lost in the blackout, "You're young
But wait till you're old as we."

I stayed where I was, afraid
To leave the Club Foot Man;
"Behind the mirror," he said, "we'll hide.
The dead have a death-ray plan."

"Welcome! Welcome!" the searchlights wrote.
"The End of the World is here."
They spelt their names and then went out,
And the poor lay everywhere.

What could I cry but "Bombs Away,"
When the Man who was Hunchback spoke.
"O live through this, and be my boy,"
He laughed, and his true voice broke.

"God, be nimble," the dicers begged,
"Christ, be quick;" but they rolled too short,
Their fears embraced, and the whirlers bragged
"In our heartbreak arms is sport."

The Harelip Man knelt down to drink
Blood from the sewers, swore
"You'll kiss me yet, and you'll thank
Me later, later, after the war."

Through air of flares the statues ran
Shrouded in silk. "Be warned,"
They wirelessed, "for marble men
Are the friends you never mourned."

O bathed in fire my mobster stood,
The Man with the Artificial Eyes,
"Falling in love with love," he said,
"Is falling in love with lies."

This piteous city gave up the ghost
In the toll of all her towers;
Parachute princes held me fast,
"Rest," they ordered, "the rest is ours."

From *Lament for the Sleepwalker* by Dunstan Thompson. Copyright, 1947, by Dodd, Mead & Co. By permission of the writer, Dodd, Mead & Co. and the magazine FURIOSO.

THE MUSEUM

by WILLIAM ABRAHAMS

1. *Classic*

Who rose up like a goddess from the sea,
A vision of beauty to haunt so many houses,
Dies in a marble stasis, gallery goddess.
And only the prurient children will discern
How wet flanks gleamed in the sunlight, the very waves
Shone admiration through the racing foam.

It comes to this: the bleak memorial halls,
The guide in sour serge, the tired feet,
And faint through the mausoleum walls the sound
Of streetcars. These patterns have their meanings far
From the grove of olive trees, the passionate dancers
Hot in the frenzy of Etruscan summer.
It comes to this: the middle-aged on camp chairs
Sketching those marble limbs that once were love's.

2. *Renaissance*

Princeling in velvet and furs, the fairhaired boy
With a sly smile and a goblet of gold wine.
Also the costumed dwarf, the chained falcon,
The spotted hound arrogant by the throne.
Such profusion of wealth, such suffocating beauty!
And all set down with a genius for the rich
Self-confident detail. But time is traitorous.

Easily the baize walls confer their apathy.
Time closes in: an anonymity
Of dust and varnish. The sly smile will induce
No further rubies. No emeralds will mingle
With the stuffed bird, the manuscripts swearing
Perpetual devotion. No more gold collars
To please the almost life-like hunting bitch.

3. *19th Century*

A grace like swans, and swanlike gleaming at
The stage's centre, turn and turn again
Those beautiful dancers. O simple to understand
The fashionable painter disowning his faubourg

Of expensive portraits. Simple to understand
How in an age of dying gods this grace
To believe in. Fairer than swans they float in the blue light,
Over the blue lake hover in a white radiance,
Glide and fall, rise up, circle, like swans,
While legato the music calls each swanlike gesture.

O at this instant the complex is simple,
Time poses no problems, Art is volition.
But already, poised in the future: the apotheosis
Of the meatpacker, the thwarted anguish of the slums.

4. *The Present*

Nothing to paint but what the eye can see.
The eye sees the broken faces, the cities
In convulsive disorder, how the bones puncture the flesh,
How the teeth break from the gums, how the tears fall.

Nothing to paint but what the mind discerns.
The mind discerns the implacable insects burrowing,
The fatal complacency of the skyscraper,
The insects honeycombing final triumph.
Nothing to paint but what the heart tells.
The heart tells of love. O still repeats
Strong in its need and confident, of the young
Still turning to one another in the dangerous darkness,
Where the many are hooded and carry knives, where still
There is one who waits, unarmed, and will be kind and gentle.

5. *Conclusion*

The doors are closed. The lights turned down. The dog
Trots through the galleries sniffing the air
For some possible intruder. The streetcars creak
In the night, and the campchairs are stacked in a storeroom.

O now, surely, the haunting spirit of beauty
Rises from its long sleep, now surely,
In the empty silence, delivers its messages.
The archaic lips open, and reaffirm;
The fairhaired boy reads in the dim light
The perpetual parchment and is glad and proud;
The dancers tremble in a reawakened music;
And even the wrecked towers have an affirmative meaning:
Where love whispers softly, heard at last,
Whispering, consoling, promising: I am Love.

By permission of the writer.

UPON FINDING A DEAD INSECT IN THE LEAVES OF A BOOK

by OSCAR WILLIAMS

In what deep languorous summer night
Peopled by the wind of things in flight
Above the flowers asleep like seed
Did you go searching for something to read?
Your tiny blond wings a tawny dust
You blur all sense with your tinge of quest,
For what you wanted and who you were
Have joined the revels of flake and star.

Did you explore at a lamplit head,
A planet lost in a nebulae of bread,
Nor see that giant of body move
To cast a sweeping shadow on love?
Was there a tidal wall of blight
On which at the end you hastened to write
An illumined postscript to the dark
Reducing your meaning to this final mark?

Or were you the insects' advance patrol
Charged to decipher the human soul?
Did you radio your armies to hide
As at the borders of the mind you died?
Caught by a squadron of words you arrive
(An onion in a bag is more alive);
And yet there gleams in your delicate gauze
As you lie still the light of your cause.

These words in barracks around your grave
The eloquence of your dying crave;
Could they speak through your voice of death
As you through the archives of man's breath
They would proclaim the news you sent
Between the lines as the world's event—
All books your epitaph would be
And you a hero eternally.

By permission of the writer.

POLITICS

DOMESTIC SCENE

HATE PROPAGANDA IN DETROIT

by CARL O. SMITH *and* STEPHEN B. SARASOHN

IT IS to America's credit that political campaigns openly exploiting the issues of race and religion are sufficiently rare to cause nation-wide attention. Yet, in Detroit, these campaigns are becoming a rule rather than a shocking exception. The latest of such campaigns began following V-J Day, and developed into the most vicious and inflammatory mayoralty campaign in the city's history. A war having been waged and won to preserve the four freedoms, there was unleashed in this "arsenal of democracy" the full vigor of the forces of hate and intolerance.

The character of this campaign is attested by statements rendered by both candidates following the election. Edward J. Jeffries, elected for his fourth two-year term, declared: "This has been the most vicious, nasty campaign that I have ever witnessed. Many charges and countercharges have been hurled. Racial and religious issues have been raised. These are completely foreign to the fundamental issues in American life and Detroit's future. I have never subscribed to this type of campaign, and I want to say right here and now that I intend to be a representative of all the people, and that I am a zealous disciple of tolerance, not only in theory but in practice."

Richard Frankensteen, Vice President of the United Automobile Workers, CIO, his defeated opponent, released a longer statement. He said in part: "Because the election which has now been decided was a unique one, and because the campaign was unusually bitter, I do feel that I should say something to all the people of Detroit, to those who supported me and to those who did not.

"What I want to say is this: For better or for worse, we must all live together—black and white, Jew and gentile, labor and capital. Only facing this fact, and facing it frankly, will we be

From THE PUBLIC OPINION QUARTERLY, *Lloyd A. Free, Editor*

Copyright, 1946, by The Public Opinion Quarterly (Princeton University Press).

able to retain what is best in our democracy. The closing and decisive days of the campaign were marked by the injection of racial, religious, and class fears, which had no relationship to the actual issues involved."

Various interpretations have been and will be made of the result of this election. Conservative papers have generally viewed it as evidence of a swing to the right. They have pointed out that in Detroit the "left wing" possessed an ideal opportunity; that of the city's 1,800,000 citizens the CIO claimed a membership of 350,000, while the AFL claimed another 100,000; that Detroit is the country's most highly unionized town. However, they have failed to mention that the Detroit and Wayne County Federation of Labor supported Jeffries. Moreover, they have not pointed out that division in the CIO prevented anything resembling unanimous CIO support of Frankensteen.

Whatever the importance of group alignments in determining the result of the election, there can be no doubt that the inflammatory propaganda techniques which were indiscriminately employed brought thousands of voters to the polls and determined thousands of votes. The vast social significance of these propaganda techniques would appear to justify a somewhat detailed report of their nature, use and effect in the Detroit campaign.

Shortly after the first world war, Detroit adopted a so-called nonpartisan election system. Under this system, campaigning until recent years has been almost wholly by the candidates and their friends. Candidates for mayor file for office by the payment of $100 filing fee. A primary follows which in effect is an elimination contest. The highest two in the primary become the candidates in the election. Candidates who have filed raise their own funds and conduct their own campaign. This means, of course, that unless a candidate has wealth or wealthy friends, unless he has a good vote-getting name, or has the active support of the press, his chances of nomination, to say nothing of election, are small. Because of this, Detroit has seen an abundance of "name candidates" for its offices. Moreover, since commonly there has been no organizational effort to contact voters, the vote in municipal elections has generally been small. A minority, more frequently than not, has been able to elect the mayor, council, clerk and treasurer.

It is to be noted that in no primary since 1923, except that of 1937, did more than 40 percent of the registered voters actually

vote. Also, only in the years of 1925, 1937, 1943 and 1945 did the election vote exceed 60 percent of the registered voters. This is in interesting contrast to Detroit's record of voting in presidential elections, in which a low percentage of 78 percent was recorded for the presidential election of 1936. Usually the vote in presidential elections runs from 85 percent to 93 percent. In the fall general elections, other than those of presidential election years, the vote also runs substantially higher than in municipal elections. Nor is this the whole story, for it must be pointed out that in the elections of 1937, 1943 and 1945, when the vote exceeded 60 percent, there was intensive organizational activity. In these elections the Congress of Industrial Organizations (CIO) sponsored and actively supported candidates. Aligned against these labor and "liberal" supported candidates was virtually every conservative force in the city. Noteworthy was the solid and extremely active opposition of the press.

The local press is particularly influential in Detroit municipal elections. This results largely from the nonpartisan character of the elections. Candidates supported by the press almost invariably win. The papers give them much free advertising, frequently in the form of front-page editorials. Without great organizational support candidates opposed by the press are doomed. The three major Detroit papers, particularly the *News,* recognize their influence in these elections and take the full advantage of it.

The socio-economic factors providing background for the 1945 mayoralty election are numerous and complex. Perhaps most significant has been the rise of organized labor. Detroit in 1935 was an open-shop town. The organization of the United Automobile Workers, CIO, between 1935 and 1938 completely changed this picture. By 1939 Detroit had become a closed-shop town.

In 1937 the CIO tested its political strength locally and was defeated in the most hotly contested mayoralty election up to that time. Again in 1943, it tried and was defeated. By this date, the CIO Political Action Committee had been organized. By 1945, many felt that the CIO was strong enough in Detroit to elect a mayor, given a good candidate.

Other relevant socio-economic factors include the acute housing problem, racial discrimination, and nationality and religious antipathies. The most serious of these, and that which has perhaps been the least adequately handled by the present adminis-

tration, has been the race problem. As a result of the recent increase in the negro population,[1] combined with a policy of the municipal government which does not permit changes in the racial characteristics of neighborhoods, the negroes have been forced to live in congested areas, most of them substandard.[2] They have had little relief in public housing. Their treatment by the police has not been sympathetic. These and other considerations have resulted in deep resentment and in incident after incident. The race problem came to a head in 1943 in the Detroit race riot of June 20 and 21. Since that time, these deep feelings have not been allayed, but, if anything, have increased in intensity.

It is this background that determined the character of the mayoralty campaign in Detroit of 1945.

As the 1945 election approached, the labor forces and their "liberal" allies were determined to try hard. The time looked ripe. Mayor Jeffries had antagonized many. The admirers and supporters of Roosevelt had been angered by the nonpartisan mayor's support of Dewey, and particularly by his attack on President Roosevelt in a Chicago speech in 1944. A near breakdown in the city's services and indecision by the administration had resulted in criticism and dissatisfaction in all quarters.[3] The problem they faced was one of finding a candidate upon whom they could unite.

The Michigan Citizens' Committee, a liberal nonpartisan organization organized to support President Roosevelt in the election of 1944, undertook to sound out the liberal and labor forces on a candidate. It was found that a consensus favored the candidacy of Judge George Murphy, brother of Supreme Court Justice Frank Murphy. George Murphy was at this time serving as Lieutenant Commander in the Pacific. Contact was made, but it was not until the evening before the last day for filing that final refusal was obtained.

Campaign strategy had dictated the advisability of a liberal

[1] The Detroit Housing Commission and the Detroit City Planning Commission conservatively estimate the present negro population of Detroit at 210,000. At least 70,000 of these negroes have come to Detroit since the war began.

[2] A large percentage of the negroes live in the worst blighted areas of the city. It is safe to estimate that 90 per cent of negro housing is substandard. Much of this is horribly inadequate.

[3] General dissatisfaction existed over poor service rendered by the city's publicly owned transportation system, over the irregular collection of garbage and rubbish, and over rat control. Indecision with respect to city planning for recreation, for public works and particularly for the choice of a site for an airport heightened this feeling of dissatisfaction.

nonlabor candidate. In this strategy the leadership of the CIO's PAC agreed. However, as Mr. Frankensteen was under pressure from many of his friends to file, when the last day for filing came without the filing of a strong opposition candidate, he filed. In addition to Mr. Frankensteen and Mayor Jeffries, who had earlier entered the race for re-election, five others filed for the office. Only one of these, James Friel, former auditor of Wayne County, could be expected to poll many votes. Behind Mr. Frankensteen's candidacy was mobilized the Michigan Citizens' Committee, the Democratic Party organization of Wayne County, and other allegedly liberal forces.

The real issues in the 1945 campaign were well stated in the *Reports on Candidates* of The League of Women Voters of Metropolitan Detroit. This organization issued, before both the primary and the election, pamphlets entitled *Know Your Candidates.* The issues presented fell in the following categories:

1. Post-War Problems—Measures that the city government should take to meet the problems precipitated by the sudden end of the war.
2. Structure of Government—Reorganization of Wayne County; Election of Common Council by districts or at large; Continuance of non-partisan elections.
3. Municipal Finance—New sources for municipal revenues.
4. Municipal Employees—Right to organize and to affiliate with labor unions.
5. Public Service—Action with regard to city services such as rat control; garbage and rubbish collection; alley cleaning; transportation; recreational facilities; and expansion of the city's educational facilities.
6. Minorities—Measures to be adopted to alleviate racial tensions.
7. Housing—Public housing.
8. Public Improvements.

The primary election date was August 7. The pre-primary campaign was mild. The candidates and their supporters largely confined their activities to a discussion of the real issues of the election. As in 1943, Mayor Jeffries ran second in the primary, this time by a margin of only 14,000 votes.

The campaign of 1945 followed very closely the pattern established in 1943. The opposition candidate was a labor leader and an outspoken champion of social democracy. Supporters of the incumbent were thus provided with potent ready-made weapons. These weapons—particularly social prejudice and anti-labor union sentiment—had been tried and found effective in 1943. It is

natural that they should be, one supposes, wielded with even greater abandon, and greater social damage, in 1945. If this article fails to convince the reader of its objectivity, it is because of its limitation of purpose to the consideration of a type of propaganda which became, in the nature of things, virtually exclusively the property of one "party"—the supporters of the incumbent. Had supporters of the challenger had equally easy access to equally anti-social techniques, there is only little evidence to support the contention that they would have been too good to use them. Indeed, there can be little doubt that some anti-challenger propaganda was, in effect, a more or less desperate defense against a vigorous and not always scrupulous attack from supporters of the opposition.

As pointed out above, the nonpartisan character of Detroit's municipal elections tends to produce irresponsible campaigns. There is no central, responsible body such as the committee of a political party in charge of a candidate's effort. The campaigns of both Jeffries and Fitzgerald in 1943 and of Jeffries and Frankensteen in 1945 were under the nominal direction of advertising agencies. But any person or group had the right to pay for and distribute any form of legal campaign literature.

Thus, the CIO Political Action Committee, the Wayne County Democratic Committee, the negro press, the Michigan Citizen's Committee, and the Communist Party, among others, conducted independent vote drives for Frankensteen. The Republican County Committee, the McGriff newspapers, the Teamsters' Union, the Detroit Citizens League, the metropolitan press, and Gerald L. K. Smith, among others, worked in their own ways for Jeffries. Rarely were the efforts coordinated, and in the case of the Communists and Gerald L. K. Smith, the candidates and their official managers were anything but grateful for the support.

The anti-negro propaganda revolved chiefly around the issues of bi-racial housing. Jeffries has, throughout his term of office, consistently opposed "changing the racial characteristics of Detroit neighborhoods." Neither Frankensteen, in 1945, nor Fitzgerald, in 1943, would take a definite stand on this issue, apparently being fearful of losing white votes if they declared in favor of mixed housing, or of keeping their negro supporters away from the polls if they opposed it. This fence-straddling on the part of the challenging candidates enabled the Jeffries supporters to

arouse white voters by predicting a negro invasion of their neighborhoods and schools if the mayor were defeated, and at the same time they persuaded negroes to stay home in disgust by pointing out that their alleged "champions" were not really promising them anything.

The race issue appeared most violently in the group of neighborhood newspapers owned by Floyd McGriff. Normally these weeklies appear only in outlying sections of the city comprising chiefly native-born middle-class property owners. For the duration of the campaign, however, the scope of their circulation was expanded to include many other areas, and special editions designed to play upon the peculiar prejudices of different segments of the population were widely distributed.

For illustration, the *Home Gazette* in its regular issue of October 25, and in a special Polish edition of October 21, printed the following headline, "White Neighborhood Again In Peril." In the story beneath, McGriff warned his readers that Frankensteen, if elected, would be required by his negro backers to open up restricted white neighborhoods to negro settlement, thus destroying property values.

"The entire question of mixed housing," the article says in part, "was hotly debated Thursday, October 4, at a meeting of the Housing Commission when Charles Johnson of 6343 30th Street, a veteran of World War II, demanded the right to move into a white project. *Johnson, who is almost white in appearance and red-headed, stated that negroes should not be excluded from any portion of the city.* As a World War veteran he claimed the right to move into any project of his choice and that could include the John Smith Homes in Brightmoor, the Herman-Gardens project on Southfield Road, the Parkside Project near Connor, and the Charles Terrace Project near 5512 Buffalo Court.

"When asked by Mrs. Harriet Kelly, chairman of the Commission, if he objected to living with other negroes, Johnson heatedly replied that it was 'a question of principle' and that he was trying to blaze a trail in order that other members of his race might have a right to live in any neighborhood of their own choosing."

In a special article in the Polish edition of the *Home Gazette* on October 31, McGriff said, "The home owners of Polish descent are especially concerned with this attempt to change their home

neighborhoods. Most Polish home owners are factory workers who spent many years paying off their homes with factory wages. It is no light matter to a working man to see his home values shrink when negroes move into his area. There have been cases where a home costing seven thousand dollars was finally sold for one-fifth of its original investment when negroes moved into the neighborhood.

"Polish-American citizens have a right to demand that their children have a right to be brought up in an area of their choosing without being forced to associate with an element which breeds crime, immorality, and rowdyism.

"Home owners who buy a house hoping to spend their lives in a home of their own don't want to see their neighborhood turned into a decrepit and ramshackle neighborhood by people who have no pride in home-ownership and care. . . .

"By voting against Frankensteen, those living in decent surroundings will be assured that the present city government policy will continue—no negroes in white areas."

In his native-white edition of the *Home Gazette* McGriff featured letters from servicemen expressing fear at the "threat" to restricted neighborhoods. In his issue of October 25, he printed a letter from a white sailor named Norman A. Olson, expressing fear that the Ku Klux Klan would be revived if negroes persisted in their attempts to crack restricted areas.

McGriff's argument about a reduction in property values in the event of mixed housing had a marked effect on business and neighborhood improvement associations. In a paid advertisement in the *Home Gazette* of October 25, the Brightmoor Business Associates said in part, "Every Home Owner has a special interest in the November 6th election. The hearing before the Detroit Housing Commission, where a negro insisted on his 'rights' to move into a white area, should awaken us."

While the McGriff papers were open in their efforts to stir up anti-negro feeling, the housing issue was further pressed by thousands of anonymous (one by three inch) cards that flooded white neighborhoods. These cards were thrown onto streets at night by distributors from moving automobiles. Some were dropped from office buildings into the crowds of downtown Detroit. Ostensibly coming from Frankensteen headquarters, the cards called on negroes to assert their rights by defeating the mayor.

One such card read:

"Negroes Can Live Anywhere
In Any Area—Any Section—of Detroit
WITH FRANKENSTEEN MAYOR
Negroes—Do Your Duty Nov. 6."

Another read:

"FORWARD NEGROES!
Unite with Frankensteen for Mayor
We Negroes Gave 21,572 Votes
To Frankensteen in Primary
LET'S PUT HIM IN NOV. 6
A Negro Vote for Frankensteen is a
Blow to White Exclusive Areas."

A third read:

"INCREASE NEGRO HOUSING
Elect FRANKENSTEEN—DOLL—
HILL—EDWARDS— [4]
These four men:
Mayor Council Council Council
THE RIGHT TO LIVE ANYWHERE."

Both McGriff and anonymous leaflets tied Frankensteen's candidacy with that of the Reverend Charles A. Hill, negro candidate for the Common Council. Hill, it must be pointed out, was endorsed by practically every organization which endorsed candidates, both liberal and conservative. Prominent among Hill's endorsers was the Detroit Citizens' League, a conservative group which also recommended the election of Mayor Jeffries. Despite this endorsement, McGriff, in both the regular *Home Gazette* of October 25 and the special Polish edition of October 31, characterized Hill as one of the "most active Communist front figures in all America" and tried to picture him as an inciter of negro violence.

Anonymous pamphlets, supposedly emanating from Frankensteen headquarters, were circulated connecting Frankensteen's candidacy with that of Hill. The most widespread of these handbills contained side by side what purported to be photographs of Frankensteen and Hill. While they could be recognized as containing the general likenesses of the two candidates, they had been greatly retouched. Frankensteen's face had been covered with a

[4] Three CIO-PAC endorsed candidates for the Common Council.

white wash, and the features were drawn in with pen and ink, thus making the face appear paper-white. The neck-line was enlarged to a gross thickness. The photograph of Reverend Hill had also been retouched to destroy the entire aspect of his face. Running across the top of the handbill were the words, "For Equality in the City Hall," and below that, "Endorsed by UAW-CIO." Over Frankensteen's picture was the caption, "For Mayor," over Hill's the caption, "For Council." Beneath the picture was the admonition, "Don't Fail to Vote Nov. 6." There was nothing on the handbill to indicate its source.

Over 175,000 copies of this leaflet were sent through the mails to homes in exclusively white neighborhoods, addressed only to "occupant." By checking the number of the union "bug" appearing on them, they were traced to a certain printing company which has handled a great deal of CIO work. This company refused to divulge the identity of the buyer of the leaflets, contending that they had been paid for in cash and that the salesman had not obtained the name of the purchaser.

The McGriff papers missed no bets in impressing upon white voters the fact that negroes were supporting Frankensteen in large numbers. In the regular edition of the *Home Gazette* for October 31, there was reprinted an article by George Crockett, correspondent for the *Michigan Chronicle,* a negro paper, in which Crockett emphatically endorsed the election of Frankensteen by pointing out his consistent friendship for negroes and sympathy with their problems. In the same issue, McGriff printed the picture of Rep. Adam Clayton Powell (Dem., N. Y.), the Harlem congressman, who addressed a Frankensteen rally. The article said in part, "Powell has been a Communist front man for many years, agitating the colored people along Communist lines. He was brought to Detroit chiefly to assist Frankensteen and Hill."

In addition to all of the propaganda designed to inflame white against negro, an organized whispering campaign was conducted by telephone in behalf of Mayor Jeffries. The following is a shorthand transcription of one such conversation:

> Mrs. A.: This is Mrs. A. calling from Mayor Jeffries' campaign headquarters. The property owners of Detroit are anxious to re-elect our Mayor. Will you canvass your neighborhood about the issues involved? They are the same as they were two years ago.

Mrs. B.: Will you please be more specific? I'm not very well informed about these matters.

Mrs. A.: We don't want the CIO, which is Communistic, to control the City Hall. Then there is the racial issue.

Mrs. B.: Please tell me more about the racial issue.

Mrs. A.: Well, I'll quote you a few statistics. In Ward 4 and Ward 1, which are both preponderantly colored, there were 9,000 votes cast for Frankensteen and 200 [5] cast for Jeffries. Frankensteen must have promised them something.

Mrs. B.: Do you mean that Mayor Jeffries doesn't want any of the colored vote?

Mrs. A.: Well, it doesn't make much difference whether he wants it or not—the fact is—he isn't getting any of it anyway.

At the same time that the barrage of anti-negro propaganda was being laid down in white neighborhoods, leaflets were mailed to every negro home attempting to show that Frankensteen was a false champion. One such circular, designed to resemble the *Michigan Chronicle*,[6] was headlined, "Nothing but the Truth! Show Frankensteen a Big Flop as 'Friend' of the Negro." Chief purposes of the pamphlet were to show that Frankensteen had taken no definite stand in favor of mixed housing, and to attempt to show that the UAW-CIO had discriminated against negroes. An effort was made to connect Frankensteen with this discrimination.

It should be noted that Mayor Jeffries in the 1945 campaign, unlike his 1943 campaign when he issued a statement entitled, "Why the Negro Politicians Are Against Me," as far as the authors of this article can ascertain, personally kept his hands off the race issue except to reiterate his stand against mixed housing.

Anti-negro agitation was not the only form of racist propaganda to be employed in the effort to re-elect Jeffries. Anti-Semitism came in for its share of attention. Despite the fact that Frankensteen has been a member of the Episcopal Church all his life, rumors that he was partly Jewish have followed him throughout his career, largely because of his name. These rumors were used to full advantage during the campaign in an effort to label Frankensteen a Jew, and, although nothing in written form appeared, a well-organized whispering campaign was launched,

[5] If Mrs. A. is referring, as she obviously is, to the primary, her facts are more than a little inaccurate. Wards 1 and 4 cast 5,849 votes for Frankensteen, 3,855 for Jeffries. Both these wards are preponderantly white.

[6] Principal Detroit Negro newspaper.

particularly in Polish neighborhoods. This is well illustrated at a meeting of the followers of Gerald L. K. Smith, when Smith stated that his endorsement of Jeffries had nothing to do with Frankensteen's Jewish background.

In their answers to these whispering tactics, Frankensteen's supporters descended to what many deemed covert anti-Semitism. So vigorous were the denials of Judaism, so strong the assertions that the candidate came of "enlightened, gracious, cultured people," that many Jewish people took offense, feeling an insinuation that had Frankensteen been a Jew he would not have come of "enlightened, gracious, cultured people."

In several newspaper advertisements, particularly in Polish areas, it was contended that Frankensteen stood for the "Christian Ideals of Democracy." The adviser who authored this phrase, himself Jewish, admitted that he had done so in order to counteract rumors that Frankensteen was a Jew. He insisted, however, that "Christian Ideals of Democracy" are universal and cannot be said to bear any anti-Semitic connotation. It is our opinion, however, that when this phrase was used in a Polish newspaper under the prevailing circumstances, it carried with it an anti-Semitic implication to many Jewish people.

Not content with whispering to the Poles that Frankensteen was a Jew, his enemies played both sides of the propaganda street by telling the Jews that he was an anti-Semite. A special McGriff newspaper called the *North Detroiter,* printed half in English and half in Yiddish, appeared in the city's Jewish areas on October 31. Three banner headlines stretched across its front page, "Will Anti-Semitism Creep into City Hall?" "Facts the Jewish Citizen Should Know," and "Frankensteen and Father Coughlin."

The paper's chief purpose was to establish a connection between Frankensteen and Father Charles E. Coughlin, the Jew-baiting radio priest. To do this, clippings and stories were taken from ten-year-old newspapers telling how Frankensteen featured Coughlin at the meetings of his Automotive Industrial Workers' Association.[7]

What the paper fails to report, of course, is that in being taken in by Coughlin in 1935, Frankensteen was no more obtuse than thousands of other liberals. In the early and middle 1930's Coughlin was viewed as a fighting progressive and a strong supporter of

[7] This was the independent union organized by Frankensteen and later absorbed by the United Automobile Workers.

labor unionism. He had not yet turned his organizing and oratorical talents to anti-Semitism and the extreme right.

The *North Detroiter,* however, cleverly and unscrupulously placed clippings from the *Detroit News* and *Free Press* in 1935 side by side with clippings from Coughlin's *Social Justice* of 1941. There, for all to see, were stories of Frankensteen praising Coughlin and items in which Coughlin attacks the Jews.

Under the heading, "About Dick Frankensteen, Is He Friend or Foe?" McGriff says, "Many advocates of racial hatred are biding their time. Some are even posing as liberals and progressives. This is only a trick to lull the American people to sleep. In time these same pro-fascists will raise their heads again and put forward an anti-semitic program of terror and enslavement. THE OFFICE OF MAYOR OF THE CITY OF DETROIT MUST NEVER BE ENTRUSTED TO SUCH AN ELEMENT. Frankensteen's record as a disciple of Coughlin is clear and unmistakable."

Not the least of the evils done by the *North Detroiter* was its repetition of Coughlin's charges against the Jews. Almost a quarter of its space was devoted to this purpose.

It is now necessary to examine the use of the epithets "Communist" and "Fascist" during the course of the campaign. While the red (or the brown) herring is not "hate propaganda" in the same strict sense as is anti-negro and anti-Jewish propaganda, it is nevertheless the projection of an irrelevant and anti-social issue into the campaign. The words "Communist" or "Nazi" in the same sense as the words "Nigger" or "Kike" are designed to appeal to the emotion of the voter and to blind him to the genuine rational issues of the campaign.

Frankensteen, like most progressive candidates for office, was plagued by the support of a small and bellicose group of Communists whose vote-getting power was far less than its power to make noise. Jeffries, on the other hand, received the backing, for what it was worth, of Gerald L. K. Smith, Detroit's arch-isolationist, ultra-reactionary spellbinder.

Naturally, each side took advantage of the skeleton in its opponent's closet. Frankensteen's campaigners did their best to make it appear that if the Mayor did not actually sleep with Gerald Smith, the two were at least the best of drinking companions. Jeffries' supporters made it a part of their propaganda campaign

to create the impression that all Frankensteen's friends, particularly those in the union movement, were Communist Party members or fellow travelers. Unlike the racial issue, the "Communist," "Fascist" name-calling stage of the campaign was spearheaded by the candidates themselves with no holds barred.

Jeffries said in a speech on October 25, "The main question before the Communist convention at the Book-Cadillac Tuesday was how to defeat me and elect Frankensteen. The Trotskyites have their organizers here too and are making a radio campaign against me. It all ties in with the fight of the national PAC to take over the government of this industrial capital. They'd make it a no-man's land where capital would be afraid to invest in new industry."

Continuing in the same vein of tying Communists and the PAC together in an attempt to take over Detroit, Jeffries said on the radio the next day, "The national PAC, as I have said many times, has cut the pattern for this election of a mayor. From their headquarters in New York, the PAC leaders drew their war map for the conquest of Detroit. They set up part-time citizen Frankensteen as their local dummy, their sawdust candidate, to serve as a front. They are out to use Detroit as a spring-board, as a jumping-off place—for their revolutionary crusade. If they can seize Detroit, the industrial metropolis of the nation, they figure all other industrial communities will follow suit. Thus, they reason, they can in time knit together a political empire that will rule the United States."

On October 29, Jeffries said, "The national PAC is the greatest political machine this country has ever seen. Remember this, I have many friends in the CIO. I have seen the union organization grow through the years, but these same friends are afraid to speak to me on the streets, afraid to be in my company. Why? Because they are members of closed shop organizations. They know that their jobs can be taken away from them if they do not follow the old PAC line of unity. I repeat, never has such a thing been possible in this nation, that a so-called political organization could exercise a threat over its membership if people do not vote the way strangers in their midst dictate. They want a one-party system instead of the present American two-party system. They did the same thing in Italy, Germany, and Russia."

In his radio address of November 2, Jeffries read from the magazine *Political Affairs* what he said were instructions to Com-

munist Party members as to how to act in municipal political campaigns. He then attempted to show how every Frankensteen action had followed the Communist advice.

Frankenstein, on the other hand, referring to Jeffries' endorsement by Gerald L. K. Smith, called the mayor "Gerald L. K. Jeffries," on October 18. He continued, saying, "If hatreds, racial prejudices, intolerance, and bigotry should win, it would mean the theories of Hitler have triumphed here, although beaten in battle. This is a campaign of hate on the part of Jeffries and his supporters. I don't think the people of Detroit will be fooled. They will recognize his Fascist principles."

On the day before election a series of three-column by three-inch ads appeared in Detroit newspapers. One in the *Detroit News* said, "Communism has entered this political campaign. Communists do not want Jeffries for Mayor. They are spending money to keep him from being elected. A vote against Communism is a vote for Americanism. Every Detroiter who loves his city and wants to keep Detroit for Detroiters will vote against Communism tomorrow. A vote for Jeffries is a vote against Communism. Re-elect Mayor Jeffries."

Another said, "Tomorrow is election day. Don't sit idly by on the sidelines and let our city government be grabbed by the Communist-supported, power-hungry faction which seeks to destroy Detroit's nonpartisan form of government. A vote to retain Jeffries will keep Detroit free. Don't let your town down. Vote tomorrow to re-elect Mayor Edward J. Jeffries."

A third said, "Tomorrow is election day. It is the most important election in the history of Detroit. A vote for Jeffries is a vote for freedom. A vote against him will turn the city over to a group sponsored by Communists. If you want to keep Detroit free, vote tomorrow to Re-elect Mayor Jeffries."

The McGriff publications, so active in the spreading of racial propaganda, had a field day with the Communist issue. In the *Home Gazette* of October 25, McGriff said, "The most important election in Detroit's history will be held Tuesday, Nov. 6. It is far more than a municipal election. It is being watched in Washington and Moscow. And it also is being manipulated by some of the most sinister forces ever permitted to operate from New York City, whence the Communist Party with its headquarters has moved its key election personnel into Detroit. The Communist-

backed candidate carrying the ball, Richard Frankensteen, is a foxy playboy of Stalin's Gang that is determined to make Detroit the test-tube for its radical innovations. . . .

"Detroit, it is evident, has been chosen by the Communist hierarchy as the guinea pig city of America. With the atomic bomb race under full steam in Russia, and genuine peace efforts by America now thoroughly scuttled by the Kremlin's errand boy Molotov, it is necessary to get the arsenal of Democracy, Detroit, under control of a Communist playmate. THAT PLAYMATE IS FRANKENSTEEN. . . .

"Once in the mayor's chair, everything would be set in motion for Moscow's guinea pig experiment with America. It would set the pattern to be followed in every important American industrial metropolis. It would forge the missing link needed to hook up Washington, the political front, with New York, the strategy front, and Hollywood, the propaganda front. . . .

"THE DETROIT ELECTION IS NOT JUST ANOTHER DATE ON THE CALENDAR. IT IS A DATE WITH DESTINY. VOTERS WHO WANT TO SEE THE HANDS OF RUSSIAN QUISLINGS KEPT OUT OF MANAGING DETROIT WILL BE AROUSED TO HELP GET OUT THE AMERICAN VOTE, NOVEMBER 6, TO DEFEAT ALL QUISLINGS AND COMMUNIST FRONTERS."

Throughout all the editions of the McGriff newspapers were stories seeking to prove Frankensteen a tool of the Communists, whether of the Stalinist or Trotskyite faction seemed immaterial. There were pages of pro-Frankensteen quotations from Communist newspapers in the United States and Russia. In the *Home Gazette* of October 25 there appeared an article accusing Frankensteen of advocating turning the secret of the atomic bomb over to Russia. The same publication of October 31 featured an article by Homer Martin, ousted former president of the UAW, accusing Frankensteen of long being a Communist cohort.

The Communist argument came in for particular attention in the Polish edition of the *Home Gazette,* where, in addition to the purely anti-Frankensteen stories, there appeared accounts of the "Russian rape of Poland," and advice to Polish readers to be careful of any letters sent to Russian-occupied Poland lest their relatives be punished. Leaflets and throwaways also worked the Communist angle in Polish neighborhoods. One, printed in Polish and English, read, "Stalin reaches into Detroit. Frankensteen supports Communist Gang Who Praise the Russian Conquest of

Poland." This was based on the fact that three backers of Frankensteen had supported the Warsaw rather than the London Polish government.

Leaflets were also distributed at factory gates designed to show that Frankensteen was not the candidate of labor, or indeed of the CIO, but merely of the Communist faction within that organization. Signed by the "Rank and File Committee, WAW-CIO," [8] one of these folders said, "Fact is his candidacy was forced upon us by the left wing of the CIO, the Communists. If elected mayor, he will represent them, not us."

On the Frankensteen side of the campaign, the Gerald L. K. Smith angle was played for all it was worth. Thus, one large folder circulated was headlined in red, "The Ghost of HITLER STALKS DETROIT!"

In the campaign of 1945, as in the campaign of 1943, the metropolitan press wholeheartedly supported the candidacy of Mayor Jeffries with front-page editorials and feature stories. The three leading metropolitan papers were somewhat more careful in 1945, however, to avoid accusations of unethical partisanship. We quote a letter from Louis H. Luckoff, senior partner of the Detroit office of Bass, Luckoff, and Wayburn, the advertising agency handling the Frankensteen campaign: "As you know," Mr. Luckoff wrote the present authors, "this office handled only the paid newspaper and radio advertising and printed matter, and not the publicity in the recent Frankensteen mayoralty campaign. While I understand that there was some discrimination in the report of speeches, we have no direct knowledge of this."

Mr. Luckoff continues in regard to newspaper and radio advertising, "The papers and radio stations were fair enough in giving each candidate an opportunity to purchase an equal amount of space and time. The only incident that might border at all on discrimination would be the radio spots that stations WWJ and WXYZ refused to accept at first because 'they were in bad taste.' However, when Mr. Frankensteen's attorney protested to the FCC in Washington, the radio stations immediately called us and changed their stand on this matter and accepted the 'spots' as originally given them."

[8] Note the letters "WAW" rather than "UAW." Some leaflets, however, were signed "Rank and File Committee, UAW-CIO." According to a statement by the UAW-CIO, the term "Rank and File Committee" has no meaning. Any two members can constitute themselves a "Rank and File Committee." The UAW charges that the above quoted leafllets were printed by the Teamsters' Union (AFL).

The examples presented above amply demonstrate the nature, if not the extent, of the "hate propaganda" employed in the 1945 campaign. The writers believe it to be a reasonably fair sample. The vast majority of this propaganda was disseminated by supporters of incumbent Jeffries. Most of it was directed at carefully chosen special interest groups: the Poles, the native white property owners, the Jews, the negroes. Now, what about results? The superficial observer may go no further than the election returns (as shown in Table 1) to secure an answer.

TABLE 1

PRIMARY ELECTION

(*Three Principal Candidates*)

Frankensteen	83,857	44%
Jeffries	69,455	37
Friel	35,708	19
	189,020	

FINAL ELECTION

Jeffries	275,159	56%
Frankensteen	217,425	44
	492,588	

Jeffries gained 19 percent of the total vote between the primary and final elections, a percentage equivalent to the entire Friel vote. Frankensteen could do no better than hold his own. Remembering that the primary votes for Friel were largely protest votes against the incumbent Jeffries, it would be normal to expect that a large percentage of Friel supporters would vote for Frankensteen in the final. Add to that the fact that Friel actually campaigned for Frankensteen before the final election, and the figures become more remarkable. Jeffries gained two votes between primary and final elections for every one picked up by Frankensteen.

But it is desirable to delve more deeply into the picture. Let us examine, one by one, some of the different groups subjected to bombardment by "hate propaganda." [9]

[9] For the purpose of the following analyses, we have selected large representative samples of the areas under consideration. Complete coverage would have been a near-impossible task.

TABLE 2

POLISH NEIGHBORHOODS

	Primary Election	*Final Election*
Frankensteen	60%	61%
Jeffries	16	39
Friel	24	

Table 2 shows the election results in Polish neighborhoods. These are made up largely of working-class districts and are populated by thousands of members of the UAW-CIO. In state, county, and national elections they are consistently and overwhelmingly Democratic. Of all white areas, none more than these might have been deemed a Frankensteen stronghold. Yet in the election, while Jeffries increased his percentage of the total vote from 16 to 39 percent over his primary percentage, Frankensteen barely held his own. The actual figures show that Jeffries' final vote was 437 percent of his primary vote, Frankensteen's only 123 percent of his primary vote. This is a gain of almost four votes for Jeffries to one for Frankensteen. There can be little doubt that the concentrated bombardment of voters in these areas with anti-negro and Communist-bogey propaganda largely determined this result.

Among other working-class nationality districts, again largely labor, Democratic and Catholic (either Roman or orthodox), we witness similar results. The election returns for Irish, Italian, and Jugoslav districts, respectively, are shown in Table 3.

TABLE 3

IRISH NEIGHBORHOODS

	Primary Election	*Final Election*
Frankensteen	42%	45%
Jeffries	31	55
Friel	27	

ITALIAN NEIGHBORHOODS

	Primary Election	*Final Election*
Frankensteen	72%	75%
Jeffries	16	25
Friel	12	

JUGOSLAV NEIGHBORHOODS

	Primary Election	*Final Election*
Frankensteen	58%	64%
Jeffries	13	36
Friel	29	

The native white neighborhoods studied fall into five classes according to their socio-economic status. Class One includes those wards and precincts rated as having the highest status. The figures are given in Table 4.

TABLE 4

NATIVE WHITE CLASS I

	Primary Election	*Final Election*
Jeffries	49%	71%
Frankensteen	29	29
Friel	22	

NATIVE WHITE CLASS II

	Primary Election	*Final Election*
Jeffries	56%	68%
Frankensteen	27	32
Friel	17	

NATIVE WHITE CLASS III

	Primary Election	*Final Election*
Jeffries	70%	82%
Frankensteen	17	18
Friel	13	

NATIVE WHITE CLASS IV

	Primary Election	*Final Election*
Jeffries	47%	67%
Frankensteen	31	33
Friel	22	

NATIVE WHITE CLASS V

	Primary Election	*Final Election*
Jeffries	31%	55%
Frankensteen	43	45
Friel	24	

It is interesting to note that Frankensteen polled a higher percentage of the vote cast in first and second class native white areas than in the third class. This may be accounted for largely by the fact that the third class native white areas are composed of small homes and housing projects. It is in these areas that the fear of negro penetration is greatest. Similar factors also probably affected the result in class five areas, with their many southern-born whites. These areas were the only native white areas which

gave Frankensteen a plurality in the primary, but in the final election Jeffries polled 55 percent of their votes.

Two voting groups, the Jews and the negroes, have been saved for discussion last, because of their peculiar position in regard to the campaign propaganda. The voting behavior of these two groups may be seen in Table 5.

TABLE 5

JEWISH NEIGHBORHOODS

	Primary Election	*Final Election*
Frankensteen	62%	59%
Jeffries	28	41
Friel	10	

NEGRO NEIGHBORHOODS

	Primary Election	*Final Election*
Frankensteen	87%	90%
Jeffries	6.5	10
Friel	6.5	

These results would seem to indicate that McGriff's *North Detroiter* connecting Frankensteen with Father Coughlin may have had more effect upon Jewish voters than the Frankensteen effort to tie Jeffries up with Gerald L. K. Smith. On the other hand, of course, other factors may have played an important part in the shift. But here, as in the Polish, Irish, Italian, and Slav areas, it must be remembered that we have an overwhelmingly pro-Democratic, pro-labor neighborhood.

The negro areas seem to offer the final bit of evidence in support of the effectiveness of the "hate" campaign. Here, in the one area of the city which was not subjected to an intensive campaign of hate propaganda,[10] there was almost no change in the relative position of the two candidates.

To sum up, it is not our contention that the marked rise in the Jeffries vote between the primary and final elections was due entirely to the "hate propaganda" employed in his behalf. There were many legitimate issues in the campaign on which there was room for honest division of opinion. But let us remember two things. First, Jeffries, as an incumbent serving his third consecu-

[10] This, of course, excepts the Jeffries leaflets distributed in negro neighborhoods and referred to above. Obviously their effect was more than counteracted by the knowledge that Jeffries was running on an anti-negro platform in other parts of the city.

tive term, was on the defensive. There were many legitimate faults to be found with his administration. In few quarters, except the *Detroit News,* was there great enthusiasm for his re-election. Second, this was the second time within a two-year period, under almost exactly parallel circumstances, that this type of campaign had reversed the results of a primary. Two years earlier Fitzgerald had polled a larger plurality in the primary and had lost the election by a smaller majority. The campaign of 1945 differed from that of 1943 only in the intensity and the openness of the propaganda techniques described above.

The 1945 mayoralty campaign has ended. Its lasting importance is not in the fact that Mayor Jeffries was re-elected or Mr. Frankensteen defeated, but rather in the irreparable damage done to public morale in Detroit, and to a lesser extent throughout the nation, by the unashamed exploitation of "hate propaganda." Already some steps have been taken to make similar campaigns less likely in the future. Demands have been made of the prosecutor's office that an investigation be made, and that the parties responsible for the violation of applicable state laws and municipal ordinances be prosecuted. Moreover, the Attorney General of the United States has been requested to conduct an investigation through the F.B.I. or a Grand Jury to determine the identity of those responsible for illegal use of the mails. Although state and federal authorities are always reluctant to intervene in such matters, at the present there appears to be good reason to believe that the Wayne County Prosecutor's office will undertake the prosecution of the most flagrant violations of state and municipal laws in the 1945 campaign.

POST-WAR

DOMESTIC SCENE

MIDDLETOWN REVISITED—MUNCIE AT PEACE

by JOHN BARTLOW MARTIN

AT NOON it was raining hard as the college Dean drove me to downtown Muncie, and the narrow streets were clogged with angry traffic. The Dean said, "They tell me the streets are so narrow because originally this was a great forest of walnut trees, the hardest trees there are, and so the pioneers only cut narrow paths." He laughed, his eyes twinkling. "It's done something to our thinking, too." We parked and he leaped from his car; I followed him as, his raincoat flapping, he skipped across the choked-up intersection to the sheltering columns of the Merchants National Bank, where he left me.

I told the vice-president of the bank, C. C. Wingate, that I was trying to find out what was going on in Muncie at the end of the war. Wingate, a fast-moving friendly man in a gray suit, said Muncie was in good shape. Bank deposits were at an all-time high despite the strikes, unemployment was slight, the war hadn't changed the town much. And yet, as for the mood of the people, "Generally speaking, they are confused. I often hear them say, 'I'll be darned if I know where we're going.' " Were they worried about international affairs? "No, I don't think so. They are concerned about domestic affairs; but international affairs—well, that's a pretty big problem." Yet he thought people were less "isolationist" than before the war. He himself had had leanings that way, but now "it *is* one world, you can't get away from it"; and he seemed very serious and a little regretful.

On Saturday afternoon, after the rain had ceased, farm people and city people not long from the farm sat in cars parked at the curb on Walnut Street and watched the crowds go by. And what were the people, now at peace, talking about? A young veteran in GI khaki pants and a civilian sport coat put one foot on the

From HARPER'S MAGAZINE, *Frederick Allen, Editor*

Copyright, 1946, by John Bartlow Martin.

running-board of a parked car and said to his friends, "Christ, I been trying all over to buy a pair of overhalls." Overhead a cloth banner flapped and billowed gently: "Be Sure You Have Enough To Eat, GROW YOUR OWN." (People in Muncie were doing it: vacant lots all over town were planted to garden, much as in wartime.) In front of Stillman's, The Store for the Thrifty, a tall thin man was telling two shorter ones with briefcases, "I don't object to feedin' the people all over the world, but they take my tax money and—" His voice was lost in those of two blind women, arm in arm, carrying tin cups and singing, "Count your blessings, see what God hath done." Leaning against Woolworth's a fat man in a black hat, his blue coat and vest and black raincoat unbuttoned to reveal a stripe-shirted paunch, was telling his companions, "We need some government. We got no government, we thought we had democracy but we ain't got no government at all, let a man like John L. Lewis run the country."

Across the street Ball Brothers Department Store had few shoppers: "We can't get anything to sell." Besides sport shirts, Richey's men's store had only eight or ten shirts in size 15/34, and about half of these (with a silk stripe) were $5.95. Ah, but Ballard's hardware store displayed shiny pots and pans and skillets (remember how scarce metal used to be?) and Kirk's had fishing tackle, and in half a dozen store windows were displays of brand-new card tables and chairs: "Durham Bridge Sets, Post War Models, A Muncie Product," made now by the company which, a few months ago, was making shells with workers from Kentucky and Tennessee. Are not all these the fruits of peace? And out at the Muncie Gear factory, where the hiss and clatter was as great as during the war, shiny outboard motors and solid stokers were coming out of the shipping room instead of gun carriages and rocket bodies; and only a few women remained at the pounding, clashing machines. Most had gone back to their kitchens; their husbands had returned from the war. Of two hundred and fifty employees, fifty-three were ex-GIs.

Waiting for the traffic light to change, I heard a housewife shopper say, "I told him it cost too much." A man had told me, "They're not throwing their money away like they did during the war. They always used to be conservative here and they're getting back to it. Oh, you'll notice loose money in tipping and high-priced meals. But cars, clothes, things for the house—they're not buying just any old thing." And although the Buick dealer said he had one hundred and seventy orders and only two deliveries,

a man I talked to said, "I used to figure on trading my car in every two years but I've got a '38 and I've found out it'll run almost forever, so I haven't even bothered to get my name on a list for a new one." Pent-up demand—was it slackening? One recalled the "buyers' strike" of 1920.

Gone from the sidewalks were the lady war workers in slacks and jackets bearing big round badges. A teen-age boy wove rapidly through the crowd, wearing a GI field jacket his big brother must have brought home; all over it were sewed corporal's and sergeant's stripes and the bright patches of a half dozen famed combat divisions; and some small boys trailed him, staring enviously. In Meyer's drugstore two ex-GIs sat at the soda fountain sipping chocolate milk shakes, and in a booth a paperboy and his two little friends were counting great stacks of pink lottery tickets for the Shetland pony that the Rivoli was giving away in June. These too were the ways of peace.

And so were these: When an old man by the curb said, "I could drink a beer," his companion replied, "Sure—but where you gonna get one?" So critical was the beer shortage that most taverns did not open till after 4:00 P.M. and did not sell beer till six or eight. In the Flamingo, a fancy new cocktail lounge, the bartender was rummaging for ice for an old-fashioned, mumbling, "Damn if it ain't gettin' to be a problem even getting ice." The juke box was playing "I'm a Big Girl Now," and of eight occupied booths two held girls without escorts. The bartender said, "The girls don't come in so much like they used to, though. Alone, I mean. Their husbands are coming home." Another man said, "They used to travel in packs."

I met my friend for dinner and we had good steaks. "Probably black market," he said. He went on to remark that housing was tough, and I could believe him: when I had arrived at the Hotel Roberts, having wired a week earlier, the clerk had told me I was sixty-sixth on the list. For now in this reconversion spring all the traveling salesmen were hitting the road again. "The rent ceiling's been a life saver," my friend said. "That's the only thing in OPA everybody likes." Owners were selling, not renting, older houses. Anybody vacating an apartment knew half a dozen people who were doubled up.

My friend waved to some people who passed on the sidewalk outside. "All they're talking about's housing and strikes," he said

to me. "Not international affairs, nothing else." People were against the British loan. "You hear them say Europe wouldn't feed us if we were hungry. Which is true." Talk of war with Russia had been common a few months ago, not now. "They just aren't thinking much about foreign affairs. They've got too much else on their minds." He thought the town's "rabid race feeling" had subsided. "Just a natural reaction. Those things move in cycles." Two years ago, following several purported rapes and attempted rapes, a mob went one night to the Negro district and sent a committee through a Negro's home looking for him. For weeks tension mounted as, due to the labor shortage, Negroes were given better jobs than before and whites were imported from Kentucky and Tennessee. The Mayor and civic leaders condemned mob rule; there was a criminal conviction or two. "It all died down by itself."

The waitress brought the check ($5.50). Though it was seven-thirty it was still light. We walked down Walnut Street, and I noticed that the Downtown Bar was not as jammed as when it had been the gathering place of the night shift of war-workers, nor was the floor littered so thickly with tip book tabs. "People just aren't pepped up like they were. They're worrying a little more about the future. The town's down a little."

Nevertheless, upstairs in the Benadum Building, behind a locked door, the CIO clubroom was crowded; and, in our booth, the union leaders and I had to talk loudly over the whirr and clash of the bank of eight slot machines. Ed Crago said the UAW had come through the winter-long strikes in good shape. Warner Gear had gone out not long after V-J Day, followed by Chevrolet and Delco. Crago said, "Feeling was pretty good among the public generally. Naturally they's some reactionaries. But the GM strike didn't hurt us here." I asked him if he thought the CIO could hold the enormous gains it had made in Muncie just prior to and during the war and he said, "I don't see why not. After the last war they jumped organized labor. This time we jumped 'em first." A roaring square-built man in a checkered jacket passed our booth brandishing a bottle, and Crago waved a hand at the milling noisy throng and said, "Now these are all factory people you see here. None of them mad about anything."

Over at the Veterans of Foreign Wars hall, the slot machines were busy, and the young-faced veterans I talked to said they were getting along all right, getting their old jobs back or getting better jobs, going to school, receiving a ready welcome. "Oh,

there's a few aren't getting along. But they're the ones wouldn't get along anyway, veteran or not." Were they talking about strikes? "Oh, sure. You hear both sides. We got lots of good union members in this town." Of the UN? "No. They're just so damn glad to be home."

And what were others in Muncie doing this night of peace in May? In the lobby of the Hotel Roberts you could hear an orchestra playing "I'm a Big Girl Now" and "Prisoner of Love," and leaning on the mezzanine railing were sorority girls from Ball State Teachers College. Presently, with the escorts they had invited to their dance, they came down the wide stairs, and in their long white dresses and long black gloves they looked as fresh and young and lovely as ever did college girls in May; but only a few of the escorts resembled the skinny awkward small-town boys, ill at ease in tuxes, whom you used to see at Indiana college dances. Instead, they were older men, and serious-faced, and some had been wounded—how strange it was to see a burly man in tweeds with a ruptured duck in one lapel and a white rose in the other, and the fragile blue cord of a dance program dangling from his coat pocket!

At ten o'clock my host and hostess for the evening called for me, and we drove through a mist five miles out of town to the Country Club. Most of the members had arrived about nine, after cocktail parties in their homes. Now the first floor barroom, with its bare walls and few tables, was filled with loud voices and the whirr and clash of a bank of eight slot machines which were set along the wall opposite the bar, just like the slots at the VFW and the CIO halls. In the 'twenties the Country Club, unlike most in Indiana, had had no bar, owing to the influence of the Ball family, the glass jar manufacturers; did not this change symbolize their waning influence in Muncie? A manufacturer was saying to me, "If we can ever get these damnable strikes over with we can have prosperity in this country undreamed of." He got change at the bar and went back to get in line for a turn at the fifty-cent slot. These people were not worried tonight; they were here to dance and drink and play the slots. The war was over, and like people everywhere they were glad of it. No longer was it necessary to feel guilty about having fun. The club was enjoying a postwar boom—the membership had increased from four hundred to five hundred fifty during the winter. New gas heaters hung large and ungainly in the corners.

Upstairs the large dance floor was full. The younger people were here, and many were performing the deadpan stiff awkward figures of jitterbugging; one pretty girl looked exactly like a girl with a lot of lipstick and a tight blue dress who had been jitterbugging at the VFW, except that this one at the Country Club was wearing ballet slippers and her dress was shorter, above her knees. The older members were sitting around tables still cluttered with the remnants of dinner; sometimes they danced, though rarely with their own wives. Occasionally some woman—she might be gray haired—would sit in somebody's lap, and there was a good deal of laughter and a few off-color jokes, and some talk about the scarcity of nylons or about plans for a fishing trip.

When, long past midnight, I got back to the Roberts, maids were scrubbing the lobby, and the clerk was asleep in an upholstered chair.

In his office next to that of the Girl Scouts, Fay Paul, the small, youngish Chamber of Commerce Secretary, told me, "Muncie is in a very enviable position from the standpoint of reconversion, production, and employment." During the war Muncie industry had operated at capacity but had built only one new factory, which Warner Gear had now taken over. Moreover, most Muncie firms manufactured virtually the same products for peace as for war—Warner Gear transmissions simply went into jeeps instead of sedans—and so the manufacturers had had practically no reconversion shutdowns. I asked if the strikes hadn't hurt Muncie. "They hurt the strikers," said Paul. "They didn't hurt the businessmen." He compared diversified Muncie, where only thirty or forty per cent of the industrial workers struck, to Anderson, where GM employs perhaps ninety-two per cent of all factory workers and the automobile strike knocked the town flat. Nevertheless, said Paul, "the subject of strikes pops up in about every meeting. Protective legislation is needed. If Congress can put the same responsibilities on labor as on business, we will have a period of prosperity unheard of for seven years."

"And after that?"

He smiled and leaned back. "There might be a decline."

Paul's telephone rang, and the call proved to be about plans which were being made for a million-dollar tri-city airport to serve Muncie, Anderson, and Newcastle. Some individuals and companies already owned private planes, he said, and more than

two hundred others had ordered them. In this respect, too, things were moving ahead prosperously.

Across the street only a few people were standing at the counter in the United States Employment Service; they might be termed the precipitate from the turbulent days two years before, when the USES office was the busiest in town. Today labor demand and supply appeared about in balance. Dawson Price, the USES manager, said there was a slight labor surplus which soon would disappear. The assistant manager, Zale Edwards, said, "If by some magic there should suddenly be a lot of materials, it wouldn't amount to a damn because we haven't got the men in the building trades. We can't fill our orders for carpenters and painters right now." An incomplete USES survey had shown a war peak factory employment of 22,000; the figure dropped to 15,700 just after V-J Day, but by March 15, 1946, it had come back to 18,180 (forgetting strikes). It would go above the war-time peak by July; construction would require a thousand additional workers, and stores, taverns, filling stations would need men. Muncie's employment picture was bright indeed. The smash-up feared by so many people—with hill people on relief in Muncie, with jobless men and women walking the streets and competing with veterans for jobs—simply hadn't happened. Women had gone back home. The hill people had stayed on and found jobs—"They got a taste of this high city living and they're not going back if they can help it."

When I first met Ed Crago two years ago, he was just a Muncie man in shirt sleeves who worked at Chevrolet and had become president of the Delaware County Industrial Council, extremely earnest and burdened with his responsibilities. By this May he had become an elder statesman in the Muncie CIO. He had been a member of Walter Reuther's GM negotiating committee and he had spent more time at the dizzy heights in Detroit and Washington than at Muncie. In preparation for becoming a UAW international representative he had dropped all his Muncie union offices but one, and soon he would quit his factory job. In the CIO clubroom we sat in a booth between the slot machines and the juke box, and every now and then some union member would come up seeking Crago's opinion on something.

Harold Cronin, Crago's successor as president of the CIO Council, came over, and I asked them if the GM strike had been worth while. Crago said, "Yes," and smiled quickly and slightly.

"Providing we can hold that price line." I asked what would happen if all OPA controls were removed. He laughed; it was a foolish question. "So much inflation they'd have to coin a new word for inflation." He said, "That's the only thing that's held a lot of necessities off the market—some of these manufacturers want a price increase. All the merchants know is what the manufacturers tell them to say. You see a demonstrator of something you want and the clerk gives you a long-winded story that that's the only ones they had in stock before the strikes shut down production. They don't know the real truth."

Did this add up to a strike of capital?

"Why sure, that's what I'm saying. The clerk's just the pawn for somebody."

I asked, "For whom?"

"The NAM."

Two years earlier, Crago had spoken of the future of the CIO in Muncie as a local problem. Now, having attended, with Ball Brothers executives, a party celebrating the signing of a closed shop contract with that last large local employer, that long-time holdout against unionization, he talked about the Muncie CIO in terms of national politics (telling Cronin, "You haven't been traveling like I have"); and he said to me, "When you see all your unions fighting, even the brotherhoods, you know damn well it's a struggle." I suggested that during the war, government, labor, and industry had all grown much bigger and that this might result in a fatal squeeze on small business, an unhappy prospect. Cronin said, "What do you mean, sad? Take your little businessman that runs a filling station. Say he pays me $35. But Crago gets $65 at Chevrolet. It costs as much where I live as where Crago lives."

I walked up the concrete sidewalk among the trees of the Ball State College campus and into the office of the new president, Dr. John R. Emens, a vigorous young man. The college was far more topsy-turvy than the town. One professor, unable to find housing in Muncie, had left his wife in the apartment she had occupied in California while he was in the Navy. The wife of a young Ph.D. in education was still in Michigan. And a terrific crush was expected next fall. Who knew how many teachers to hire, how much housing to hunt? Co-eds still were quartered in the Ball Residence Hall for men. "If the Army would release its housing instead of hanging onto it, it would help. Down at Camp

Atterbury, hospitals and barracks are sitting empty." More than a third of the students are veterans. "Something is bound to happen to social studies when these men bring back experiences from all over the world."

I was told that without a single exception, students who had attended this college before the war, and had returned, were now making better grades as veterans. The grades of all ex-GI's were as good as the college-wide average. Forty per cent of the veterans were married, and plans were being laid to quarter family men in trailers and barracks. Only a few ex-soldiers were goldbricking; they dropped out quickly. A factory personnel man had told me that an increasing number of veterans in college were applying for part-time jobs, because the cost of living was outrunning their government allowances. The oldest ex-GI was thirty-seven, the average twenty-three years, nine months. Didn't all this make college pretty grim? "The faculty says it is a serious business, not grim."

One show window of Penzel's bookstore was devoted to books on housing—full of pictures of intriguing "ranch houses"—but none told the reader how to transfer one of them from paper to a lot in Muncie, and C. L. Bartel, the realtor and builder, was sitting in his office and saying, "Is housing in bad shape in Muncie? Terrible! Why? Crackpots! If they'd get the crackpots outa Washington, and I mean the New Deal crackpots that went in sixteen years ago, why maybe—" and he went on to detail his troubles. Like this: "There's plenty of plywood. But the FHA won't let us use it. 'Cause they wanta give it all to the prefabricators with the four hundred million dollars Mister Wilson Wyatt is giving them to guarantee them a market." Or this: "Rock lath isn't available because the government won't allow an up in price to the manufacturer. If the damned OPA . . ." Or this: "They ask why don't we build for rentals, and good God!"—he gripped the edge of his desk and the skin on his bald head wrinkled—"we're paying fifty per cent more for materials on a 1942 rent ceiling—that's why!"

He was a small man in a good-sized office. I asked him what was to be done. "I think we ought to use some common sense. Lift a lot of ceilings. Don't pit one group against another. That's un-American."

"What groups?"

"Like the prefabricators and the conventional builders."

He said there was a lot of loose talk about housing. The public housing officials were exaggerating the need. "We used to build one hundred and fifty houses a year and that was plenty. What's really causing the shortage now is too much money—everybody's got money and they wanta live by theirself. That's fine—if they can pay for it. How long can they?" Already he had noticed a leveling off in the price of old houses. "We got these old houses so high with that government money, that GI Bill of Rights—these kids are buying without any cash. Well, we got two hundred under construction now—hell, anybody can dig a basement—and when we reach five hundred, these GI boys are going to walk out and buy a new house and tell the government to take their old house, and then what? And this'll happen by December of 1947."

A man from a financial institution told me his organization was turning down half of its GI applicants for building loans: "And they'll appreciate it in the long run, though it makes them sore today."

Before the gas boom fifty years ago, Muncie was nothing but a farm town, and it still is a farm marketing center. Many of its factory workers and managers spent their boyhoods on the farm. And how were things on the farms in this first postwar spring? Walker Baker, County Supervisor for the Farm Security Administration, and I took a blacktop road that wound over the rich rolling land, wet and green with new wheat or plowed for corn planting. The farmhouses were better kept than most city houses, fresh-painted, surrounded by cropped green lawns, with white barns and white chickens bright against the green grass, the gray sky. Baker said, "Crops and prices have both been pretty good through the war." Pretty good indeed: the farmers had paid off more mortgages and banked more cash than ever before. Nearly all the FSA borrowers were way ahead of schedule in their payments; two men had recently paid off forty-year loans in five years.

The banker Wingate had recalled to me what happened twenty-five years ago. "Farmers with an eighty went out and paid $250-$300 an acre, and bought another hundred and sixty—and then the bottom came out and they lost it all. But this time land hasn't gone as high and the farmers have paid cash for it." Baker, however, was afraid some farmers had overextended them-

selves. "City people have been buying land, too. Speculating, some of them. And some may be looking for something they can be sure of if trouble comes."

Northwest out of town, we found a man in blue denims on a new gray tractor pulling a road grader over his lane; he led us past his modern gray shingled house and on around to the broad graveled turn-around in front of the expensive barn. He stopped his tractor and came back and shook hands. He was Ernest Freeman, president of the County Farm Bureau, a leading farmer, a spare man, probably fifty, with steel-rimmed glasses, a gray stubble beard, quick eyes, a seamed face. Leaning against our car, he said the county Farm Bureau's co-operative had done over $800,000 worth of business last year, double a prewar year. It had started selling gasoline and oil. In the past three years it had added two grain elevators and had sold fertilizer and insurance and farm machinery, and now it planned to build a large soybean processing plant. For three years it had paid a seven per cent patronage dividends, the last two in stocks; the cash profits were used to finance the expansion program.

Freeman brought up one of the sharpest struggles developing in the Midwest today: the attempt to force co-ops to pay a federal corporate income tax. "Big business, the grain dealers and bankers and big packers' associations and the Board of Trades have pooled a lot of money to break the co-operative effort. One way they can do it is to spread dissension among the people. The farmers have got to understand that in union there is strength." He smiled quickly. "By union I mean stick together—I don't like that word union as we understand it today. I heard Walter Reuther two years ago up in Milwaukee and I come home and told the folks that's the most radical man in America today. And he's proven himself so." Yet when I pinned Freeman down he defended price control, as does Reuther—"I'll never forget the day I sold three truckloads of hogs and went up and paid one installment on my taxes and I had just $19.08 left." (Can we not see here a curious reversal of traditional position? The farmers, traditional cheap money men, had joined with labor in favor of price control, while city bankers and manufacturers and businessmen, traditional hard money men, wanted controls removed? And another trend contrary to one following the 1914–18 war: real estate inflation had occurred more in the city than in the country.)

To my third-floor room in the Roberts after lunch, voices floated up from the Kiwanis meeting singing, ". . . and let the rest of the world go by." I had asked nearly everyone if he thought Muncie was less "isolationist" than before the war. Nearly all had answered yes. There can be no question that the world had pressed in upon Muncie. The editorials in the *Star,* which changed hands last year, were devoted more to world affairs and the need for international co-operation than to local subjects. But an astute man who gets around said, "I must talk to a lot of dumb people but I hear a damn sight more talk about the lack of butter, of cars, of white shirts, than about the United Nations." And nobody I talked to brought up international affairs voluntarily.

Asking directly about isolationism was like asking about sin—people were against it. It hadn't worked. The Japanese had discredited isolationism. Something else must be tried. What? Well, there was the United Nations. But what kind of a UN? A white-collar man said, "It is definitely needed. But I don't mean we should surrender our sovereign rights." A banker said, of people's opinion of the atomic bomb, "They think it's all right for us to have it but they don't want the other fella to have it." When I asked if people were talking about international affairs, his reply was, "England comes in for her share of criticism on the loan." The FSA man said, "I don't really think farmers are too sympathetic with European affairs. Never have been. The war didn't change them. They're interested in their home community and inclined to blame their troubles on something far off like European affairs. That goes for city folks too."

As for the atomic bomb, it simply was not being talked about. A factory executive said, "Nobody is taking it too serious, I don't think, not in this locality." And when I asked the head of the Farm Bureau about the bomb he said, "That's a big mystery," and laughed. A man in government said, "When it first come out it just nearly scared the devil out of us. You know, the idea of a tremendous force, you can't see, you just don't know what's coming, there was a definite amount of fear then." I asked, "But not now?" "No. It's a good deal like going to a motion picture show, a scary scene, after they get away from it awhile, people don't like to dwell on those things too far."

The college dean said the war hadn't changed Muncie's fundamental viewpoint. "The axis of the earth still sticks right straight up through Muncie. It's safe here. Somebody might drop an atomic bomb on New York, but not here. To me, the bomb ended

an era. I'll mention it at a faculty meeting—I am a frightened man, you see," he inserted, smiling—"and they'll say 'Looks pretty bad, doesn't it? What are you doing Saturday night?' " A banker who had been approached by a committee to combat isolationism said he was too busy, there were more important things. "Besides, I've just given up movements." And a white-collar worker said, "There are so many things in the background you don't know who to believe. Every newscaster that comes on says the UNO did this, it did that, till it don't mean a damn thing and you shut it off. I get a bellyful. That may not be the right thing to do but I don't know what to do about it."

That mood of bewilderment—is it not dominant? And in all conscience, was May, 1946, with all its enormous domestic pressures, not an unfair time to test the international views of citizens? What mortal man in Muncie—balked each morning in every effort to buy a car or a home or a pair of stockings for his wife, confronted at lunch (after battling long lines of hungry office workers) by headlines announcing new strikes, new "emergencies," frustrated through each afternoon by restrictions and forms and shortages that hobbled his endeavors, smitten each evening by the radio Cassandras' predictions of chaos—what mortal man of Muncie could be expected to worry over Europe's famine, the veto power, or Trieste?

But people were complaining far less than might reasonably be expected. Numbed and frustrated through five or six years, they had grown accustomed to frustration. Their appetites, which economists call "demand," were in a measure becoming atrophied. And, having witnessed (albeit mainly from a distance) so much suffering, their sympathy was atrophied. "I been so damn busy trying to run that office, I just wouldn't know what people are talking about. I haven't heard any really deep conversation in some time. People aren't really worried, they're just drifting, expecting this thing to straighten itself out. I have definitely not seen any lack of confidence. They think if we get the strikes over with we're good for five years."

"Five years"—was this then confidence? Most people seemed to expect an economic smash-up in seven years or less. When I asked the Farm Bureau head about this, he said, "I hope not," and laughed, the same nervous little laugh with which he had commented on the atomic bomb. It was curious how many laughed when I mentioned depression and the bomb. Were these what they most feared?

The kindest thing anyone said about Harry Truman was that he was doing his best. The Farm Bureau man said, "He never wanted to be President and he'll never make a President. He's a victim of circumstances—pret' near all of us are." And another man said, "He reminds me of a story, the fella says, 'I had an uncle played piano in a whorehouse two years before he found out what was goin' on upstairs.' " (All this was a week before Truman acted in the railroad strike.)

The continuing effect of the war was apparent in little things—whisky kept under the counter for old customers, cabs scarce, shopkeepers still indifferent to customers, people moving around restlessly, driving faster, quitting jobs irresponsibly. Last year more divorce suits were filed than marriage licenses applied for. Even when the dining room in the Roberts was not crowded waitresses seemed harried, out of habit. Beside the cash register hung a starred flag, and the menu still was overloaded with fish and liver and eggs. Room service still was suspended, the check-out hour was 2:00 P.M., and a sign in the room began, "During these trying times, you can help us conserve Labor and Linens . . ."

And it went deeper than that. People were touchy, afraid to be quoted on "controversial" questions like race or labor relations. Workingmen were chafing at working conditions frozen during the war. Hatred of strikes, of irresponsible absenteeism, and of war-spoiled, half-hearted workmen had become almost as fashionable as Roosevelt-hating once had been.

But the ways of peace were sweet. Two men at breakfast were talking about the first postwar five-hundred-mile auto race at Indianapolis. Steck's window was full of sport shirts and panama hats, and the Banner Whitehill windows were full of wrought-iron lawn furniture and gleaming white electric refrigerators and stoves. Ladies of the Friendship Club came out of the Roberts lobby calling gaily and shrilly to one another, no longer oppressed by dread of that final War Department telegram.

On the train I was the only customer in the diner. The waiter was glad to be rid of crowds, glad the rail strike had been postponed till Thursday, when he'd be at home in Chicago. "I could use a rest," he said. "I've worked hard the last few years." The train slid past a weather-beaten sign nailed to a farmer's tree along the right-of-way: "May God Bless Our Soldier Boys and Our R.R. Men."

PROFILE

PORTRAIT OF A DANGEROUS MAN

by MILTON MAYER

MOODY finished his sermon—the Colossal Campaign to Reduce the Population of Hell by One Million Souls was under way—and Sankey stepped forward to render "The Ninety and Nine." It was the 1876 Revival, Boston's Biggest Ever. The Giant Mixed Choir had pressed into service for the occasion some very small, mixed giants, and as Sankey mourned for the sheep that was lost, and the audience wept, one of the smallest of the mixed giants in the choir tugged at his mother's sleeve and whispered, "What are they crying for?" His father, on the other side of him, merely said, "Hush," but his mother, unable to resist the evanescent opportunity, bent down and looked hard at him. "They are weeping," she said, for *you,* Bobbo."

Seventy years have passed, and they are weeping for Bobbo Lovett still. More in sorrow than in anger, the U. S. Congress cut off his salary as government secretary of the Virgin Islands. A decade earlier, and no less mournfully, a committee of the Illinois Senate demanded his dismissal from the faculty of the University of Chicago. Streaming with evangelical tears, the Bureau of Naval Intelligence found him, still earlier, "the primary factor which loyal Americans must contend with"; the Chicago *Tribune* called him "a pacifist, bolshevik, communist, and pale pink radical"; the chief investigator for the Dies Committee held him responsible for more Communist "fronts" than any other man in America. And the FBI groaned in apostolic agony as it disclosed that Bobbo belonged to 400 organizations, all of them (with the possible exception of the Red Cross) engaged in overturning the republic.

Others, however, have insisted that, far from not being found, he is one of the few sheep that have never been lost. The first to take this hopeful view was President Eliot of Harvard, who wrote

From HARPER'S MAGAZINE, *Frederick Allen, Editor*

Copyright, 1946, by Milton Mayer.

of him in 1893, "Lovett is a man by whose character and later achievements Harvard is willing to be judged." Exactly half a century later the *New York Times* could not think of "any act in his life inconsistent with the purest patriotism," Harold Ickes called him "an American who has never had any thought except to help other people and to serve his country," and the municipal councils of the Virgin Islands, in joint assembly, proclaimed him "an American gentleman, a patriotic citizen, a humane administrator, and a symbol of the American flag for which our sons are fighting."

On balance, it would seem that the Boston Revival, the FBI, and the Dies Committee were right. Certainly the evidence is abundant that the *New York Times,* President Eliot, and the Virgin Islands are wrong. Robert Morss Lovett, no less innocent-fronted at seventy-five than he was at five, has a lifelong record of vicious associations, some of which are even yet to come to light. (The FBI, for all its unremitting diligence, never discovered, for instance, that *the only decoration he ever received* was that of the German Red Cross.) He has a record as a jailbird; he has been photographed with Negroes who resisted eviction even though they had not paid their rent; and he has been brought to justice with a thief on either side of him. He has gone bail for at least one Nazi and no end of Communists; he encouraged young men, as long ago as the '20's, to take the "slacker oath"; and as recently as a few years ago, he used his powers as acting governor of the Virgin Islands to stay the execution of a condemned murderer, asserting, with the same disingenuity that he displayed in the choir, that his act was motivated not by the fact that hanging was unthinkable to him as a member of the Committee against Capital Punishment, but that the execution was set, as chance had it, for Bunker Hill Day, *and to hang a man on Bunker Hill Day was unthinkable to a member of the Sons of the American Revolution.*

In spite of his offenses against public safety and public decency, this admitted enemy of certain American traditions remains at large; and not only at large, but at large in a post of public honor and influence. He is now finishing his second year as professor of English, and his first as acting chairman of the English Department at the University of Puerto Rico, a public institution supported entirely by the government tax on rum drunk by the American public.

It may be recklessly supposed that a man of seventy-five is not much of a menace, either public or private. (Informing his friends last year of the birth of his first great-grandchild, Lovett announced, with a touch of arrogance, "Now I'm an ancestor.") But his show of genteel senility has been a deceit for years. As long ago as 1933, a policeman testifying against him as a rioter told the court, "And when I went to put him in the wagon, the old gentleman there, he held the door for me." The extent to which his air of ancientness "otherwise influenced the native mind" (a charge made by the U. S. Congress) was disclosed when Special Agent Willis of the FBI reported that none of the natives he interviewed in the Virgin Islands knew that they had been subverted and that all of them, on the contrary, declared that Lovett was "a wonderful old man," "a kind-hearted old man," "a kind and gentlemanly old man," and "a fine old man and a loyal American citizen."

The impression of solid old age is effected by a more than solid portliness; by a Humpty-Dumpty head reminiscent of W. R. Hearst's; by a double-breasted sack coat, a little too short and a little too tight, worn until Mrs. Lovett throws it away in the night; by the indiscriminate courtliness which amazed the Chicago policeman; by an invariable façade of solemnity which has earned him the sobriquet, among others, of the Buster Keaton of the saints; by a high, wrinkled, and wispy (where it isn't barren) gray dome; and by a long, cleft upper lip, which, whether he is annoyed, amused, or embarrassed, moves up and down like a rabbit's, to the accompaniment of the blinking of an owl and the pouting of a pigeon.

His deafness is acute in the presence of public lectures, musicales, and Latin American tyrants; but he seems to hear the whispers of beggars and trouble-makers. Sleepiness invariably overtakes him at formal functions, but never when he's paddling around in the Caribbean or trotting through the hills around San Juan. He has the greatest difficulty in placing certain statesmen whom he has often met, and in fine company finds that he cannot remember a single stanza of "Abdul Abulbul Ameer," whose fifty-six stanzas he sang in a low crowd the evening before.

He has been called a fanatic with a sense of humor, a chuckling martyr, a crusader without a compulsion. But there is no sign whatever that he knows how much evil—some would say good—he has done; or that he has ever known what he was doing when he did it. A Hearst reporter, who was assigned to "smear" him,

wrote in the diary that all Hearst reporters keep: "One of the flash pictures I will carry in my mind until I die is that of Professor Lovett as the big policeman hurried him from the filthy, hot cell. . . . He was neither ashamed, nor was he proud. He was just there. . . . He looked at me as if I were another human being, at the slumping colored boy on the bench as if he were another human being, at the policeman who stepped up beside him as another human being—all just alike before him, and, consequently, all made conscious of their being human. He thought he was no better than anybody else, just as he thought that nobody was better than he."

This misspent life began on Christmas Day—itself a deceptive auspice—in Boston in the year 1870. Unlike so many troublesome persons, Robert Morss Lovett never knew either the want or superfluity of either ancestors or bread. His father was an insurance man, and his mother had been a teacher. "My childhood," he says, "was not unhappy, but uncomfortable. My parents took an unwholesome interest in my life." What they did was try to inoculate him with the Christian, the bourgeois, and the manly virtues. It was simply no go.

Prayer was a thrice-daily performance in the gaslit Lovett home, and Bobbo had to memorize a chapter of the Bible every morning. "I took it right after my cod-liver oil." His mother tried unremittingly to convert him, but all signs of grace were lacking. His grandfather was a member of the Congregation, in distinction from the Church; he had made no public profession of faith. "I admired Grandpa, and I couldn't believe he wasn't saved." He finally believed himself converted, however, by the hymn beginning, "I love Thee, my Saviour, for Thou first lovedst me." The spirit of *quid pro quo* appealed to him, but when his mother gave him a dollar for remembering the Commandments and his aunt gave him ten dollars for remembering not to pick his nose, the spirit failed him. The private prayer he best remembers is "Dear God, please cut out the begats."

If he resisted the Christian virtues, he positively crusaded against the bourgeois. Sent to dancing school, riding school, and the Boston Conservatory of Music, he came home hating them all. In school he was put in the non-singers' group. Years later, at a party, he was pressed to sing "Abdul," and when he agreed to, as he always did, the hostess asked Rudolph Reuter to accompany him. The great pianist tried, but Lovett shifted key too fast.

At the conclusion, Lovett turned to Reuter and said miserably, "I was a non-singer in school." "Did you say 'non-singer'?" Reuter replied. "I would have said 'anti-singer.' "

"As a child," he says, "I was pleasantly contentious." But his contentiousness did not extend to the field of the heroic pursuits. He couldn't fly a kite or flop a sled. True, he was captain and pitcher of the team he organized; true, also, he owned the bat and ball. The day of the big game, the team advanced him to the rank of umpire. The fact that he had to spend three years trying to manipulate a gun in the rear rank of the worst company at English High School may have lost the country a general comparable, in other respects, to Robert E. Lee.

But there were other kinds of war for pleasantly contentious young men, and one of them was going on at Harvard. The Harvard of 1888 was torn between the Old Guard, representing the traditionally smug, narrow, and remote "education of a gentleman," and President Charles W. Eliot, the man who, probably more than any other, accounts for Robert Lovett. Eliot's steady, self-assured struggle to overturn Harvard appealed to a natural-born lost sheep. The courses, characterized by the treadmill routine that Eliot was fighting, were pipes. Maintaining a *summa cum laude* average was easy for Lovett, and he had time for other things, especially the newly established *Harvard Monthly*. Norman Hapgood liked his stories and asked him to write for it. He became an editor and met Hutchins Hapgood, George Baker, George Santayana, and the two contemporaries who became his closest friends, Robert Herrick and William Vaughn Moody.

There were men on the faculty then like Everett, Toy, and Kittredge; but, by and large, the teachers and the teaching were, to Lovett, fantastically unreal. He recalls that in Child's famous Shakespeare course, "a whole year passed without any mention of the fact that Shakespeare had a personal history and wrote for the Elizabethan stage." By the time he left Harvard, Lovett's central intellectual conviction—that literature is life and life literature—possessed him. Half a century later he formalized his *raison d'oeuvre* in the Hopwood Lectures at the University of Michigan: "The material of literature is derived from humanity and human experience. It returns, revitalized and reinterpreted, to be received again by human beings and to become once more a part of their experience. In this process the artist is mediator and agent. Surely neither artist nor art can profit by being

divorced from the great community which is for both, and in a double sense, the source of life."

In his *Monthly* editorials he crusaded against "Harvard indifference," in all its most honored forms—anti-feminism, empty orthodoxy in religion, and the habit of describing the great community, when it was described at all, as "teeming." A further hint of the dangerous man to come is to be found in the Class Poem of '92, which proclaimed that "the upward struggle is itself salvation, And only faithlessness is real disgrace." The poem ended, "Fair Harvard, we who are about to live salute thee." Its author, back from a summer in Europe with Norman Hapgood, was saved from choosing between divinity and law by an assistantship in English at Fair Harvard.

He who was about to live was in agony when, the following year, Herrick asked him to come along as an instructor at the new University of Chicago. He wanted to love Harvard as Newman loved Oxford; to live there, and, if not in God's own time, then in Harvard's, to die there. At twenty-two, he was much readier to contemplate death than life, antiquity than modernity, completion than adventure. The upward struggle, to which he had borne testimony at twenty-one, and of which the Dies Committee found him guilty at seventy-one, did not appeal to him. He insists he has always loved "decay and the end of everything." His favorite line is "The sooner 'tis over, the sooner to sleep."

The Chicago of 1893 was no place to sleep. President Harper took the occasion of the October convocation to assure the faculty of the University that the payroll would be met. Chicago was tough, and the little coterie of tough men who ran it were, in the panic, tougher still. The collapse of Pullman paternalism in the great railroad strike reduced Chicago to the anarchy that its millionaires thought they had hanged after the Haymarket. Into this hungry, bloody, muddy, and bitter Chicago came the young man who wanted to love Harvard as Newman loved Oxford; into this, and more.

William Rainey Harper, for all his great scholarship, was a man after Chicago's own heart. Storming that he couldn't run a university and be hampered by a budget, he bulldozed Rockefeller out of infinite millions. The chubby little "steam engine in pants" never stopped for or at anything. Rockefeller gifts were celebrated like football victories, and football victories like the Second Coming. The great history professor Von Holst delivered

an oration in defense of the Oil King; the faculty accepted a champagne dinner (along with an observatory) from the traction boodler Yerkes.

Only in innovation did the bustling, back-slapping Harper resemble the patrician Eliot. He introduced the quarter system, the junior college, the summer quarter, university extension work, and the university press. And he peopled his new university not only with mighty names like Michelson, Whitman, Nef, Loeb, Shorey, Chamberlin, Salisbury, and Small, but also with comers like Ferdinand Schevill in European history. From Harvard, along with Herrick, the young novelist, and Lovett, the young critic, there arrived in the English Department Moody, the young poet, and John Matthews Manly, the young Chaucerian.

The bachelor life, with Moody and Schevill, was legal, if not always exemplary. An occasional grape was pressed; a semi-occasional rose was flung; a continual story was told. There are rumors still—but let the FBI track them down for itself. In the summer of '95 Lovett and Ida Mott-Smith of Radcliffe, who had helped him break down the Harvard indifference, were married. Bimbles, Doodoo, and Beebee (Robert Jr., Ruth, and Beatrice, on their birth certificates) were born, the two latter in Europe, where Lovett, on long sabbaticals *en famille,* sampled vast quantities of books, cathedrals, and Burgundies; discovered he wasn't a novelist; led his young son over Tyrolean passes where angels trod; and was converted to lifelong *avant gardisme* by men like Berenson, Russell, Dolmetsch.

Realism was becoming a word in France, in Italy, and in realistic Chicago, and Lovett spent much of his time and still more of his heart with the local renaissance, personified variously by Fuller, Garland, Herrick, Dreiser, Moody, and later by Anderson, Masters, Sandburg, Dell, and Hecht. It was they who broke the new ground; but it was Lovett, pushing all of them on, who was surer than any of them that new ground must be broken. Still more of his time, and most of his heart, went into his students. Frank Norris was one at Harvard; and then, in the early Chicago days, came Maude Radford Warren, Anna Louise Strong, Samuel Harper, Howard Mumford Jones, Vardis Fisher, Helen Hull, Dorothy Scarborough, Ruth Cross, Carl Van Vechten, Harry Hansen, Burton Rascoe. Later there were Glenway Wescott, Elizabeth Maddox Roberts, Nathaniel Peffer, Vincent Sheean, and John Gunther; and later still, George Dillon, Sterling North, Albert Halper, and Meyer Levin. A crazy wild Irish

kid who always talked big and did nothing came in one day with a short story. Lovett read it, pouting and blinking, and said, "We can stretch this into a novel." The story was *Studs Lonigan.*

Hundreds more who call themselves "Lovett men" came under his spell in the University Poetry Club, which he organized; or the University Dramatic Club, which he urged to the first American productions of Yeats, Synge, and Gregory; or in *Poetry,* the first magazine of its kind in America, which he helped Harriet Monroe establish. His $50 annual prize was a spur to kids who had wondered if anybody cared about new poetry; but the goad was the Lovett Sunday evenings, the Lovett classes, and the Lovett office, where anybody who wondered if anybody cared about anything new at all found Lovett caring. "Let's try it; let's see it; let's go ahead with it; let's send it around," was what he said.

He had grown middle-aged very gracefully, and not at all dangerously. But wasn't he, contrary to his own doctrine, somehow "divorced from the great community"? What had he meant by the upward struggle in the poem he wrote at Harvard? Was it to be found within the newly ivied walls of a university or between the boards of a book? There had been fleeting glimpses of the struggle—he remembered being shocked, for instance, when he learned that Spain had yielded to the American demands the day before America attacked—but he had grown middle-aged much too gracefully for a dangerous man.

The mentor of so many pacifists, the idol of so many more, and the defender of them all has never been a pacifist. Like Wilson, he opposed America's entrance into the war; and for Wilson's reasons. He lent his name to every peace group; who, in '14, '15, and '16, didn't? But as '17 came on, the peacemakers melted away. It was April, and then war. The peace people held meetings to demand a statement of war aims. On the last Sunday in May came the big meeting in Chicago's Auditorium. There was a committee including Lovett. The committee, like the peacemakers before them, melted away. The speakers couldn't come. At the last minute Lovett stood on the platform alone. He began: "This meeting has been called for the sole and explicit object of representing to the Administration the general desire that as soon as possible the war aims of the United States be set forth, together with the terms of the peace which represent their fulfillment. This meeting is not held to pass any criticism on the course of our country in entering the war."

Outside the packed hall were hundreds of people who couldn't get in; and police. The papers had warned the community that the pro-Germans were going to meet to obstruct the war effort. Outside the hall somebody pushed somebody else, and the police went into action. The next morning the papers reported an anti-war riot. The following day the streets around the University were covered with leaflets calling upon patriots to lynch Lovett in effigy in front of his apartment that night. The professor was scheduled to give a doctoral examination and was torn between the two attractions, when his friend Bill Chenery (later, editor of *Collier's*) called him and protested that without the victim's presence the lynching would be a dud. He went and watched, unnoticed. There were clergymen in the mob, and professors; there were not many students.

It was the virginal morale of a country's first man-sized war, and the tub-thumpers included a large section of the University faculty, marching fatly with wooden guns and proving that they were men and not just professors. A secret meeting was called in the faculty to demand Lovett's dismissal. It began and ended when Henry Gordon Gale, eminent All-American, eminent physicist, and, in 1917, the most eminent tub-thumper of them all, got to his feet, looked silly, and finally managed to say it: "If Lovett goes, I go too."

The lynching was the trauma of Lovett's life. It taught him the meaning of Samuel Butler's statement that of three misfortunes—loss of money, loss of health, loss of reputation—the last is by far the least. Now he knew where the upward struggle was. Now he was free to fight it.

With almost every male member of the English Department scurrying to Washington to fight the war, Lovett, when he was asked what he was doing to help, replied, with his usual deadpan, "I am carrying on with the ladies." But more and more, as patriotism turned to persecution, and persecution spread to village and farm, he found himself in the great community testifying for "draft dodgers," i.e., pacifists, and for "Bolsheviks," i.e., socialists. He defended the American rights of people with German names. He crusaded against a prison terror which sent murdered pacifists back home in Army uniforms. He fought for Scott Nearing, for the leaders of the Non-Partisan League, for Max Eastman, and the editors of the *Masses*. His historic defense of the I.W.W.'s before Judge Landis may have contributed to their

conviction by a jury of professing Christians. Lovett suggested—and counsel proclaimed—that "there is a ritual of violence and a ritual of Christianity, to which the subscribers, in both cases, pay lip service without in the least intending to put them into practice."

On May 7, 1918, the telegram came. The night before, Lt. Bimbles, who had volunteered from Harvard, took a patrol in Belleau Wood. It was a brasshat's bonehead mistake; the patrol walked into the enemy and was wiped out. Lovett was away a few days in Boston, where his brother Sidney walked into the parental home to find him weeping with his father. It is the only display of emotion larger than a frown or a chuckle ever reported of the man. He returned to Chicago, taught his classes, went on with the upward struggle.

The shooting ended and the war began. He attacked Versailles, America's abandonment of the League, the British massacres in China, and the French invasion of the Ruhr. He became president of the Friends of Freedom for India, a member of Oswald Garrison Villard's committee to go to Ireland to investigate the Black-and-Tan outrages, and a lobbyist against American intervention in Mexico and the Caribbean. He joined the Anti-Imperialist League and the Committee to Aid China during the hopeful days of the Christian General.

His long career as a thoroughly conscious fellow-traveler of the Communists began with the Russian Revolution. Even pacifists like Jane Addams saw the bloody rise of Russia as a dent in the iron curtain that fell all over the world right after the war. His hopes for liberal nationalistic capitalism sinking, Lovett followed the counter-revolutionary activities of the Allied governments—including his own—everywhere in the world. As chairman of the Committee for the Relief of Russian Women and Children, he was softly informed by President Livingston Farrand of the American Red Cross that "we are unable to work with the Bolsheviki, but we're right behind Wrangel's troops."

Undaunted, his committee, which included Presidents Eliot and Nielson, organized a ten-dollar-a-plate dinner at the Waldorf. They made the mistake of printing the menu: black bread and thin soup, the standard evening meal of a Russian child. The shimmering guests had bought all the tickets, but when they saw the menu they drifted into the Waldorf dining room and failed to return for the speeches. Normalcy had come to America, and

Lovett discovered how few of his countrymen were morally willing, or psychologically able, to have any truck with the upward struggle.

The few, then, had to do it all. Lovett the imaginative writer had already passed with the failure, decades before, of his novels *Richard Gresham* and *Winged Victory*. Lovett the scholar passed with the Auditorium speech in 1917; none of his half-dozen subsequent textbooks came up to the prewar *History of English Literature,* written with William Vaughn Moody and known still to hundreds of thousands of children as "Moody and Lovett." Lovett the critic passed when he ended his year's editorship of *The Dial* in 1919, where he launched Malcolm Cowley and Lewis Mumford as reviewers. Back in Chicago, Lovett the dangerous man was forced to be born.

In the postwar trample toward normalcy, his name was on every defense committee, usually in the flattering, if thankless, role of treasurer. The Lovetts, if not the law, would have to preserve the principle that ten guilty men should escape rather than one innocent man be punished. A German writer, imprisoned as an enemy alien at Fort Oglethorpe, wrote Lovett for help, proclaiming himself a pacifist and describing the torture to which he had been subjected. Lovett got Norman Hapgood to intercede with Attorney General Palmer. The German wanted to meet his benefactor, and Lovett invited him to the Harvard Club in New York, where Hapgood recognized him as a notorious pro-German agitator. The man hopped the next boat to Germany, where, says Lovett, "he at once became an ornament of the Nazi school of literature."

The "Red raids" took their toll in the higher learning as everywhere else. When a German-born student named Louis Wirth—now a distinguished sociologist at Chicago—criticized the Versailles Treaty at the Student International Club, the sacrilege was at once reported to President Judson. Judson called a faculty meeting to consider withholding Wirth's college degree. Lovett made the only speech. He wanted it understood, he said, that he had no objection to withholding Wirth's degree, providing that President Judson would thereafter include approval of the Treaty of Versailles in the entrance requirements of the University. It was the end of the witch-hunt at Chicago, with a single victim: Lovett. His resignation was requested as dean of the junior col-

lege. Judson was reported to have said that Lovett was a dangerous man: "he knows anarchists, socialists, and lesbians." Lovett resigned as dean, refusing to defend himself, and his three assistant deans resigned the following day.

As an active editor of the *New Republic,* where, for a decade beginning in 1921, he spent six months a year, he found himself caught in the wheels within wheels (or pinwheels within pinwheels) of the third-party movement. The "Committee of 48," with Amos Pinchot, Dudley Field Malone, Lovett, and their likes as the leaders, held a "nominating convention" in Chicago for the 1920 campaign. The labor groups, also convening, refused to unite on a reform platform, and the platform as adopted was repugnant to the reformers' candidate, Senator La Follette. Amid the chaos, "new parties were being born throughout the Morrison Hotel. In the lobby, we started and plunged as the word was whispered, 'Judge So-and-So of Nebraska has a new party in Room 445.' " But four years later the mugwumps polled a staggering five million votes for La Follette and Wheeler. La Follette gave Lovett the foreign policy plank to write and asked him to take the presidency of the University of Wisconsin. "A Christian like you wouldn't last a week," Professor John R. Commons informed him from Madison, and Lovett declined to be a candidate. The post went to Glenn Frank.

His *New Republic* career began with book reviewing. He brought in young Edmund Wilson to help him and went out to look at "the great community." Called to Washington to testify before the President's War Policies Committee, he announced his conviction that "the way to take the profits out of war is to take them out of peace." He went to Boston to cover the Sacco-Vanzetti case and wound up chairman of the Sacco-Vanzetti League. (The "worst dereliction" of his life, he says, was his failure to raise the $50,000 which a member of the gang that actually did the killing was willing to take for the actual story.) He went to Cleveland to speak on disarmament and discovered himself conducting the struggle against Newton Baker and the New York Central-Van Sweringen Terminal deal. He was one of the founders, with Roger Baldwin, of the American Civil Liberties Union, and from then on, wherever there was trouble, he turned up in person or pen: Centralia, Bisbee, Tulsa, Harlan, Herrin, Brooklyn, Passaic, New Bedford. Whenever and wherever nobody else would write or speak or sign, there was Lovett. Somebody had to.

Van Wyck Brooks complained that "Lovett writes better than any of us"—a lover's exaggeration, perhaps, like everything ever said of him by his friends—"and spends his time doing everything but writing." But Lovett had long since decided that his time wasn't worth anything. The end product of man's life was man, not words. If a man had words, he should use them for man. His articles are more pedantically written than Brooks suggests; easy and long, until their implications are irresistible inferences; and without rancor. He is devoted to Ruskin, and with reason.

If capitalist man is, as Maritain says, man in a hurry, Lovett was a Communist indeed. His colleagues at the University knew that if they got sick Lovett would take their classes. Either as an official witness for the Civil Liberties Union, or simply because he had read about the case in the paper, he sat for days on end in neighborhood police courts. Discovered thus sitting one day by one of his friends, Lovett explained, "I am fixing the court with my eye in an effort to intimidate it into a carriage of justice."

Jane Addams was "the only person I have known whom I would follow into social conflict blindfolded," and she needed help at Hull House. Lovett moved in with his family in 1921. Along with the rest of the residents, he took his turn tending the door and the switchboard two nights a week. He conducted classes for immigrants. But his greatness at Hull House, as everywhere, lay, as Jane Addams put it, in his being there. People came to him heavy-laden.

One who came to him needs to be remembered; a Russian refugee, who had written an autobiography exposing Soviet corruption. Lovett thought the book was important, if not too well written, and succeeded in persuading a publisher to get it out. The book was not a success and its author accused Lovett of sabotaging it in behalf of the Soviet Government. Lovett, with more courtesy than the situation demanded, replied, in a scribbled note of consolation, that he himself "did not care whether the book reflects on the Russian Government or the United States Government or any other—all in my opinion being rotten." A decade later the scribble appeared as Exhibit 19 in the files of the Illinois Senate Committee which, demanding his dismissal from the University, stated, "If all the exhibits offered in evidence against Professor Lovett were disregarded except Exhibit 19, proof of his disloyal conduct is conclusive." Still a decade later, Exhibit 19 was produced by the U. S. Congress. But Robert Lovett still

scribbles careless notes of consolation to young writers when their books don't sell.

The associate of so many Communists, the defender of so many more, and the tool of them all has never been a Communist. Robert Lovett's whole life has been at odds with principles and practices inseparable from Communism—violence, intolerance, expediency, self-interest, and materialism. And no one who knows him doubts that if he were a Communist, he would have joined the Communist party. Yet, of the four hundred organizations which the FBI connected him with, it is safe, if a little conservative, to name three that were not, at any time and in any degree, infested by Commies—the Pulitzer Prize Committee, the National Institute of Arts and Letters, and the Harvard Club of New York.

If he often found himself working with them, it was not because of his early faith (somewhat wilted since) in the Russian Revolution or his conviction (subsequently adopted by the American Government) that the Soviet Union was here to stay. It was because the Communists, like the Socialists, were willing to work, whatever their ends, for immediate causes which found respectable liberals frigid or impotent. If the Commies were fighting the Mooney and Scottsboro cases to provoke the class struggle, Lovett was fighting the same cases to rectify injustice. If the Communists were using him for their purposes, he was using them for his; and the ancient question of who was doing what to whom is still to be answered.

He was too innocent in his heart to be an innocent front. He knew the Communist pattern of control-or-destroy. He knew he would be, as he often was, reviled as a "literary looker-on," "Trotskyite," "capitalist stooge," whenever his own estimate led him to break with them. But the estimate was always his own. "I have never been as afraid of liberals going Communist," he says, "as I have of their pulling out of liberal organizations when the Communists, with their discipline, their persistence, and their eagerness, threatened to seize control."

Persons who value either their purses *or* their good names above trash will never understand men like Lovett. Harold Ickes, defending him before Congress, said, "Most of us would be more critical and discriminating in our associates. I, for example, would refuse to join any organization if I knew that it contained a large

number of Communists, whatever its professed objective might be. But I am a far more suspicious man than is Mr. Lovett. He has, for the seventy-three years of his life, found it difficult to think ill of any man."

But there were those—professing Christians all—who regarded latter-day associations with publicans and sinners as strictly un-American. In terms of length, the record of Robert Morss Lovett in Mrs. Elizabeth Dilling's *Red Network* made him the most dangerous man in America; and with the death of Jane Addams and Ramsay MacDonald, whose records were longer than his, he rose to undisputed eminence as the most dangerous person in the world. He had attracted, meanwhile, the attention of more formidable patriots than Mrs. Dilling. One of these patriots did not think much of professors in any case and thought highly enough of Hermann Goering to publish his articles in a chain of powerful newspapers. "I have never understood," says Lovett, "how I first offended Hearst. It is true that I called him Public Enemy No. 1, but everybody else had a list of Public Enemies and I didn't see why I shouldn't have one of my own."

The New Deal was on; the New Deal was the Brain Trust; and the Brain Trust was a wire-whiskered idiot with a bomb in each hand and a mortarboard on his head. The steady hammering at "Red professors" was one facet of the attack. One evening the publisher of Hearst's Chicago *Herald and Examiner* was entertaining his most important subscriber, Mr. Charles R. Walgreen. Mr. Walgreen remarked that his niece had heard a lot about Communism at the University of Chicago; even, said Mr. Walgreen, whose drug stores did not advertise contraceptives, about free love. The publisher did not have to be reminded of the Chief's orders to "get" Lovett. Mr. Walgreen withdrew his niece from the University and demanded, exclusively through the Hearst papers, a legislative investigation of Communist teaching at the University. The next thing the poor druggist knew, he had retained a lawyer, who, as chance had it, was also counsel for the Chicago *Tribune*.

The great investigation—consisting of a series of jammed public hearings—was one of the most delirious events of our time. (One witness, with a distinguished record as a labor spy, anti-Semite, and vigilante, testified that the Red flag flew over the University on May Day.) There was, of course, no pretense made of sup-

porting the charge of Communist teaching. When Lovett offered to recite the lectures in his courses in seventeenth and nineteenth century English literature, counsel for Mr. Walgreen asked him if it was true that he approved of the "slacker oath against our country." "If," said Lovett, "you refer to the so-called Oxford oath not to bear arms, I regard it as the individual equivalent of the Kellogg-Briand Pact by which the United States gave up war as an instrument of national policy. I am opposed to violence, including violent revolution. My son was killed in Belleau Wood, and I do what little I can to save similar young men from a similar fate."

When the smoke blew away and the papers blew themselves out, the University awaited the verdict. The legislature had the power to tax its property and bankrupt it. When the legislative committee "acquitted" the University but found that Lovett had "pursued an unpatriotic course of conduct for eight or ten years," President Hutchins, who had thus far conducted himself like a gentleman, wrote a violent statement. Professor James Weber Linn dissuaded him from issuing it. "But, Bob," said Linn, "I'll tell you this. If the trustees fire Robert Lovett, you'll receive the resignations of twenty full professors tomorrow morning." "Oh, no, I won't," said Hutchins, "my successor will."

The University sat tight while the wolves howled. "We've got to stand by Lovett," said Professor Gale to Hutchins, "but he's cost the University millions." "Oh, I don't know, Henry," said Hutchins, "this last time around he brought in about four million." The Rockefeller Foundation had given the University three million dollars. A letter offering to be "of whatever service for which you may wish to call on me" had been received from a resident of Long Island, Mr. Marshall Field. And a miserable little man had gone to Professor Charles E. Merriam with a $250,000 proposition. "I don't know," said Merriam, "you've hurt Lovett's feelings." The little man advanced the ante to $550,000, and the University announced the establishment of the Charles R. Walgreen Foundation.

The morning the legislative committee demanded Lovett's dismissal, Dean Edith Foster Flint called the Lovett apartment at Hull House. Lovett was out of town, and Mrs. Lovett was obviously uninformed of the committee's report. Thinking to soften the blow, Mrs. Flint began telling Mrs. Lovett what a wonderful man her husband was and how much everyone loved him.

"Edith," said Ida Lovett, interrupting her, "is Robert in jail again?"

The Chief died hard. Daily the Hearst papers demanded that Lovett be fired. There was only silence, until one day the *Herald and Examiner* announced: "Under pressure of the demand for his ouster, the University of Chicago has decided to drop Professor Robert Morss Lovett from its faculty, according to authoritative sources. The University administration contemplates retiring him on Christmas Day. At that time Professor Lovett will be eligible for a pension." That afternoon the University announced that Professor Lovett, who would reach the retirement age of sixty-five on December 25, had been persuaded to remain a member of the faculty.

He wanted to retire; he "loved decay and the end of everything." He wanted to sit in the sun; he wanted, he said, to read a few of the books on which he had lectured so eloquently for forty years. But the upward struggle carried him on. He went to Flint, Michigan, and was escorted into the sit-down-struck plant. Holding his five shares of General Motors stock above his head, he informed the grinning strikers that "my management is mistreating my workers, and I am here as one of the owners of the corporation to tell my workers that I am behind them."

Blandly going his way, seemingly unaware that he was a "must" on the list of men whom powerful forces—in, as well as out of, the government—were determined to destroy, he took to the hustings against the massacres incident to the Little Steel Strike. He denounced Roosevelt's failure, under the Neutrality Act, to recognize war where there were a million Japanese soldiers in China and a whole Italian army corps in Spain. As late as the spring of 1939 he pleaded for limiting American intervention to economic sanctions. But after the Hitler-Stalin pact and the partition of Poland, he gradually advanced to the position, in 1940, of calling for "all possible aid, even if it involves war with the aggressors."

That a man who was willing to follow Jane Addams blindfolded—who had often said, "I have always been opposed to violence," and was fond of saying that "blood is the milk of old men"—should go overboard may have shocked his pacifist friends. But there was no real inconsistency in his record. He had not opposed the first war; he had opposed the basis on which it was fought. The fascist attack on civilization was, as he saw it, the

concerted, climactic assault against the upward struggle. His defense of dissenters was no less wholehearted than it was the time before. "I am not," he said, "against war under any and all conditions. I live on a lower moral level than many men I admire."

It would be an offense to judge this feelingest of men as a political, economic, or even literary thinker. If he has been consistent, his consistency has been an accident. There is a higher consistency in him. He is Plato's "man of right opinion," who gets where a man ought to go without knowing how he got there. He moves by the heart, and it is men's hearts, not their heads, that he moves. After forty years of teaching English literature, he says that the one thing he knows for sure about English literature is that it cannot be taught. His lecture courses were ineffably dull; "Robert hangs up his personality," Professor Philip Schuyler Allen once said, "along with his hat in the cloakroom." Asked what Lovett's "teaching technique" was, Meyer Levin replied that it was the same as that of the great teacher of painting in Paris, who was never known to have done anything except pass behind his students' easels and mutter, *"Continuez, continuez."* James Weber Linn may have come closest of all when he said, "Robert doesn't teach; he warms."

It was the summer of 1939, and Lovett, crowding seventy, was *really* ready to retire. He had taught three emeritus years at Chicago and two summers at Northwestern University and the University of Colorado. He had spent the summer of 1938 on a lecture tour for the League for Industrial Democracy, the Socialist organization of which he had so long been president. Now he and Mrs. Lovett were touring the West, visiting James Westfall Thompson and Upton Sinclair in California, and moseying around Arizona, where John Manly, Ferdie Schevill, and Sherwood Anderson all had sunny places. The Lovetts thought they would stay.

"It seemed perfectly natural," says Lovett, recalling his invitation that summer to a White House dinner for Rachel Crothers. "Miss Crothers was the cousin of my dentist." The day after the dinner, his old friend Harold Ickes asked him to go to the Virgin Islands as government secretary. "What we need," Ickes told Lovett, "is a greeter." What they really needed, it turned out, was a governor. The governor was absent most of the time in Washington, where it was an open secret that he was trying to

get rid of Lovett, whom the natives idolized. Lovett spent more than half his four years in the Virgins as acting governor. Mrs. Lovett tried to get him to buy a new suit; he agreed to buy a new hat, which, he argued, was the most important part of a Caribbean governor's costume, since it was always being held conspicuously over the heart at receptions for visiting dictators.

On February 1, 1943, Congressman Dies denounced Lovett on the floor of the House as "an irresponsible, unrepresentative, crackpot radical bureaucrat." Thoroughly frustrated by the fact that only four of the more than eleven hundred government employees he had denounced had been fired, Mr. Dies demanded that "if there is no other way to get rid of these people, we should refuse to appropriate money for their salaries." A sub-committee of the House Appropriations Committee, with Congressman Kerr (Dem., N.C.) as its chairman, was created to take up where Dies left off. On April 14, 1943, Lovett, then in Washington, was handed an "invitation" to appear before the Kerr committee less than twenty-four hours later. He was denied access to the charges and the right of counsel. Even the solicitor of the Department of the Interior was excluded from the hearing. The transcript of the hearing was never shown to Lovett, to the Department, or even to the House of Representatives which voted his conviction.

The Kerr committee reported that Lovett was "unfit to continue in the employment of the United States Government by reason of his association and membership in organizations whose aims and purposes have been subversive of the Government of the United States." The committee failed to observe that among others guilty of association and membership in one or another of the organizations they listed were Thomas E. Dewey, Wendell Willkie, James Farley, Cordell Hull, and Justices Frank Murphy and Robert Jackson.

The House attached a rider to an appropriation bill providing that no part of the appropriation was to be used to pay the salaries of Lovett and two employees of the FCC similarly pilloried. Letters in defense of Lovett poured in, not from radicals, nor merely from the entire population of the Virgin Islands, but also from Chairman Thomas Lamont of J. P. Morgan & Co., President E. E. Brown of the First National Bank of Chicago, Judge Learned Hand, and the senior partners of the largest corporation law firms in both Chicago and Washington. Men who hate each other have one thing in common, their love of Lovett. "Robert is the damnedest fool I have ever known," said one of

the country's most conservative (and ungrammatical) millionaires once, "but when I say his name I feel like I'm in church."

Signing the appropriation bill, with the rider attached, Mr. Roosevelt said, "I have been forced to yield to avoid our delaying the conduct of the war. But I cannot so yield without placing on record my view that this provision is not only unwise and discriminatory, but unconstitutional." Harold Ickes, who was always mad, had known Robert Lovett, who was never mad, for all of forty-five years. Ickes insisted on fighting. Preliminary suit, for recovery of the interim salary, was filed in the U. S. Court of Claims, which, in a unanimous decision, awarded Lovett his back salary of $1,996.

The issue over the lost sheep of the 1876 revival is not, in 1946, an issue over $1,996. It is the issue over the encroachment of Congress on the Executive. It is the issue over due process of law. It is the issue over one of the basic causes of the American Revolution—the bill of attainder, a law against a man. It is the first such law in American history, and Lovett's reaction was typical. "It was by attainder that Parliament cut off the Earl of Strafford's head," he observed. "Our advance in civilization is shown by the fact that it is only my salary that has been cut off." On March 25, 1946, the Supreme Court of the United States agreed to hear on appeal the case of the cutting off of Robert Lovett's salary.

Something appeared in a leafy place called Emancipation Garden the night of March 28, 1944. It was the United Citizens Organization, comprising every sub-community (including the churches and the businessmen's association) of the Virgin Islands. It existed to say good-bye to the Lovetts and to give them a surprise in the form of the Robert Morss Lovett Charity Fund, to be used as Lovett might direct. The Joint Municipal Councils of the Island blubbered about "his upright, just, and sympathetic administration"; the St. Thomas *Daily News* bemoaned "a great and noble American, whose name, long after he has gone, will be uttered here as a synonym for tolerance, integrity, honesty of purpose, and distinguished service." Lovett said, "When I come back, I want to find a new hospital, a new high school, better housing, and a decent water and sewage system."

When Chancellor Jaime Benitez invited him to come to the burgeoning University of Puerto Rico, Lovett asked what he was to do there. "Just be here," said Benitez. His two last remaining Chicago cronies, Ferdie Schevill and Percy Holmes Boynton, were

teaching in the sun, and Lovett went. "If he stays *here* four years," said Governor Rex Tugwell, with characteristic conservative horror, "he'll be elected king." But this year, he says, he's going to quit. His "love of decay and the end of everything" has had to wait for thirty years. He is going, at last, to pursue it, "in the form," he says, "of my autobiography." But there may be another wait; according to word from San Juan, he is up to his ears in the upward struggle for the four freedoms for Puerto Rico.

PSYCHICAL RESEARCH

THE PSYCHOKINETIC EFFECT

by J. B. RHINE

THE mind exerts a causal influence over matter. Whatever we think of the nature of the mind or of matter, we recognize that some kind of interaction occurs between thought and the brain. It is a fact of common knowledge that conscious volitional experience initiates a chain of action that ends up in overt behavior—in measurable work if that be desired. Such action of the mind upon a physical system has long been listed in the dictionary as "psychokinesis."

Is psychokinesis, or PK, *confined* to the thought-brain relation, or can the mind directly influence a physical system outside the brain? This question has often been asked through the ages. It is the point of attack of this paper, and the facts that help to answer it are surveyed here. The survey therefore reviews the findings of experiments to test the effects of PK on external objective systems, not on the brain. Throughout the article from this point on, all reference to PK will be confined to its effect outside the organism.

Belief in PK is common in primitive societies. It is not unusual for men in preliterate groups to believe that the priest can exercise a direct influence over the physical world beyond the use of mechanical means. But the more literate religious groups likewise have their doctrines regarding physical miracles wrought by powers attributed to spiritual (nonphysical) agencies over the material world. An occasional reference is made in the literature of social anthropology to physical effects produced by medicine men and fakirs. The suggested implication is left that these effects cannot always be accounted for in terms of recognized natural principles.

From the new branch of medicine, the psychosomatic, come reports of cures that appeared impossible but yesterday and are still unexplainable today. These are cases in which the state of mind of the subject is the determining factor in the organic adjustment brought about. It is reported that warts are removed,

From THE JOURNAL OF PARAPSYCHOLOGY, *J. B. Rhine, Editor*
Copyright, 1946, by The Journal of Parapsychology.

blisters produced, hair falls out or turns gray, rashes come and go, all on the turn of the mind. Experiments involving the use of hypnosis have in some instances experimentally confirmed the therapeutic force of psychogenic factors.

Observations and experiments collected by the societies for psychical research have likewise made their contribution to the background of the problem of PK. There have been studies of strange, unexplainable physical effects associated with certain houses said to be haunted or with certain individuals said to be mediums. The studies of the mediums in some cases have gone far toward meeting the requirements for adequate experimentation.

So brief a sketch cannot do justice to the claims for PK. Certainly it would be difficult for those who are familiar with the branches of study involved to dismiss the evidence for PK coming from these sources as entirely worthless and unsound. Yet, on the other hand, it would be impossible to build a conclusive case for PK upon such evidence, even taken in its totality. There was not enough experimental control, enough repetition, enough observation, to justify the radical conclusion that PK can affect the environment. There had to be new experiments with better controls. It must be conceded, however, that the earlier observations played an important part in stimulating interest and leading up to research.

The ESP[1] research, too, furnished a favorable background for PK. It may even be said that PK follows from ESP as a logical consequence. In the ESP of objects, we must suppose that if the object plays any part in the process—and how else can we think of it if we accept causality?—a psychophysical interaction is involved. If the interaction does not definitely involve the object itself, it involves some intermediating system such as radiation from the object, as happens in visual perception.

Such interaction leaves an effect upon the object or physical system. The effect may not be in any way registrable; we may have no instruments to discover it; but from all we know of interaction in nature, especially from the close parallel of sensory perception, we must infer that the object is acted upon. In beginning research upon PK, then, after years of work with the ESP of objects, we were only looking for a way to measure the other end of an already familiar reaction.

The PK tests begun at Duke in 1934 were new in kind. They

[1] Extra sensory perception.

bore no resemblance to any of the above-mentioned earlier associations of PK. Not in religion, nor in the philosophies, nor even in the sciences, but in the world of gaming did we find a satisfactory method for an experimental tryout of the claim that the mind can influence matter. The game that furnished the idea is the commonplace and undistinguished one of crapshooting. The basis for a test of the PK hypothesis was furnished by the confidence which players often have that they can, when "hot," actually influence the dice to some extent to follow their desires without the use of trickery of any kind.

The dice test of PK has many advantages. The data from dice-throwing are among the oldest dealt with in mathematical statistics. Hence, the laws of chance applicable to dice are well known, and the special precautions are familiar. Dice-throwing lends itself very well, also, to the psychological needs of the PK test, since it provides an interesting, gamelike procedure. It is important, in dealing with any obscure, easily inhibited mental process like PK, to divert the subject or person being tested so as to keep his rational habits of thought from dominating him. A game, of course, makes one playful, somewhat relaxed, and more ready for anything new. It is a little world of its own that has its own rules. So the subject enters into it with a fresh outlook and a ready-for-anything attitude.

Such was the secret, we now think, of the success of the ESP card test introduced at Duke in 1930, and we followed the same principles as nearly as we could when the PK work began a few years later. In making a PK test-run consist of twenty-four single die-throws as a standard, we approximated the run of twenty-five trials in the ESP card tests. The simple scoring procedure made it possible for the subject to measure his success as he went from one run to another, and the interest in this scoring helped maintain his "morale" and preserve the gamelike character of the testing. Controls of various types were possible, as we shall see, to insure against error in the interpretation of the results. In short, we had in dice-throwing the makings of an ideal test of the PK hypothesis.

It was originally a young gambler who suggested dice-throwing as a basis for a PK test and proposed that we use "high dice" as the target (that is, the combination of faces we wished to have turn up when the pair of dice were thrown). "High dice" are eight or above. Accordingly, the first few series were made up of

high-dice tests, but soon interest grew in comparing different numbers of dice per throw, and the target was changed to a given face of the die (such as ones, twos . . . sixes) fixed in advance of the run. At the start, the dice were thrown from the hand, but cups and mechanical devices were very soon introduced to eliminate the possibility of skilled manipulation. Finally, numerous controls were used to rule out the possibility that faulty dice might be the reason for any high scores obtained.

This problem of the defects or loading in the dice was the most important methodological issue, and it has been kept in the forefront throughout the PK researches. The first thought of the gambler or dice expert would be to suggest the use of "perfect dice," but to the experimenter the matter looks very different. For one thing, *no* die can be trusted to be perfect and remain so. For another, no manufacturer's guarantee is good enough for the purposes of these tests. We have to rely on our own experimental and statistical controls to be sure of our conclusions. With these controls, common, inexpensive, readily available, commercial dice are entirely satisfactory, and therefore they were used throughout the research except for experiments designed to compare special materials and variations in shape of the dice.

A number of experimental controls were used to take care of the question of faulty dice. For example, the subject threw the dice in certain series with no conscious effort to influence them. Again, series of PK tests were conducted in which the dice were thrown with equal frequency for opposite faces or combinations, or for all six faces of the die. Thus any effect of inequalities would be cancelled out. Further controls involved the comparison of two test conditions in which the same dice were used, the one condition favoring the operation of PK and the other designed to interfere with it (for example, to distract the subject). Any significant experimental difference thus obtained could not be ascribed to the defects of the dice. But the very best controls on the faulty-dice hypothesis are those which have emerged quite incidentally from new analyses of the data made years after the experiments were finished. These consist of significant differences in scoring rate due to certain effects of position of the trial in the test sequence, such as in the run.

The scores that the PK tests yielded were fairly consistently above the level expected from chance. In high-dice tests, the run (12 throws of the pair, 24 single die-throws) would be expected

to give five hits (a hit being eight or above). There were 901 runs in the first experimental series which was carried out here in 1934. These gave 446 hits above the total expected (4,951 as against 4,505). On the assumption of true dice, this is *a highly significant deviation,* giving a critical ratio (CR) of 8.69, which would be expected only once in over a million billion series of such length.

The statistical analysis thus safely disposes of the hypothesis of chance and justifies our going on to deal with other questions. The hypothesis of "skilled throwing" as an explanation of the results is also ruled out by the fact that the highest scoring section of the data, an independently significant section, was obtained from tests done with a wholly gravitational method of throwing of the dice, a procedure that allowed no room at all for skill or trickery in their manipulation.

The question regarding the possible role of faulty dice in this series was answered equally well, and in the following way: Most of the high-dice tests were done in short sequences of three runs, and there was a marked decline of scoring in this sequence. The first run averaged highest (6.09), the second run next (5.15), and the third lowest (5.05). The difference between the first and the second run (like that between the first and third) is quite significant. Its CR of 4.33 signifies odds of 10,000 to 1 that such a result did not occur by chance. This alone is enough to establish the case against chance. Since the *same dice* were used in the first as in the second and third runs, and since the dice themselves could not have changed between the two runs, the conclusion is that the extrachance differences in these PK tests could not have been due to the imperfections in the dice. On the other hand, such a decline in scoring in the run sequence *is* entirely consistent with other studies of position effects, not only in the PK work but in ESP and in other psychological researches in which "primary effects," as they are called, have been noted.

I have gone over this first experimental series in some detail only because it was the opening gun of the PK work. It was quicky overshadowed by better, longer, and more completely controlled experiments. Assistants and colleagues joined in the PK research, not only here at Duke, but also in a few other places where it became known. In the twelve years that have passed since its initiation, the PK research has been confirmed by more than a score of collaborators. Fourteen PK researches have

already been carried out outside of the Duke Laboratory, ten of them with significant and confirmatory results.

One of the earliest innovations in the PK test was the introduction of a simple trip device to allow the uniform and impartial force of gravity to throw the dice. When released, the dice would roll over an incline to bounce around on a padded surface below. The PK effect worked quite as well with this "mechanical-release" method as with hand- and cup-throwing. Then we went on to the use of a long wire cage electrically rotated on a shaft through its midpoint, which let the dice bound from one end to the other. The scores obtained with this method equalled the cup-throwing with the same dice and with the same conditions. The results showed that the subjects could mentally influence the mechanically rolled dice as well as those rolled from cup or hand.

Next in the series of progressive steps might be listed the throwing of an equal number of times for each face of the die. With this procedure, if any appreciable bias existed in the dice, it would cancel out in the general round-up of data. This method of control has been used in a number of experimental series, one of them the highest scoring series on record! In one of these around-the-die series, the electrical machine, too, was used; in the others, cup-throwing.

The evidence par excellence of the PK effect, however, derives not from mechanical nor from experimental controls, adequate though these have been. Rather, it is from the long, tedious statistical analyses that, years later, were carried out on the records—analyses that were quite independent of the original experiments themselves. I refer to the evidence from analyses for position effects.

The ESP work had made us all conscious of the role of position of the trial in the run in determining scoring success. Declines of rate of scoring in the run (or in other units of data) had appeared in many ESP series, and we were consequently on the alert for similar declines in the PK records when, in 1942, they were subjected to general evaluation and analysis.

The very first PK work we did showed, as I have already mentioned, a decline of scoring from run to run in the set, or three-run sequence; that is, there was a *horizontal* decline on the record page. There was also a decline of success in the run or column; that is, a *vertical* decline on the page.

These discoveries of declines continued as we went from series

to series of experimental records, and we found ourselves eventually making analyses for position effects, both horizontal and vertical, in all the available records, even in research data that had been laid aside as deficient in some needed experimental control; for in examining records for distribution of hits on the record page, it mattered little whether, for example, the dice had been adequately controlled at the time. If, as was generally the case, there were significant differences between the scoring rate at the beginning (upper left) quarter of the record page and that at the end (lower right) quarter, it mattered not whether the dice were perfect. Such differences in scoring, if systematically recurrent and not due to chance, signify *psychical,* but certainly not *physical,* causation.

And these differences *were* recurrent and *were* extrachance! The analyses were concentrated on the quarter distribution (QD) of the page, which combined the horizontal and the vertical distributions. The record page was divided into quarters by a horizontal and a vertical axis, and the scoring rate was found for each quarter. The diagonal decline in scoring from the upper left to the lower right quarter was the natural resultant of the horizontal and the vertical declines and was, therefore, the primary point of interest. The diagonal decline was found very definitely to preponderate through the QD analyses. Of the eighteen series available (that is, suited to this analysis by reason of the character of the records) the QD of the page showed a diagonal decline in sixteen instances. With the eighteen series combined, the difference between the first and fourth quarters was highly significant.

The typical QD, then, was found to be one in which the first quarter was highest, the fourth lowest, with the other two in between. An example of such a QD is found by pooling the twelve series in which the dice were thrown for a *single* face as target (the Singles Series) instead of for a combination such as sevens or high dice. Figure 1 shows the total deviation from mean chance expectation for each quarter, the first being the upper left, the second the lower left, and so on. Note that the second and third are about halfway between the first and fourth. The CR of the difference between the total deviations of the first and fourth quarter is 5.56, and the odds are *a million to one* that chance would not give such a result.

It will be apparent now, in considering the various counter-questions, why this QD evidence is indeed extraordinary. It is because, first, the difference in score distribution is beyond any

reasonable explanation by chance. Second, this evidence rules out all question of dice defects; the dice were the same throughout the course of the page record. Tricky throwing, recording errors, lost records—these and other hypotheses that might be proposed

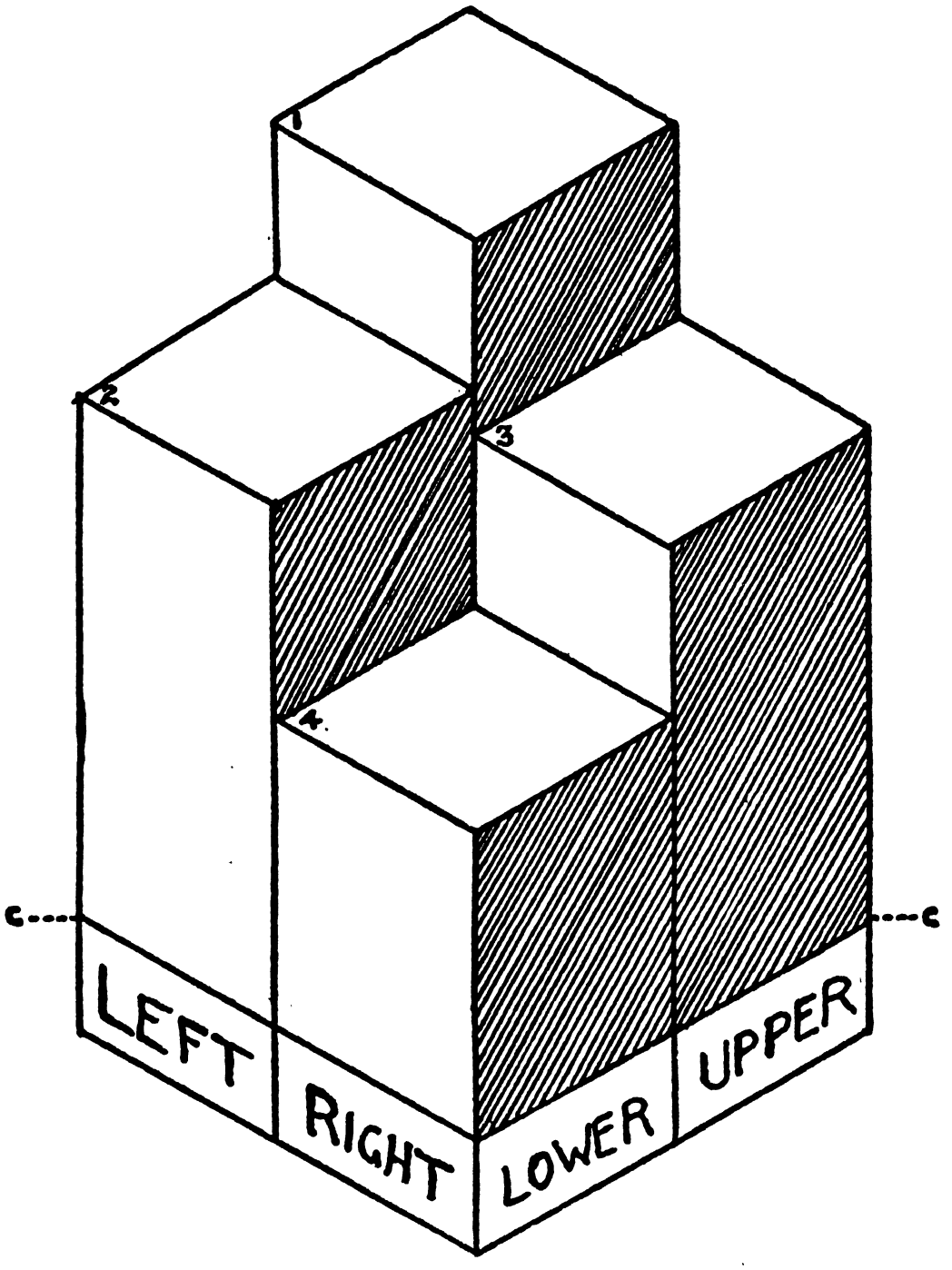


FIG. 1. The QD of the page for the pooled Singles Series in terms of the deviation of the average score for each quarter. The base line (marked "c") indicates chance expectation.

are all disposed of in unequivocal manner by the QD evidence; for not one of them could, with any reason, be supposed to have produced these significantly recurrent patterns of distribution of hits on the record page. It is important to keep in mind, too, that

no one participating in the experiment knew there would ever be an analysis for the QD.

Thus the QD patterning was entirely incidental. PK was, as it were, writing its own strongest confirmation between the lines of the record sheets produced in these researches, evidence that came to light only with time and later analyses.

The QD's of the page, then, are quite important. There is all the more need in that case for us to determine the reliability of the analyses producing them. How "hard and irreducible" are their results? In answer to this question there are two lines of verification, different in effect, yet related. One is the confirmation of the *accuracy* of the findings through independently conducted analyses; and the other is the evidence of *consistency* in the findings, evidence obtained from the search for similar QD's in the subdivisions of the record page.

The answer to the question of accuracy is brief but conclusive. An independent analytical study of the QD of the page was carried out in 1943–1944 at the invitation of the Parapsychology Laboratory by a former member of the staff, Dr. J. G. Pratt. As a result of the reanalysis by Dr. Pratt the case for PK, as based on the QD evidence, was confirmed, and a report by him was published in March, 1944. An invitation was then extended to *any qualified committee or person* appointed by a scientific organization to repeat the QD analyses on the original records on file in the laboratory at Duke. Any question that has thus far been raised, or seems likely to be raised, about the evidence for the PK effect can be pursued to its final answer in that way.

The question of consistency of the QD brings us to a consideration of the smaller units of the record page. If, it was argued, there is a general downward trend of scoring on the diagonal from upper left to lower right quarters of the record page, is it not probable that such a trend is evenly enough distributed to show up if we take smaller blocks of the page than quarters—eighths, twelfths, or sixteenths? Many of the series of PK tests, it so happened, were carried out in sets (that is, in small sequences of runs), with several sets to the page. The next step, then, was to do a QD analysis on the set similar to that done on the page as a whole. Nine of the eighteen series had sets suitable for this further distribution study.

The QD of the set was found to provide evidence of PK almost

as reliable as that of the QD of the page. The declines of the two QD's are quite comparable even though there were only half as many series in the set analysis. The odds against chance are again of the order of a million to one. This indicates a higher rate of diagonal decline than that which the QD of the page showed for the larger group of eighteen series. The fact is that the nine series on which the set analysis could be made also gave a higher rate of diagonal decline in the page analysis than the rest, one quite comparable to that which they showed in the set analysis. So the consistency was really remarkable.

The main point here is a double one: In the first place, this analysis had to be conducted as an entirely independent one from beginning to end. That is, while the totals had to agree with those of the page-QD data, thus affording a check on the accuracy of both analyses, the entire set analysis had to be done by itself. Second, the results showed that the diagonal decline consistently extended down into the smaller units of the page—into the sets. We are thus insured further against any mere statistical artifact, as well as against faulty dice, skilled throwing, selection of evidence, recording errors, and the like.

The set analysis, however, does not exhaust this special type of evidence. The next step was to split each set in half and thus secure a still smaller section of the record page for analysis for the diagonal decline so evident in page and set. Moreover, there had been some degree of overlap (or "interdependence," statistically speaking) between the whole set and the page, since most of the sets ran either the full length or width of the page and the two QD's thus shared a common axis in the quartering. An analysis of the *half*-set, however, would afford a completely independent statistical check. And to go a step further into the question of independence, this particular QD analysis was conducted by Dr. Pratt, whereas the other two QD studies (those for the page and the set) had been supervised by Miss Betty Humphrey.

To cap the climax of evidence, the QD of the half-set, too, showed the same persistent diagonal decline; this falling-off in scoring rate to the right and downward on the page and in the set now appeared also in the half-set. Again it was highly significant, with odds of more than a hundred thousand to one against chance occurrence; and again we have complete assurance that not chance, faulty dice, skill in throwing, recording errors, nor incorrect statistics can account for the results. This is "triple-

distilled" evidence, for the original findings were themselves strongly indicative of the PK hypothesis. The three QD analyses are therefore supplementary verifications of this earlier conclusion—proof extraordinary of PK!

We have reached the point, then, where it is quite in order to take the PK effect as established fact and to go on to a consideration of how it operates and what it signifies. This will mean discussion of evidence that offers more than mere proof of the occurrence of the PK effect—evidence, rather, of its nature and relationships.

In view of the prominent role played by position effects in this research, it is especially interesting that the declines obtained are not at all psychologically surprising. On the contrary, they are distinctly "human" and understandable. They are quite in line with the position effects found in ESP research, and they agree with decline curves found in experiments in learning and memory.

Again, on another point, the PK research appears to fit in with general psychological expectation. It was found that deliberate distraction of the subject's attention by the experimenter lowered the score average in PK tests to a point below that expected from chance alone. Narcotic and stimulant drugs, hypnotic suggestion, and other factors and conditions have been found to influence performance in ways that are readily interpretable *psychologically* and cannot at all be accounted for in other terms.

The most revolutionary outcome of the PK researches derives from the tests with varied physical conditions. There is where their uniqueness comes in. For example, the results of comparing large and small dice and different numbers of dice per throw offer evidence of the striking peculiarity of PK. In the several researches in which two or more sizes of dice have been used, no consistent relation has been shown between rate of scoring and size of dice (and that is to say between size of dice and weight, too, since the materials of the dice are similar). Whereas one pair of dice, with two or more times the volume of another pair, would be expected to require the influence of more physical energy, the results show no such expected relation. Sometimes the smaller, sometimes the larger dice are favored. Neither stands out consistently.

Furthermore, when different numbers of dice per throw are compared, more often than not the larger number gives better

score averages than the smaller. For example, two dice have always been better than one. Six dice usually have been better than two. In another research, success with twenty-four per throw was higher than with six or twelve. Results from several experiments with ninety-six dice per throw compare favorably with scores based on the use of small numbers of dice.

Experiments with different objects than dice are just coming into publication. Two reports of researches made with two-sided objects (coins, chips, etc.) have already appeared in print, one from Cambridge University and the other from Duke University. These flat objects appear to be subject to the PK effect in somewhat the same degree as the dice. One report of a study of the effect of distance on PK has come out, too, showing no such decline as physical law would lead us to expect.

These comparative results and the ones which have of necessity been omitted in so brief a review seem without exception to lead to the interpretation of PK as not governed by physical law of the type familiar to science today. It is, of course, difficult to find or accept an explanatory hypothesis unless it is stated in terms of familiar principles. But it is pretty clear from the PK research, as for some time now it has been clear from the ESP studies, that a new framework of scientific explanation is needed for dealing with certain psychical processes. *The mind is not a wholly physical system.*

Whatever this means in the long run to the psychology of the future and to the many fields and practices dependent upon psychology, it gives us at least a new way of inquiring experimentally into the nature of personality, first of all into the fundamental problem of the thought-brain relation. The question as to where and how the mental life of a man ties in with the physical world of which he is a part is the number one issue of the science of the mind. Psychology is an insecure science until that question is firmly answered, for not until then can we be sure where personality belongs in the universe. Unless these researches have changed its status, this primary issue of psychology is still in the stage of "I believe" or "I would argue "or "My theory is——" It will be a revolutionary date in psychological history when one can say "I know" with reference to the way in which the experiencing mind works with its own body.

Everyone's philosophy of life depends directly upon what he thinks of his own basic nature, his place, his powers, and his

destiny in the scheme of things. Yet of these matters we have only hypotheses or faiths. We need not labor, then, to justify the active exploration of an issue so fundamental to our way of life and code of valuation. More and more, those who are searching for a way of thinking by which life, individual and group, can be reliably and intelligently guided are coming back to the query: What is man with respect to the solid world of sense and mechanics? And today, in a scientific epoch, this issue leads us inescapably to the inquiries of parapsychology, the psychology which has been overlooked.

These inquiries into PK and ESP may be, to the effective human relations we hope for in the future, what the once dubious dabblings of scientists with unusual phenomena were to the more established sciences of today—an unrecognized and unwelcomed prelude. In any case, so sorry a world as ours cannot be too selective in its dire need to find out enough about man's nature to be able to engineer him eventually away from self-destruction.

PSYCHOLOGY

MASS PSYCHOLOGY

THE SLAYING OF THE EUROPEAN FATHER

by MAX LERNER

THE people who came to the American shores all felt intensely about America because in each case it was for them the end of the corridor, the door to a richer life. Whether they came for land or for freedom, they came because they had been denied it in their first homes. It was their pre-American historical memories that gave more point to the American experience. This is not to say that their earlier memories were wholly negative. In many instances the new setting was exactly the release that could separate pride and even a nostalgia for the old culture from the bitter memories of deprivation. But that release was to be found only when they had found a new home and a new amalgam of historical consciousness.

Thus the bundles of Old World memories, jostling each other in the New World, have enriched the American tradition. America was the place where the old memories found a new meaning. America was the arena of clash between the old deprivations and the new opportunities. That meant that every item of experience in the New World was fraught with a heightened tension, that every event was projected backward into a past more contrasting and into a future more exacting than in any other culture. This is what gave the American moment, in the Bergsonian sense, duration.

It is also what gives the American his sense of the personal largesse and the collective promise in the national scene. The conception of America as a cornucopia of well-being and freedom is one that has been deeply imbedded in the immigrant mind, from the first settlers to the latest refugees from fascist terrorism. Psychologically it is the basis of the American "promise."

The first image of the promise was the rich and abundant soil of America and the vast expanse of it. A man had room to move about in it, a man could pour his strength into it and get an

From COMMON GROUND, *M. Margaret Anderson, Editor*

Copyright, 1946, by Common Council for American Unity, Inc.

adequate reward. This was followed by the image of America as the land of enterprise, where a man could set up for himself and nothing could stop him—if he had the ability—from reaching the top of the ladder of wealth and power. Finally came the image of America as the land of untold riches, where—as the immigrant myths would have it—everyone was always dressed in holiday finery and the paving blocks in the streets were of gold.

Whatever the objective reality, these myths were all imaginatively real. They were one of the powerful forces that stirred the European mind. In European literature the dominant imaginative themes have often come from outside Europe—the imaginary voyage, the noble savage, the Byronic hero eating his heart out in some mountain fastness in the far corners of the world, the splendor of the exotic Orient or Africa. But in the European folk mind the golden land of America has far outshone all these more professionally literary themes. There is no civilization in whose life-history the element of promise has played so crucial a part, nor one whose promise has had so powerful an impact on the mind of the older civilizations.

When a civilization is built around a promise, it is natural that social criticism should concern itself with the degree of fulfillment. American criticism has done that. The theme of national self-criticism came after the Civil War, with the ending of the frontier, the dominance of the business mentality, the awakening of labor protest, the depth and regularity of economic breakdown. "America was promises," wrote Archibald MacLeish after the Great Depression, and his choice of tense summed up the temper of American self-criticism. Yet what is important to a student of American civilization is less the fullness of the fulfillment than the persistence of the theme of promise. Promise has been America's great social myth, using the term in Sorel's sense, as an imaginative conception which moves men to passion and action regardless of the degree of its truth. George Santayana once spoke of "the metaphysical passion" which moved men to cross the seas to America to set up a new civilization. He was right. For all the scorn of metaphysics that you will find in American writing, the metaphysics of promise has been as crucial a non-rational element in the American civilization as the metaphysic of Christianity in the civilization of Europe from St. Augustine to Thomas Aquinas.

The difference between these two metaphysics furnishes a clue to the relation of the American heritage to the European mind.

America rejected Europe, but the act of rejection was also an act of carry-over.

The Christian metaphysic was one of renunciation and other-worldliness. It dominated European thought until the new science, the new navigation, the new discoveries, the new commercial wealth undercut it. The metaphysics of renunciation yielded, in the Commercial Revolution, the Renaissance, and the Reformation, to a new temper. The Golden Age was sought not in some primitive past nor in some putative future, but here on earth and now. Thus was the foundation laid for the metaphysic of promise. It had its roots in the Protestant ethic and in the humanist and secular energies loosed by the Renaissance. Thus the promise of American life had been prepared for by the humanism of Europe, and the energies of American life had their origin in the awakened energies of Europe.

This has been largely obscured in the literature of American uniqueness and American revolt. Europe, in the American consciousness, was something broken away from, something left behind. You get this theme in Crevecoeur, with his talk of the wholly new American. You get it in Jefferson, with his recoil from the European monarchies and dynasties. You get it, phrased with balance and moderation, in Emerson: not only in his plea for a self-reliant American scholar, but best of all in the speech he delivered at Manchester in the midst of a depression in 1847, and with which he closes his *English Traits:* "If the courage of England goes with the chances of a commercial crisis, I will go back to the capes of Massachusetts and my own Indian stream, and say to my countrymen, the old race are all gone, and the elasticity and hope of mankind must henceforth remain on the Alleghany ranges, or nowhere." And, as if in echo of Emerson, you find it in Whitman:

> Have the elder races halted?
> Do they droop and end their lesson, wearied over there beyond the seas?
> We take up the task eternal, and the burden and the lesson,
> Pioneers! O pioneers!

Yet it must not be forgotten that, while Americans rejected Europe, they took over its cultural heritage. I go further than that: the act of revolt was itself an expression of the European consciousness. Without the European heritage it would have been

impossible for America to revolt against Europe. The American ships that crossed the Atlantic carried over not only the European economy but also European aspirations and the European system of thought. The revolutionary elements in that system of thought had begun to show themselves before the settlement of America. In fact, the settlement of America was their product.

In this settlement and in the Revolution, the lustiest elements of the European consciousness were brought into play as against its most exhausted elements. It was free enterprise arrayed against mercantilism, laissez-faire arrayed against cameralism, individualism arrayed against rigid tradition, natural rights arrayed against political obligation, republicanism arrayed against monarchy, popular nationalism arrayed against the dynastic state, social mobility arrayed against caste, the pioneering spirit arrayed against the placid acceptance of things as they are. For before the American dream there was the European dream. Sometimes internal conflicts are resolved by revolution within, sometimes by settlement and revolution without. If the settlement of America helped drain off Europe's revolutionary energies, the revolution in America gave expression to those energies. The new world of which Europe so long dreamed came to fruition under American skies. The European dream made America possible: and the American experience gave the European dream concreteness and reality.

This was the America-Europe nexus. But if this was so, one asks, why the rejection of Europe so chronic in the American tradition? An answer is suggested by the theme which runs through Sir James Frazer's *Golden Bough*—the tribal killing of the sacrificial king, or (as we may generalize it) the symbolic slaying of the father. The motive of the slaying, one may hazard, was the desire to ward off evil from the tribe by establishing the tribal separateness from him. Thus, also, it has often been noted that an adolescent needs to disown a parent in order to assert the core of his own personality. If we credit Michaels' assertion that every nation has two dominant myths in its tradition—the *Mythus des Woher* and the *Mythus des Wohin,* the myth of origin and the myth of mission—then it becomes a striking fact that the American myth of origin emphasizes the rejection of the European heritage and the rebellion against the father.

Was this due partly to the inevitable feelings of inferiority engendered in a culture which held a colonial status for almost

two centuries?—plus the bitterness of a Revolutionary War?—plus the cockiness of success and rapid strides toward power on the part of a once despised people?—plus the metaphysic of promise, which demanded that the sources and conditions of that promise be as home-grown as its prospects were glorious? Yet not even the sum of these can wipe away the paradox that the Americans who led in the rejection of Europe were themselves intellectuals deeply indebted to European books and ideas. That was, for example, true of Jefferson, whose passion for freedom was rooted in the French natural-rights philosophy, while even his feeling for the independent American farmer had been foreshadowed by the Physiocrats. It was almost equally true of his opponent, John Adams, whose doctrine of mixed government went back to the English constitutional tradition. One suspects in each an element of deliberate intention to use the attacks on Europe as weapons against the other. Jefferson, by inveighing against European monarchies and social despotism, was not averse to adding to the political capital of the Republicans by attaching the stigma of a reactionary Europe to the Federalists. Adams, on his side, by inveighing against European revolutionary terrorists, was also not averse to implying that the author of the Letter to Mazzei belonged with them. Jefferson was the leader of the French school of European thought in America, and Adams the leader of the English school; but each found it necessary to make use of Europe in its entire symbolic sense as a weapon in his political battles.

The continued use of this symbol was strengthened by the continued inpouring of immigration. The three big anti-immigrant movements of American history—the Know Nothings of 1850, the Workingman's Party in California in 1873 which set off the exclusion bills, and the Ku Klux Klan after World War I—were deeply related to the inner social tensions of making a crudely predatory capitalism work and the inner personal tensions of living in a coarsely competitive society. In a nation made up of successive layers of immigrants, there was a marginal prestige in having left Europe behind earlier and a marginal stigma in having left it behind later. Each new batch found itself under the necessity of more blatantly and more hurriedly claiming the protective coloration of "Americanism," and of acting more American than the "Americans." To do this meant a mounting xenophobia, even on the part of second-generation immigrants themselves. One of the results was the over-rapid and pointless drive toward "assimi-

lation," and the wiping out of the valuable heritages and customs of ethnic groups in America which Jane Addams spent her life in championing, and for which Randolph Bourne argued so powerfully in his theory of a "transnational" culture.

The primitives who feared the encroachments of radical ideas upon their power and status started by propagandizing the American xenophobia and ended by believing it. The "radical" and the "alien" came to be almost interchangeable terms. No matter that the American immigrant has never been an important radical factor in American politics, and that he has largely become a tool in the hands of reactionary machine politicians in the big cities. The popular conviction remained that radicals were aliens and aliens radicals. In 1944 a whole Presidential campaign was waged largely on that premise.

This psychic necessity for rejecting Europe has colored the whole spectrum of American social thinking. For his self-respect the American worker is led to reject useful ideas for social change —ideas far less radical than the radical democracy of Channing and Wendell Phillips, of Henry Demarest Lloyd and Edward Bellamy and Lincoln Steffens—on the ground that they are "European" and "Marxian." In his spiritual isolation the American businessman suffers from a sense of encirclement, and identifies with a European source whatever ills he feels he is subject to. Some of the major *grandes peurs* to which American men of property have been subject have either had these roots or have been dramatized in these terms; and the more easily dramatized because the rejection of Europe in the American tradition preceded even the Socialist scares created by the European revolutions of the 1840s or the Paris Commune of 1870. Finally, since a sense of encirclement fortifies a policy of isolationism, the considerations of state which led to such a foreign policy found psychological bolstering here.

To be sure, some of the best men in America suffered from the sense that they were missing something by their separation from Europe. Emerson preached self-reliance to Americans, yet he himself was mature enough to know that self-reliance excluded fear as well as awe; his relations with Carlyle, Wordsworth, and Coleridge were relations between men of letters who had something to say to each other; and his book on *English Traits,* published after two trips to England, was sharp without being bitter, and appreciative without being reverential. After Emerson,

American writers seemed incapable of maintaining this wholeness, and they veered between an over-assertive nativism and a votive dependence. From Henry James in the old London houses that drew him so, to Ernest Hemingway in the Paris cafes in the 1920s, American writers went to Europe seeking some quality—aesthetic sensitiveness, expressiveness in living, old traditions, dedication to artistic discipline—which the cruder and lustier energies of the American civilization had not achieved.

Americans were paying for the sacrificial slaying of the father, and were placing offerings on his grave.

RADIO

BUSINESS

THE MYTHOLOGY OF BROADCASTING

by ELEANOR E. TIMBERG

BROADCASTING'S voice should be changing. It is growing out of the adolescence of AM into the maturity of FM, television, and facsimile. Is postwar broadcasting to continue to speak the adolescent language and ideas of the past decade? Is spiritual awakening possible for so financially successful a lad? Probably not, educators, social and political scientists, and psychiatrists will tell you. But broadcasting will cause a problem of growing difficulty if the community does not take it firmly in hand. These next few years of physical development are crucial for the salvation of broadcasting's soul.

Many misconceptions are popularly held about radio which obscure the basic problems and make their correction difficult. We must first take stock of broadcasting to see how "free" the American broadcaster is in writing and selecting his programs, how "free" radio entertainment is for the listeners who tune in, how much their desires affect the choice of programs, and whether "the air belongs to the people" any more. Only by facing realities and contemplating our vanishing freedoms can we be armed for the impending battle of the air.

The American system of broadcasting with its thousand AM stations and its incipient FM [1] and television developments is generally cited as the finest and most comprehensive in the world. Yet a recent analyst (Russell Smith of the National Farmers Union, testifying before the Federal Communications Commission on radio's rural inadequacies) revealed:

> Great Britain, where broadcasting is strictly a public function, had 197.6 receivers per thousand, while Arizona, Florida, West Virginia,

[1] AM stands for amplitude modulation, the system of transmission now in use; FM for frequency modulation, the system of transmission which is being substituted for it as rapidly as new stations and receivers can take over the job. FM, in spite of the early opposition of the large manufacturers, has proved superior in trueness of tone and elimination of static or interference.

From THE ANTIOCH REVIEW, *Paul Bixler, Editor*
Copyright, 1946, by The Antioch Review, Inc.

Texas, Kentucky, Virginia, Tennessee, North Carolina, Louisiana, Arkansas, New Mexico, Georgia, Alabama, South Carolina, and Mississippi all had fewer than 176 radio homes per thousand. When a war-torn invaded country like Finland pays a tax on more radio receivers per thousand in the year 1943 than there were radio homes per thousand in seven American states, a question may well arise concerning whether the greater popularity of the American as compared with foreign systems of broadcasting can be proved from the radio receiver figures.

"American Radio Is Free Radio"

The individual licensees of the slightly more than 1,000 stations in operation at present are supposed to develop their own programs and are solely responsible for the broadcasts from their respective stations. How fine a thing it would be for our country if there were over a thousand independent radio forums of ideas, debate, news, and entertainment. But a majority of the thousand station owners are controlled in turn by four networks, and the networks are dominated in turn by a handful of advertising agencies operating for less than 150 major corporations. Only very large corporations can afford the $10,000 an hour (for one time, one night, full network) charges for a program. Even at that price, there is a limited amount of broadcast time available in these days of commercial boom. To the extent that the individual stations are dependent upon network affiliation for financial success, they are in turn dominated by the same major corporations. The network system, therefore, considerably narrows the choice of programs, ideas, and issues to be found on the air.

Another constrictive pressure on the treatment of ideas and issues is the increasing proportion of newspaper ownership of radio. In 1943 two thirds of the radio stations of the country were owned in whole or in part by newspapers. No other outside business owns so large a segment of broadcasting, and the duplication of the two communications media in this fashion has tended to limit the available mouthpieces of American speech for controversy, invention, and diversity. Granted certain economic and technical savings in the case of a newspaper-radio enterprise, the dual ownership and its growing proportions is a serious challenge to an alert community. In over a hundred towns in 1943, the only newspaper owned the only radio station; in allotting broadcasting licenses, we had denied forums for debate and enlightenment to a hundred communities.

The trend toward amalgamation and bigness is defended by the network owners and large advertising agencies who say that quality is expensive; that symphony orchestras, top Hollywood talent, and seasoned commentators would never reach the small station audience without the expenditure of large sums of money by mammoth advertisers. The critics of radio as-it-is say that more local talent and more ideas of community interest would vie for attention with the colossus-minded networks if the trend toward bigness and the Hollywood-New York axis were reversed.

Of course it is true that American radio is not the mouthpiece of an all-powerful government or a ruling clique which can gag it as other countries' broadcasters have been gagged. Our gags are self-imposed. Norman Corwin, probably the most well-known creative talent in radio, complains that advertising agencies and network commercial policies stifle the creative writer. Arch Oboler, another radio playwright of renown, spoke his mind at the University of Oklahoma in March when he said:

> The broadcasting system of today . . . has gotten money hungry to a degree that is far larger than its sense of public responsibility. Humbug fills our free American air. . . .
>
> Cigarettes which differ from any other cigarette in a standard pack only in the label on the front make violent claims to having qualities in T-zone, doctors' acceptances, and therapeutic values worthy of a mixture of opium, Sister Kenny and that psychiatrist in the motion picture "Spellbound."
>
> You may ask what this has to do with radio writing. Simply that some of us can't write honest radio under such circumstances.

Norman Rosten, a writer of both commercial and sustaining programs, adds his view:

> The sponsor and the advertising agency have taken over radio quietly in this matter of writing. Except for sustaining shows (often worthy, such as "Assignment Home") or special public service programs magnanimously aired after 11:30 P.M. the broadcasting company sells TIME. It owns the air. It will sell you a piece. Period. . . .
>
> By "non-commercial radio" I do not mean simply any sustaining series. . . . How about setting the Saga of Lux or the creaking door aside one half hour per week per network? It might well usher in a renaissance in radio drama. How about it, NBC, CBS, American, and Mutual? Put up or, as the saying quaintly goes, shut up. Prove it, or forever hold your pronouncements about radio coming of age. We are nearing the middle of the twentieth century. Shall the singing commercial and the Lone Ranger inherit the earth?

The many-faceted problems of fair presentation of the news, freedom of opinion of news analysts, sponsored or unsponsored news reports, responsibility for broadcast slander and its possible rebuttal, the handling of controversial matters and matters of minority interest have been under scrutiny in recent years and are relevant to the evaluation of radio's "freedom of speech," but are too involved for discussion here. Nevertheless, their resolution calls for a clear conception of the commercial matrix of radio and its consequent effect on broadcasters.

Any attempt to widen the bottleneck and diversify the controlling voices of broadcasting is greeted with the industry's wail of "It's death to free speech." Speech is not "free" or "slave." It is only more or less free. As Neville Miller, at the time President of the National Association of Broadcasters, has said: "The basis of the American system of broadcasting is not the right of an individual to be heard, but the right of the public to hear." The public does not now hear the voice of its many minorities, of labor, or of consumer groups to any representative extent. Ideas which might arouse vigorous controversy, and antagonize sponsors, on the whole receive no air time.

After a consideration of programs as they now issue from our 60,000,000 receivers, it is clear that radio speech is less free under fewer owners with unchecked commercial appetites; that steps toward diversifying ownership and requiring public service—along the lines of public attention, FCC administration, and Congressional direction—can only result in making it more free.

"The Public Determines What Programs It Wants to Hear"

Charles Siepmann, in his recent *Radio's Second Chance,* shows that radio is now a one-way proposition. The stations, under constant pressure from sponsors, advertising agencies, and networks, fill the air with increasingly commercial fare, with program content rendered so innocuous that it will offend no possible customer. The listeners have no organized forum for reply. Crossley and Hooper ratings echo back to them that they like a program, but the industry gives little opportunity for any expression of dislike, or reason for likes and dislikes. Despite a simmering feud between newspapers and radio for the advertiser's dollar, the papers rarely publicize any of the polls or surveys showing discontent with radio programs and commercial excesses. This is reserved for colored treatment in the trade press (excepting the

excellent publication *Variety*, and on occasion *Radio Daily*). The radio owning newspapers particularly are prone to select for headline purposes only the occasional study with complimentary results. Among such may be cited a survey made a few months ago which claims that its statistics prove that only 29 per cent of the listeners object to commercials and that 62 per cent desire them—a result contrary to all reason and belief.

Letters from individuals or groups sent to stations or the FCC are as a few sands on the beach subject to the pounding of the constant powerful waves of publicity generated by the station owners and controllers. Siepmann, following the lead of Commissioner C. J. Durr of the FCC, proposes the extension of listeners' councils to every radio community and the establishment of a Central Radio Research Institute designed to promote research and establish standards of public service and interest. Such an institute could speak for the disorganized listeners in tones loud enough to be heard over the booming propaganda of the National Association of Broadcasters and the more subtle whisperings on Capitol Hill of the network and sponsor lawyers. Even the institute, however, would have to be on guard against the financial blandishments of its detractors.

The power of the broadcasting industry was made manifest in the passage of the Lea Bill (already undergoing court test for questionable constitutionality) in April, 1946, outlawing certain practices of the American Federation of Musicians under James C. Petrillo. Granted the provocation arising out of Petrillo's interdiction of all music broadcast from abroad, all student orchestra broadcasts or other cultural programs from nonunion sources, and the featherbedding of studio musicians, still this piece of legislation—aimed at a specific official, union, and policy—was pushed through Congress in lightning fashion ahead of matters of far wider social application and import. Antilabor sentiment in Congress may have made that body a pushover for this special radio pleading, but the industry was there to give the push!

By way of contrast, there has been no legislation to amend the Communications Act of 1934, regarding the whole broadcasting industry and radio spectrum, in spite of recurrent Congressional investigation into the subject spanning five years and covering thousands of pages of printed reports.

The public, far from dictating to the broadcasters, goes largely unheeded. Siepmann refers to the testimony of a CBS executive

that a sample survey uncovered three million listeners who preferred good music *all* the time and six million who preferred it *half* the time. Rural listeners, the Negro community, the health needs of the nation, the needs and interests of children are badly neglected by program directors motivated primarily by product selling and sponsor wooing.

The definite document on broadcasting's program service is the FCC Report on Public Service Responsibility of Broadcast Licensees, published on March 7, 1946 (139 pages mimeographed, free on request from the FCC or the NAB). The report shows woeful discrepancy between the promises of the applicant for a license and the subsequent program performance of his licensed station. It distinguishes the purpose of sustaining (unsponsored) from commercial (sponsored) programs, and establishes the need for a fair ratio between the two types in order:

> 1. To secure for the station or network a means by which in the overall structure of its program service it can achieve a *balanced* interpretation of public needs.
> 2. To provide programs which by their very nature may not be sponsored with propriety.
> 3. To provide programs for significant minority tastes and interests.
> 4. To provide programs devoted to the needs and purposes of nonprofit organizations.
> 5. To provide a field for experiment in new types of programs, secure from the restrictions that obtain with reference to programs in which the advertiser's interest in selling goods predominates.

The report shows the encroachment of canned and network material on the local scene. It denounces the inadequate record of the industry as a forum of debate on public issues. The timid and self-censoring attitude of most broadcasters derives from their commercial peonage to their sponsors and would-be sponsors as well as from the fact that they share the psychology of an established big business group. Labor unions and co-operatives have had short shrift on the air, and most have met closed doors.

The excesses of advertising are discussed in the report. The soap operas (containing serial stories in which "the tone is lugubrious and the pace is torpid") blanket the daytime hours of two of the four networks and attract a very loyal but small audience. A third network abandoned soap operas only a few years ago. Cash award programs in which musical transcriptions are inter-

spersed with commercial spot announcements every few minutes for "the purpose of inducing listeners by monetary appeal to subject themselves over long periods of time to sales appeals" are hardly in the public interest, convenience, and necessity.

The increasing length and number of commercial announcements per program (with the colorful nomenclature of spots, cowcatchers, and hitchhikers) over the years since radio's birth, the middle commercial suddenly and inexplicably breaking into news broadcasts, the pseudo-patriotic appeal, the physiological slant, the propaganda commercial, and the intermixture of propaganda and advertising come under indictment. (The singing commercial, object of much private invective, is not, however, discussed by the FCC.) The industry had from time to time voiced concern with these problems, but, in spite of isolated reforms, they are aggravating apace. The wording and length of commercial announcements can only be a matter of industry self-restraint, but the encroachments of commercial programs and sponsorship on the total broadcast time could be governed by governmental action reserving sufficient and convenient listening time for public service programs.

"The Public Gets Its Programs Free by Permitting Advertising"

Financially, domestic broadcasting is one of the most prosperous industries in these boom days—$416,000,000 of gross income in 1945, divided about half and half between the thousand station owners and the four networks. But "the tremendous increase in profits from 1937 to 1944 (from $23,000,000 to $90,000,000) was not due solely to the increase in advertising revenues, but is also attributable in considerable part to the fact that the industry has progressively retained a larger and larger proportion of each revenue dollar as profit and has spent a smaller and smaller proportion for serving the public" (Report, p. 94).

Each proposal for innovations or higher program standards is met by most broadcasters and their publicists in the NAB with cries of alarm. The regulation of chain broadcasting in 1941, following upon an extended FCC inquiry, brought forth Cassandra prophecies of broadcasting's demise and a long court battle against the regulators. The industry also argues that its investment (small as it is in proportion to current operating profits and rapidly inflating values) would be wiped out by each proposed reform, with consequent death to "free speech." But Siepmann

notes the listeners' investment of $2,078,000,000 in receiving sets, as against the industry's $81,148,128 in equipment, and points to the listeners' favorable balance of 26 to 1. He reports that advertisers paid $396,946,991 for radio advertising in 1944, but listeners paid $630,000,000 for batteries, tubes, and the like.

The issue, therefore, more properly stated is: The public pays through the nose for its "free" radio.

"The Air Belongs to the People"

The industry operates under the Communications Act of 1934, which authorizes the Federal Communications Commission to issue a license to an assigned wave length to any person qualified to broadcast in the public interest. The air waves are public property and were meant to be kept so by the licensing system. Until today, however, when the FCC has issued a *mea culpa* report of intended reform, a station owner who committed no flagrant crime was relicensed continually without examination of his broadcasting performance. The act specifically says that a wave length cannot be bartered like private property, but a current owner in effect could sell his wave length at any price he could get to any other business man of ordinary credit and reputation. Since the spectrum's space for broadcasting is limited, in view of the urgent competing demands from other radio services for the police, the army and navy, and government foreign broadcasting; and since station prices are today inflated beyond the reach of most men, broadcasting ownership is not open to all qualified citizens on an equal footing. Although the rising prices of stations, obviously trading upon the possession of a wave length in violation of the spirit as well as of the letter of the law, is deplored by all parts of the industry and its regulatory bodies, inflation continues apace.

In a dissent to a majority request sent to Congress in 1944, asking for a clear directive to the FCC on station speculation, three flagrant cases were cited by Commissioner Durr. The purchase price for Station WJLD of Bessemer, Alabama, was $106,000—more than seven times its net worth and twenty-one times its net profits before federal taxes. The purchase price of Station WINX of Washington, D. C., was $500,000, ten times the net worth and twenty-four times the net profits before taxes, a profit of 950 per cent on its net worth; the station was first licensed four and a half years before. Station WQXR of New

York was selling for $1,000,000, four and a half times the net worth and thirty-three times its net profits.

In bringing this speculative situation to light Commissioner Durr asked:

> In each of the three transfers under consideration, the price being paid appears, on its face, to be greatly in excess of any demonstrated value of the properties and business being sold. For what is this excess being paid? Are there elements of value in the transferors' properties and business which are not apparent from the information contained in their applications, or are they selling something which they do not own and have no right to sell, namely the use of a radio channel?

And yet, two years later, the sale of Station WFIL of Philadelphia was authorized by the FCC at a price of $1,900,000. The station's book value was $148,000 and its net profits for 1945 $300,000.

The inconsistency of the theoretical proposition that the wave lengths are publicly owned with the fact that they are treated in practice as vested in private ownership is well illustrated by the AVCO decision, rendered by the FCC a few months ago. The Crosley Corporation asked permission to transfer the license of Station WLW of Cincinnati (at one time the most powerful station in point of range in the country) to the Aviation Corporation. The Commission majority granted the transfer of license for a value said to approximate $4,000,000 (but never specified, as the radio law requires) to a new owner who had no broadcasting experience and did not want to own a broadcasting station. The new owner, an investment trust, was acquiring the station as part of a large package of industrial concerns and only at the FCC hearing on the transfer expressed any interest in broadcasting and public service.

The AVCO sale made it patent that freedom of ideas and zeal for public service are not the usual motivating forces for taking up the broadcaster's role. Can one conceive a newspaper owner of any renown who would sell his news properties complacently to a "soulless corporation"? Newspapers at least have the tradition of freedom in their background. (*The Chicago Daily News,* for instance, was sold two or three years ago, not to the highest bidder, but to a man of long newspaper experience.) But radio is a young and technically prodigious infant with no basic inheritance of freedom's lares and penates. Where in radio will you find a John Milton or a Peter Zenger? Instead you find Powel

Crosley in the lead of the independent broadcasters, and Victor Emmanuel as his successor by remote control.

In the AVCO decision, the majority of the commissioners pointed out that station transfer to a financially qualified owner had never been denied in the past. New policies looking to other than financial qualifications and intended to enforce the Communications Act of 1934 were innovations that should only be applied in the future. They called for competitive bidding for stations which were proposing a license transfer, but made no move to curb price inflation and thereby to open the bidding to more than a handful of applicants.

The commissioners were busy men, snowed under by thousands of applications for postwar broadcasting facilities and struggling with the choice of far-reaching new practices to govern all the broadcasting services of FM, television, facsimile, and walkie-talkie, as well as their common carrier communications duties. They tossed off this crucial decision covering the basic issues of broadcasting—sale of licenses, program performance for "the public interest, convenience, and necessity," local interest, responsibility, and participation in station programs—with the excuse that past inadequacy of the commission's administration dictated indetermination in the case before them. At the request of the two industrial empires involved in the transaction, they rushed approval of the deal ahead of other pending business.

The minority statements on the AVCO case, which indicated that the FCC had the power to stop the sale or reorder it, seem to me to answer the doubts of the majority, who believe that they must return to Congress for the necessary authority. The corrective of station price inflation, private trafficking in public wave lengths, and absentee ownership of stations can only be forceful FCC administration of the Act outlawing them.

"In FM Lies the Cure of Radio's Ills"

It is now universally accepted that FM broadcasting is technically superior to AM for American purposes and that we will gradually change over from one to the other. The advent of FM introduces immense opportunities for freshening the turgid springs. Where the AM spectrum has room for only about a thousand stations, FM will permit 3,000 to 6,000. Where fifty-odd AM stations of 50,000 watts staked out claims to the few available clear channels years before and now dominate the local and

regional stations with their powerful voices, wide coverage, and financial advantage, each FM station can reach only 30 to 150 miles and will introduce more competition on more equal footing. In addition, FM will permit higher fidelity transmission and little interference.

Where only four networks have been able to survive in the AM system (two more tried again this past year and failed to survive), a number of state-wide educational and commercial FM networks have been awaiting their opportunity to start construction and operation. FM is also the carrier for the new radio services of television and facsimile which are still in an early stage of development.

FM brought the promise of new blood, fresh ideas, pioneering and experimentation. Its promise is already facing disappointment six months after the first postwar construction permits. The first 300 licenses have gone for the most part to the established AM operators. The same networks, network affiliates, newspapers and independent owners have moved over. Of 834 applicants, 561 are AM licensees, including 330 newspaper interests. The Senate Small Business Committee made a study of "Small Business Opportunities in FM Broadcasting" and found that "the desirability of attracting newcomers into the field of radio broadcasting is generally conceded, but that the potentialities of FM were never fully publicized outside the trade and the operators of AM stations have decided advantages.

> . . . an existing AM licensee can build an FM broadcast station for less than it would cost a newcomer by utilizing common personnel, and by broadcasting his AM programs—with little or no added cost—over his FM station. Because of the shortage of FM receivers, the first few years of operation may well be unprofitable ones. And inquiries made among radio manufacturers have revealed that most of the receivers manufactured during 1946 will not have an FM band. Finally, the AM applicant can use his profits from AM operation to cover losses which may accrue during the development period of FM operation and can offset any FM losses against his AM profits as a tax allowance.

The Senate committee proposed that the commission reserve some channels for veterans who are not able to apply as yet or to compete in the early developmental and nonprofitable stages of FM; that it inform the public more fully of radio developments and encourage the widest possible participation, and that consideration be given for future growth as well as present blueprints.

> Opportunity for expansion is the lifeblood of small business, and radio will benefit by the vigor and energy of those who enter on a small scale with ambitions to grow. Conversely, it will suffer if, during the next few years, it becomes merely the dumping ground for investment-thirsty capital accumulated in other fields.

The educational institutions, whose nonprofit broadcasting efforts had petered out in the twenty-five years of competition with AM commercial stations, have taken a new lease on the air and are applying for space on the twenty channels reserved for them. Labor unions and a few liberal groups are applying for FM stations. The PAC issued a Radio Handbook for the last election that has continuing value for noncommercial groups thinking of radio as a rallying point and medium of expression.

Much can be done this year, this month, to change the course of broadcasting. Listeners can join or organize listeners' councils in their communities which, if not turned over by inertia to the direction of the network of NAB field staff, can express with louder voice and more telling effect the reactions and desires of the local listening public. The councils, too, can study the medium and prove more constructive critics than an untutored listener.

A radio production center, a public service organization proposed by Mr. Siepmann, presents fine possibilities for radio's improvement if it could keep its identity and purpose free of any industry ties. As a technical research and script center with no commercial motivation, it might well pioneer in directions heretofore marked "no thoroughfare."

Subscription Radio may rise again, after its rebuff last year, to offer program competition to existing sponsored radio. Subscription Radio was a corporation related to Musak and headed by William Benton, which proposed to broadcast three unsponsored radio services and support their broadcasts by a subscription charge. Subscribers could choose from a continuous program of light music, of classical music, or of drama and talks. The three services would require three FM channels at the top or bottom of the FM spectrum allocation, where they would not interfere with the dialing and reception of nonsubscribers to whom they would sound like static. Subscribers would be furnished with a gadget for a charge of five cents a day to filter out the static or "pig squeal." Subscription Radio was prepared to offer features unobtainable in commercial radio—noncommercial consumer shopping programs and announcements of outstanding broadcasts available on all stations. The idea was pretty well defeated by

industry protest and abandoned when Mr. Benton became Assistant Secretary of State, but as an idea it was a stimulant to radio planning.

Congress might once more investigate the composition of radio ownership and decide to order the divorce of radio and newspaper ownership (especially in communities where the only newspaper owns the only radio station); the divorce of network operation and station ownership, so that networks would concentrate their energies on program plans; and the divorce of radio operation and radio manufacturing. This latter marriage is most successfully typified by RCA-NBC and was in large measure responsible for the stunting of the growth of FM in the 1930's and of color television today.

Congress might also require a specific evening time each day for public service programs so that stations would not compete for commercial sponsors at that hour and noncommercial programs could hope for a large, regular audience. The FCC has also asked Congress for specific instruction as to the proper curbs for station inflation, although many lawyers think its existing legislation empowers stronger steps than the FCC has thus far taken to check traffic in wave lengths.

Either Congress or the FCC may some day consider whether news commentators and analysts, religious programs, and the like, should accept commercial sponsorship. It is unlikely that the industry will be in a position to take a stand on this issue.

The industry's job is to set more reasonable standards for commercial copy and to censure more specifically and drastically stations which are obviously below these standards.

Action from all these groups can and should be concurrent—listeners, expert and creative talents, Congress, the FCC, the NAB, and independent broadcasters. The FCC's Report is a point of departure. It describes present trends in programming and commercialization, with horrible examples from real life. It sets forth clear definitions and proposes henceforth to require from licensees performance for promises.

Most of the industry has greeted the report—a purely lets-look-at-the-record job—with its automatic reaction to all criticism from its public regulators. Censorship! Program interference! Left-wing nonsense leading to government ownership! Many broadcasters, however, are endorsing the report. As for the public, it scarcely knows what the letters FCC stand for, let alone that a critical battle is joined.

Broadcasting, like the movies, strode in these war years to miraculous heights of technical excellence. Will it, like the commercial movie, remain a crassly motivated virtuoso, a soulless prodigy? If the FCC's new licensing and public service broadcasting program goes forward, young broadcasting may grow up to be a figure of respect in this country comparable to book publishing and the theatre. If little change is effected by FCC practice, stirred by popular pressure and Congressional mandate, broadcasting will remain in the kindergarten class of most movies and comic publications which characterize the American scene today. Civic interest, indignation, and participation will decide.

RELIGION

THE IMPORTANCE OF RELIGION

by HORACE L. FRIESS

CONTEMPORARY civilization is threatened by its failure to reduce the incidence of destructive hostility, and it is also dispirited by a deficiency in significant public use of interpretive imagination. Contemplating the first failure, it is somewhat chilling to be reminded of the second. It is doubly sad to think of the possibility of a city like New York being totally destroyed by human hostility, and then to reflect that were this to happen, there would go with the city many valuable treasures and resources, yet among them very little that images man's existence in any irreplaceably wonderful way. Men are not so spiritually poor today as they are sometimes said to be, but the imaginative record of what life means to them is still relatively thin and dispersed. Contemporary ideals may stand comparison with those of other ages, but what expression of them will compare with the Acropolis, or the Bible, or the medieval cathedrals? Knowing our lack we too often feebly repeat or imitate the forms of those ancient glories.

The reason for mentioning these contemporary ills is not to maintain that they are problems which religion alone can solve, nor on the other hand to argue that religion's present importance hangs simply on its relation to them. Obviously at present neither the secular nor the religious resources of our culture succeed too well in reducing destructive hostility or in fostering interpretive imagination in public life. The question is how they can assist each other in learning to do better, and how they can avoid adding to confusion and disaster through misunderstanding and mutual suspicion of one another. There is food for several turns of philosophical discussion in this question.

At its best, religion can bring life a sense of wonderful scope and completion. At its worst it adds to life's blindness, cruelty, and poverty. In the contemporary world scene, however, religion

From THE KENYON REVIEW, *John Crowe Ransom, Editor*

Copyright, 1946, by The Kenyon Review.

no longer monopolizes certain traits for which it has often been particularly condemned by secularists. With respect to authoritarianism, intolerance, and perversions of truth it must now divide the honors with quite a number of secular groups and institutions. In the present situation some ecclesiastics, indeed, hope to convince us that black when seen against red looks nearly white, but as a matter of fact it only acquires the appearance of a somewhat unstable brown. When it comes to practical issues, can one really name any in which all secular interests lie on one side and all religious interests on the other? It may make a kind of sense for some secular interests plus some forms of religion to fight other secular interests plus other forms of religion over the "four freedoms," the conversion and government of the heathen, the cost and cure of sin, and the Russian problem. But a battle between all secularism on one side and all religion on the other had best be described in an old Buddhist phrase, as resembling "the antics of the six mythical dragons." It would surely be a great advantage if men could see and not forget that they all, whether secular- or religious-minded, are swimming in the same turbulent waters of contemporary life and society. Such a spectacle may be confusing, but it will afford protection against a false and dangerous simplification of practical issues.

The relations between the religious and the secular in our present civilization are indeed unusually complex. The two keep company more than ever, and yet in some ways they part company as never before. Certainly religion has never been subjected to so much examination in secular terms; and it is not lacking itself in a large measure of concern for many issues of secular culture. Still, many religious people seem to be renewing the conviction today that the secular world can never be anything but lost. And at the same time there have never before been so many secular-minded people who believe actively that man might thrive very well without religion at all. Yet religion is still with us, sometimes threatening us again, if not with hell fire, then with demonic urges and other deficiencies that need a heavenly cure.

Amid such contrary views and the intricate circumstances of our culture are there any reliable ways of estimating the importance of religion? Taking stock of developments in the field of religion, I find that civilization has achieved no method for such an inventory, for determining, that is, what religion is actually doing and accomplishing. Indeed, men are still crude in taking account of the functioning of all their institutions. All professions

give themselves credit for such excellent intentions. Our politicians, soldiers, businessmen, labor leaders, and of course our doctors, teachers, priests, artists, and scientists are aiming at nothing but good. Yet somehow the net result has its flaws. Nevertheless, religion remains one of those idealistic enterprises in which well-meaning claims are still very widely taken at face value.

"The express purpose of religion is the achievement of the good life," writes Rabbi Joshua Liebman. Let it learn to cooperate with psychiatry, and "peace of mind" will result. Of course, there are other religionists who would not estimate the aims of religion in quite such comfortable mundane terms. There is again a strong mystical strain in many contemporary religious movements. And mystics have generally held the "peace" and the "good" of God to be beyond all understanding and reckoning. Meanwhile, in the secular learning of our culture there have been developed some relatively new ways of viewing religion that do not attribute to it so simple and straightforward a teleology. In these perspectives the most characteristic features of religion are seen as elaborations, for better and worse, of behavior traits that are properly called primitive in either a psychological or an anthropological sense. The human infant, say the Freudians, is reared in utter dependence upon adults, and there is necessarily projected upon man's whole environment the complexion of the parental expectations he thus acquires. The growth of human beings, in any case, is rooted in interpersonal relationships, say anthropologists, and the elaboration of behavior that succeeds in those relationships inevitably carries satisfactions that nothing else can. Religion simply construes man's final destiny in terms of these deeply grounded human patterns.

The fact that people look at religion from such different angles is not, however, the main source of difficulty in estimating the religious activities of any particular time and place. In its vast historical length and breadth religion has certainly been a complex and varied enough institution to occasion different theories of its nature. It is not necessary to regard these various moralistic, and mystical, and psychological interpretations as so many exclusive alternatives competing for sole acceptance. They may instead be regarded as partial approaches to various equally authentic aspects of the whole. There should be no difficulty in admitting that religion develops its mystical phases, its interest in a good life, and that it also preserves much grounding in primitive patterns of human behavior. A candid account could not well admit less.

But what is furthermore needed are sound methods of analyzing how it is functioning in particular times and places from any and all of these different points of view. How, for instance, is one to explore the psychodynamics of religion in our society? How estimate the significance of current mystical tendencies? And how are conclusions to be drawn about the actual relations of religion to the good life? These questions cannot be answered by defining the nature of religion; they call for imagination, reflection, and sustained inquiry.

Methods for estimating religious activities have not been developed to a great degree. The idea of estimating religious activities in some critical way has been too foreign and obnoxious to the predominant cast of religious teaching and feeling. No doubt the question, what importance has religion? still seems obtuse and impertinent to the orthodox, to most mystics, and many others. All of them believe that genuine religion always answers the question of its own importance inherently and autonomously. To the faithful, if it is not the most important thing in the world, it simply isn't the real faith. Religion is a matter of ultimate and unconditional concern, which allows other things to take on more or less meaning and importance, but whose own importance cannot be measured in terms of anything else.

To estimate the importance of religious activities in terms of their relations to something else is to view them as parts of a larger world. But it is precisely in religion, say the orthodox, the neo-orthodox, the mystics, and many others, that men get their sense of that most complete world, the universe, of which everything else is properly only a part. The ideal of religious salvation is precisely that of life made whole, most thoroughly healed in an incomparably perfect divine way to which nothing is lacking. Hence to measure religion in terms of any idea of the good life other than its own is to subordinate it to a more anaemic and less dynamic ethics. This is the great weakness that mars secular moralism, however humanitarian.

So runs a familiar argument of religious philosophy. It is dialectically formidable, if the premises be granted. If religion has the idea of complete good, anything less would be inferior. The logic is perfect. But it is pertinent to ask what historical and cultural facts support the premises. In what sense does religion actually have the key to world salvation it claims to have? The issue is as direct as that. The classic claim of religion to stand for

the most complete ideal and view of the world made relatively good sense in the historical situations in which it was born toward the close of the ancient civilizations. At that time, when the institutions of city and empire were falling from their highest estate, new religions were in fact gathering up the wisdom of the ancient world in the fullest known measure. But can one say that the religious institutions of the present day are playing an analogous role? Do they stand in a truly similar relation to secular institutions? Is it an actual fact that secular humanitarianism has less dynamic and vital ideas of good today than religious ethics? Would not truth be better served by admitting that, in our culture, religious and secular institutions each represent some aspects of wisdom more clearly and deeply than the other, and that we really lack an entire synthesis, a perfect idea of salvation for us?

Religion may indeed implicitly cherish such a perfect idea within its highest symbols. Yet the question must be pressed how clearly, definitely, and effectively it possesses such an idea explicitly. In arguing the matter it is impossible to circumvent the problematic concept of revelation. For religion's historic authentication of its wisdom involves the claim that, in essentials, it is divinely revealed. In this connection it is necessary to distinguish between several very different things to which the term "revelation" is customarily applied: The fact that men do have compelling experiences, in which truth is revealed to them, cannot with any soundness be ruled out of the record of religion. But the term "revelation" is also applied to the officially sanctioned traditions and dogmas of institutions. And this usage raises a further issue. Modern science can and indeed must respect certain rights of sanctity in the holding of individual belief. But a claim of churches, or any other institutions, to "infallible" judgment prejudicially limits the whole principle of free co-operative criticism. An individual's claim that certain truths have been revealed to him need not block further scrutiny. But if "revelation" is socially invoked to exempt specific beliefs and procedures from further examination and testing, then a clash must arise with that vital faith in inquiry which recent civilization has been slowly achieving.

In the attack which religion has lately been directing at mere moralism, there has been real justification and also a real danger. The point has been well taken that no standard of "rightness,"

however good, will conduct men along paths that make healing and redemption unnecessary. There are indeed reasons for thinking that, even with the best of moral codes, crime, sickness, and sin will still remain familiar human institutions, which cannot be served by ethics alone. Yet a justified critique of moralism runs the danger of leading to unjustified neglect of ethical thinking. For the fact that ethics cannot be enough does not mean that ethics has finished its proper job. To conclude this would be a non sequitur. That ethical ideas at best can be but one factor in dealing with men's loves and hates does not mean that we already know what is best for us, and have all the moral wisdom we need. Yet in ethical religions, based on revelations held to be final, there is always a strong tendency to assume this. And in the plight of contemporary mankind it is scarcely surprising if the cry for healing and salvation becomes stronger than the critical search for better standards. But whenever this happens, it symptomizes a weakness in the state of human affairs.

Despite "fundamentalists," the estimation of religion has rarely been left entirely in religion's own hands. The great achievements of secular learning have always been drawn upon for interpretive and apologetic purposes by both the secular- and the religious-minded alike. In the course of its development modern science has brought forth a series of great conceptions that claimed universal attention: the idea of mechanism in the age of Newton, the idea of evolution in that of Darwin, and now in physics and in psychology new energistic ideas that are in the making. These very same ideas have been and are exploited for the most contrasting evaluations of religion. Radical secularists have been successively convinced that mechanism, and then evolution, and now psychoanalysis (with or without the aid of radiodynamics) must surely finish off religion forever. Yet there always seem to be religious thinkers who find in the very same discoveries the most congenial evidences for demonstrating anew the ways of God with man and nature. Intellectual history may thus put us on our guard against these facile and sweeping demonstrations on either side. But what should not be overlooked or discounted is the fact that each time the new phases of scientific inquiry, and the concepts developed in their pursuit, throw a more searching light, if not upon the whole, then at least upon some interesting parts and aspects of the great world we live in. From the better

understanding of these various aspects and parts, there can be and should be some reasonable profit drawn to the advantage of both secular and religious interests.

Dynamic psychology is today furnishing some of the newest interpretive resources for the study of man and his institutions. It is really amazing to see theologians and iconoclasts alike rush to equip themselves with new proofs and weapons from a stockpile of raw materials the constituents and possibilities of which science is only just beginning to work out. But nothing is more natural or desirable than that the growing knowledge of psychodynamics should be consulted to secure some stronger illumination of religious concerns. Almost inevitably religion turns to some idea of the psyche, whenever it arises, whether in the ancient or in the modern world, for that idea, in its mature form, is one of a living integration of man's essential functions. The idea of psychic integration is one of a thorough functioning or a "hitting on all cylinders," so to speak. The contemporary science of psychodynamics studies processes and conditions as they further, hinder, or otherwise change such integration in different individuals and groups of men.

This interest in psychic integration obviously has an intimate bearing upon religious interests. In religion men have hoped to find a spiritual security, a peace with the universe, a reconciliation of their hopes and their destinies, a condition enabling them to give and to receive of the very best they can under life's circumstances. Such hopes may, to be sure, include much more than what is commonly understood by psychic health or wholeness, and yet it is not surprising if a close relation is also seen between the integrity aimed at by both religious and psychiatric healing. At least one way of exploring the relations between psychiatry and religion would be to compare ideas of psychic integration with those of religious salvation or wholeness. An interesting attempt along this line has recently been made by Professor Paul Tillich in a historical and theoretical article on "The Relation of Religion and Health." Tillich finds the now emerging conception of man as a "dynamic psychic unity" favorable to a renewal of the classic religious ideal of salvation as "a restoration of broken man to his wholeness."

But such formulations, including those of Rabbi Liebman in his more popular book *Peace of Mind,* have to reckon with the fact that a real unity of theory is still lacking, not only in contemporary religion, but also in dynamic psychology as well. Even

within psychoanalytic schools, to say nothing of other psychologies, there exist wide disagreements about the nature, extent, and autonomy of the psyche. For C. G. Jung the realm of the psyche is a self-contained world of vast extent, and his ideal of psychic integration represents a very complete spiritual fulfillment, an individuation of all that life contains. The congeniality of such a conception to Tillich's analogous view of the autonomous, "unconditioned" character of the realm of religion is evident. For Freudians and most neo-Freudians, on the other hand, both the psychic and the religious connote more circumscribed and complexly conditioned aspects of life. Moreover, the idea of psychic integration mainly used by them is the clinical one of a state relatively free of deranging blocks and disordering inhibitions. Spiritual fulfillment is, in kind and degree, something further, achieved perhaps on a basis of psychic integration but not inherently achieved with it.

Current changes in Freudian theory have much significance for the interpretation of man and his institutions. Original Freudianism placed its main stress upon certain ostensibly generic features of parent-child relations, on the inevitable pressures and conflicts entailed in man's universal infantile need for security and affection through parents. Human development to maturity was conceived as everywhere conditioned primarily and indelibly by these early needs and the way they are met. But today neo-Freudians (such as Erich Fromm, Karen Horney, Abram Kardiner, and others) are exploring how the psychodynamic patterns arising in the progress from infancy to maturity are themselves affected by numerous differences in cultural institutions and situations. Their inquiry in part pursues the method of studying personality structures in many different cultures, and is an important part of western man's concern with the limitations of his traditional folkways. Freudian theory, to be sure, cannot abandon its attention to family patterns without ceasing to be Freudian, but it can recognize that those patterns are a result as well as a source of other cultural conditions. The psychodynamics of parent-child relations will then be studied not in isolation, but within a larger context of social behavior.

How this change modifies Freudian interpretation of religion may be illustrated by a conservative example, where the modification appears slight, in the comments of Dr. Abram Kardiner on Thomism in his recent book *The Psychological Frontiers of Society:*

> Thomism is an ideological system with the unrecognized premise that "father is always right" or "it is right because father said so." It is the ideological system which brooks no change and no investigation; and if it does (as it did in the case of St. Thomas), scientific investigation is used only to prove again that "father was right."

The retained Freudian orientation appears in the fact that Dr. Kardiner thinks the religious image of the deity always has the parental image and expectation at its base. The revisionist neo-Freudian element in his ideas consists in stressing that parental images, family patterns, child care, and the like, can be quite diverse enough to produce significant differences in personality and in "secondary" cultural institutions. The relations to deity, he finds, will call for more or less submissiveness, sacrifice, punishment, constant affection, and so on, according to the ways and expectations in which infants are reared. Apparently it is not fixed in the nature of man that father must always be right.

What shall be said then of the emphasis in early Freudianism on the extensive effects of infantile conditioning? Surely it remains a remarkable circumstance of man's existence everywhere that human infants for so considerable a time are utterly dependent on adult beings ten to twenty times their size and much more dominant still in power and experience. It would be strange indeed if this situation had no fairly pervasive and universal psychodynamic implications. Yet by the same logic of empirical fact it is impossible to deny that all men throughout their whole lives are also utterly dependent upon a larger surrounding universe. The quality and character, moreover, of the two dependencies are not exactly identical. Infantilism in religion might vary therefore, one would think, according to the modification of traits grounded in the child's dependence on parents by traits of the adult's dependence on a larger world. The proper objection to Freudianism is not that it sees parent-child relations as having such pervasive effects; this is its achievement. But its hitherto inadequate estimate of other factors has to be questioned. As far as religion is concerned, it should be considered a positive gain to have its infantile lines more clearly recognized. But to regard the whole religious dimension of life as only a "projective" elaboration of expectations grounded in infancy is to corrupt realism with myopic prejudice.

The doctrines of C. G. Jung, unlike those of Freud, are not open to this charge of "psychologism," of "reducing" religion to a projective function of psychological conditions. Jung allows

that the child-parent problems and complexes noted by Freud account for some of the psyche's difficulties, of course. Yet "the integration of personality" means for him something far more positive than the resolving of this particular group of problems. It means that for each one of us life's full resources (the psyche's basic functions and the archetypal patterns in the racial or "collective unconscious") must become personally organized or "individuated." The right paths to this achievement vary with individual types. In Jung's view religion and mysticism are intrinsically neither suspect nor mandatory methods. Psychologically considered, religion sometimes functions to arrest integration at a relatively immature stage; in some lives it is the way to the most complete individuation and achievement of reality, in others it is not.

Jung's attitude, while not essentially mystical, provides a sympathetic approach to mysticism, especially to contemplative and creative identification with myriad forms of a vast universe. "Personality," he writes, "is the Tao," and according to Laotse, the Tao, the way of the universe, is inexhaustible. His teaching should help to advance the idea that integration is not a matter of conformity to one standard pattern, but involves many diverse integrations. Yet Jung's view of human differences, and indeed his whole psychodynamics, seem insufficiently tied in with analysis of social relations and institutions. Likewise the study of mysticism, as pursued in recent times by others, from Bergson, Otto, to Aldous Huxley, has scarcely yet yielded sufficient understanding of the short-cuts which mystics usually take across the field of ordinary social relations. Bergson indeed offered a brilliant speculation for an answer. But if a catholic interest, such as Jung's, in different types of individual fulfillment could be wedded with more penetrating analysis of differences in social psychodynamics, such as the neo-Freudians are now furthering, something better than any school has yet achieved might still be produced.

Ought one, however, to expect an improved psychological and sociological science to find *the* true interpretation of religion? As a matter of fact, it must be questioned whether, in the sense of experimental science, there can be such an interpretation at all. In his book *The Interpretation of Religion,* Professor John Baillie discusses some of the reasons why psychology and sociology are not competent to achieve that interpretation. He then goes on to say that only a more adequate theological science, which

assimilates the fruits of psychology, sociology, and other studies of human life, can hope to offer a true interpretation of religion. Such a view is admirably aimed toward enlightened theology, and it would seem as though theology had a claim to be recognized as the architectonic science of religion. Yet in what sense can this claim be scientifically creditable? The very diversity of theological doctrines raises a familiar doubt; each historical theology has been disputed from some other religious standpoint. Those who object to psychological and sociological interpretations of religion do so because the perspectives of these sciences are judged to be unfit and too limited for the task. But the variety of religion itself also presents difficulties for any single interpretation, including theological ones. Theology has its own kind of narrowness. Being charged primarily to interpret some particular system of consecration, how can it ever do justice to the immense diversity in the field of religion as a whole? Considered in all the sweep of its historical and still possible manifestations, religion presents far too miscellaneous an aggregate of experiences and tendencies for any single system of doctrine to interpret completely.

These reflections do not in the least imply that it is impossible or profitless to extend scientific studies in the field of religion. They only mean that in doing so expectations and methods should be suited to subject matter and to problems and resources. There are many times and places, and many human cultures with many significant religious aspects in each. Experimental inquiry would consist in subjecting each aspect in its particular setting to examination in the light of various hypotheses and problems. The point of these reflections then is that, instead of expecting any one science or doctrine ever to achieve *the* true interpretation of religion, enlightenment can be better served if sciences continually collaborate in trying to understand the significance of specific religious developments in their various relationships. This point of view does not preclude valid generalizations about recurring aspects of religion. It does not preclude significant unifications of doctrine for specific purposes. But it does place emphasis on the fact that religion never exists by itself alone, but always as a part of some culture in a particular time and place. And it stresses that religious functions and meanings should be examined in relation to their context, and with all the resources pertinent to the context as well as to themselves.

In this light there is reason to find contemporary culture espe-

cially rich in resources for intelligent appraisal of religious ideas and institutions. But the resources must be applied to proper objectives. One should not look to psychiatry or sociology to define the nature and function of religion. But one does properly look to such sciences for help in achieving religious, as well as secular, ways that are less blind, less mechanical, and less restrictive. Without their aid religion, by its own customary devices, would find out less about its own bearings, tasks, and opportunities in contemporary life. Psychiatry today is a potent factor for awakening in religion a more enlightened sense of its therapeutic functions, as it is in bringing secular medicine to a new concern for the health of the whole personality. The advance of dynamic psychology should be of the greatest service in pointing the difference between more infantile and more mature adjustments, and between forms of discipline and guidance that are more restrictive and those that are more liberating. It will help to correct man's attempts to direct himself by a too narrow morality and self-consciousness without regard for the great vitality of unconscious forces and relations. It should help to create a new and more profound understanding of what emotive symbols are and do, and therewith restore a sense for the imaginative side of religion as something more than idle or aberrant fantasy.

Contemporary life is certainly issuing a plain enough challenge to bold, reconstructive development of these opportunities. While religion often enough has made justification its main emphasis, the present would seem to be a time to stress deliverance from evil by a therapeutic critique of institutions, including those of religion itself. It should be a good time to understand that to insist men be loved according to an exclusive credo or plan spreads resentments and hostilities as much as good-will. There is also occasion to question the prevailing economy in the realm of interpretive imagination, one of poverty rather than of abundance. That is to say, there is reason to think public custom is at fault in trying to load too much meaning upon a few symbols, while wastefully allowing the possibilities of many others to go unused. In medieval Europe an active religious imagination was involved in building the great cathedrals; in eastern Asia it helped to fashion great temple parks in which the sense of communion with nature was capped by a deep suggestion of spiritual peace through wonderful images of the Buddha. The fact that we so often try to copy medieval churches, and that the only use we can seem to find for a Buddha image is to stick it into a museum, surely reveals an

aspect of poverty and rigidity in certain of our institutions, and probably in our personalities as well.

This has been a discussion of religion's importance as seen from a number of angles suggested by different attitudes, problems, and resources in our culture. The reference to contemporary concern over destructive hostility, and to a poverty of interpretive imagination in public life, was not intended to define the functions of religion today in any comprehensive sense. No over-all inventory of functions was attempted. But the response, under present cultural terms, that religion succeeds in making to these problems, which grip life so deeply today, will certainly affect the kind of importance it is to acquire. Men are creatures forever falling short of the completions that life suggests to them. What religion does about those phases of their security and their liberation which they find still unfulfilled is always a great measure of its importance.

SOCIAL CRITICISM

MYTHS FOR MATERIALISTS

by JACQUES BARZUN

THE Anglo-Americans of the twentieth century complained that they had no myths. Their poets, critics and scholars kept bewailing this supposed lack and some even tried to supply it by artificial drafts upon the Irish, Greek or Oriental mythologies. Modern investigation, however, points to the familiar truth that the men of that restless culture were calling for something they already had. Myth, in fact, so pervaded their lives that they could not see it for what it was.

The proof of this statement rests chiefly on the finds recently made in a great hollow formed below the Manhattan schist, probably during the Big (or subatomic) Depression of 1999. Under the usual pile of rubbish in this vast and naturally airtight enclosure, excavation has revealed a group of small buildings, with some adjoining structures shortly to be described; and within the best preserved of these buildings, a large room virtually undamaged. This room may have been the library of a club, or alternatively—for the indications are ambiguous—a dentist's waiting room. In either event, the discovery remains the most significant since that of the lost continent itself. For although the books add little or nothing to our knowledge, the large mass of magazines dating from the middle years of the century constitutes a unique, illuminating, and priceless collection.

I hasten to add that in putting this high value upon it, I have in mind not the reading matter which presumably satisfied the contemporary readers, but the much greater bulk of pictorial representations, often accompanied by text, which resemble earlier fragments identified by the symbol ADVT. Scholars have disputed at length over the exact meaning of this device. I can now, I believe, settle the principal doubts and establish—or at least confidently advance—a fairly complete theory of the subject.

From CHIMERA, A LITERARY QUARTERLY, *Barbara Howes and Ximena de Angulo, Editors*

Copyright, 1946, by Chimera.

Those pictures, that text, enshrine the mythology of the twentieth century. After examining and comparing some seven thousand pieces, I am in a position to sketch in broad strokes the religious thoughts and the moral feelings evoked by that body of myths.[1]

I may at once explain that I draw my assurance from the curious structures which I referred to as adjoining the buildings recently found. Collapsed though these structures now are, it is clear that they were once meant to stand upright as panels of great size, occupying open spaces set apart to afford the widest visibility. All this suggests a religious consecration of both the site and the structure. On the face of these panels (often marked Outdoor Advt) were the same colored images as in the periodicals, but of heroic proportions and usually accompanied by some pithy aphorism. The number of such dedicated placards in a relatively small area like the one examined justifies my belief that we have in these words and pictures literally the revealed religion of the twentieth century.

It is normal in any culture for the commonest beliefs to be tacit and for the meaning of symbols to be so obvious as never to give rise to any glossary. From the outset, then, we face the double enigma of those four letters ADVT. What was their ordinary meaning and what their ultimate significance? The three main hypotheses regarding the first question are that the mark stands for (1) Advertising, (2) Advantage, and (3) Adventitious. Not the least startling conclusion I have come to is that the symbol denotes all three ideas. There is no discrepancy among them, even though historically the first meaning was the most usual. In twentieth century usage, "advertise" was a verb derived from the character of the Bitch-Goddess of Appearance, whose sacred name is now lost. The four letters stood for something like "Behold Me"—whence the plausible but false etymology of "advert eyes."

Without at first suspecting it, we touch here the central dogma in the Anglo-Americans' religious system. What they called their "modern" civilization was built on the preponderance of one physical sense over all the others, the sense of sight. Their science was not, as with us, the whole of knowledge, but only such knowledge as could be brought within range of the eye, directly or through instruments. They believed only in what they could measure, that is, what they could lay along a ruler, or between two hairlines, or could otherwise visually place. No competent

[1] More exactly, that *mytho-pinaco-prosopopoeia.*

student of their age can deny that they displayed extraordinary ingenuity in achieving this universal reduction of Being to the grasp of a single faculty.

But this monomania entailed an ascetic drying up of the inner life in every member of the culture. It was a prodigal expense of spirit for which ordinary life had to supply emotional compensation. Hence the need for, and the slow creation of, the vast mythology known as Advertising. An "ad"—as it came to be called in demotic speech—was simply the power of things made into pictures. Through the eye was given what actual life denied —beauty, strength, leisure, love, and personal distinction.

"Objects," as one contemporary philosopher confessed, "change their usual faces with the myth maker's emotions." [2] How much did he know of the origin and results of this transformation in the familiar things about him? We cannot tell, but in his day mind control through icons was well-nigh omnipotent. For example, by collating scattered references in the ancient literature with the newly found "ads," it is clear that just at the moment when the myth makers began to invoke the supernatural power of citrus to sustain and embellish existence, technological improvements were depriving the fruit of its natural color, taste and chance of ripening. At the very time when the sense of life as a whole was being atomized into a series of "processes," the mythology was verbally making up for the deficiency by a poetical iteration having Life as its theme. "Vital" became a magic word, as for example in an ad referring to the various kinds of popcorn eaten at breakfast: "Be sure you get the *vital* outer covering of wheat."

About the same period also, the mysterious substances called Vitamins—precious if measured by cost and complex if judged by their name—became the object of an official cult created jointly by mythologers and medicine men. To carry out the myth, Vitamins were chosen by symbolic letters and were weighed in thousands of "life-giving units." A last example will show how unremitting was this grasping after a runaway sense of well-being. Ten, twenty, thirty times a day, the Anglo-Americans were reminded of their need for vigor, for youth, for a "lift" by drug or weed—the worship of Pep. Initiated by one of the national heroes, Ponce de Leon, this quest was originally for a fountain in the south (*soda-fountain*). Many claimed to have found it and "advertised" to that effect; bottled drinks and packaged foods bore the magic syllable. "To be full of Pep" was equivalent to

[2] Cassirer.

our "enthusiastic" or possessed by the god—the rare state then known in full as *pepsicola.*

We must now turn from the concept to the embodiment, the pictures. What strikes the unprejudiced observer at once is the overwhelming emphasis on womanhood—presumably as the inexhaustible fount of human life—and on the situation of sexual approach as the characteristic moment in that life. If one did not know the ways of myth makers, their habit of juxtaposing incompatibles for the sake of a higher truth, one would suppose that the Anglo-Americans were unable to do anything without a member of the opposite sex in a state of provocative or compliant amorousness. In their iconography, seductiveness and sheeps' eyes invariably accompany eating, working, and riding, securing food, clothing, and shelter, listening to music or averting constipation.

An important corollary was that suggestive effects of nudity and drapery were limited, perhaps by law, to the portrayal of women. In all the seven thousand documents examined there occurs not a single instance of Father Paul's Pills showing him in tights, nor of the Chesterfield girl wearing a cassock. Despite this rigid esthetic, based on the complementary traits of the sexes as regards display, all objects whatever acquired an erotic component. The motive is clear enough: the artificial search for life through objects can only be kept at high pitch by associating the objects themselves with the strongest of desires. Advertising maxims were explicit enough: "Look sweeter in a sweater," "Use the soap with sex appeal," etc.

This mythopoeic principle did not, however, rely solely on the mating instinct. It employed two others, closely related—vanity and devotion to the Mother. This last, which goes back very far in the western tradition, was in its latest form singularly debased. Though I am certain that the best literary and pictorial talent of America went into this highly revered and highly paid art of mythography, all the efforts of these creative artists did not succeed in making The Mothers interesting. The type remained domestic and sentimental. One has only to think of the earlier school of Madonna makers, or of the medieval poet von Goethe-Faust, to see the difference.

The decline may well have been due to some obscure physical cause: the American myth-mother is always depicted as frail, grey-haired, with glasses and a senile rictus. Yet by a strange contradiction, the American maiden or young matron is almost

always represented as nature makes her during the months of lactation. This is an improbability—or a religious mystery—which I do not pretend to have fathomed.

Contrary to the feeling of all mankind about ancestors, the second appeal, directed at personal vanity, occupies a much larger place than mother worship. Yet the anomaly disappears when we understand the democratic paradox of competition within equality: everyone has a mother; not everyone has a Packard.[3] Moreover, mass production tended to make any class of objects (as of men) virtually identical; some kind of mythical individuality had to be imparted to them in hopes of its transfer to the mass man. More and more, the social self came to depend on the constant tonic of acquiring these specially wrapped goods, these "superheterogene" articles.

I cannot agree with a famous critic of that epoch, Veblen, who spoke of "conspicuous consumption" and attendant waste as the mainspring of "modern" behavior. He described, it seems to me, an earlier age, that of kings and nobles, who translated power into munificence. The common man, on the contrary, receives direct satisfaction from objects, and for the reason I gave earlier: that the goddess ADVT consecrates matter by guaranteeing (1) secret worth and (2) miraculous origin. This is in keeping with all we know about myth. The medicine man infuses the magic into the familiar thing; whence the American advertising formulas, "A Wonderful Buy" and "It's Different," i.e., supernatural. A fuller text of the best period informs us, over a beguiling triptych, "Not just a fur coat, but an important aid to gracious living. It will give your morale a lift, *as well as impress your friends.*" (Italics mine.) No distinction between direct and indirect help to self-esteem could be clearer, and as it happens, the distinction was noted even at the time by the author of the satiric poem, "Civilizoo." As he tersely put it: "Women think fur beauty, / Scholars, books knowledge." Here was no showing off, but simple faith in the fetish.

It would be tedious to enumerate the myriad forms of the faith: they equal the number of consumable articles. Some, however, lent themselves to the arousing of fear preparatory to flattery. To be soothed by possession of the fetish, the citizen must be first alarmed by a dramatization of evil—halitosis, falling hair, teeth, garters, B. O. (undecipherable), as well as by the ever-present threat of Wrong Choice.

[3] Highly upholstered locomotive.

In this connection I may instance the farthest reach of magic power found in our documents. As with us, the Anglo-American word for "spirits" has a double meaning, for alcohol makes man cheerful and enterprising. But the ancients' impressionable souls seem to have drawn virtue not alone from the contents of the bottle; they were affected by the label upon it, which conferred tone or talents on the buyer. Thus a celebrated whisky was normally advertised as being "For Men of Decision." One would have thought that the thing needed was a whisky for men of *In*-decision, but doubtless the poet was using the rhetorical figure known as hypallage—taking the result for the action. In a like manner, medicines, food and personal attire were, whenever possible, held up as proved fetishes.

In discussing any mythology, however "vital," one must consider the treatment accorded to the subject of death. At first, I believed that the ancients ignored it. I knew, to be sure, of a few covert eulogies of funeral parlors, but it was evident that the aim here was still to make the living comfortable. Then it occurred to me that the previously noted tendency to portray happy results without regard to probability might hold a clue to my problem. And it happened that I had on my hands a series of absolutely inexplicable ads. Putting two and two together gave me what I was looking for.

My unexplained series consisted of simple but beautiful compositions depicting entire families sitting about the fire in smooth white uniforms, deceptively like our own suits of underwear. The faces, suggesting the school of Puvis de Chavannes, are full of benignity and repose. The atmosphere, too, is unusual—hardly any luxuries, no hint of the muscular strain, due to toothache or dandruff, financial or scientific anxiety, which meets us elsewhere. More significant still, all marks of sex have disappeared. Young and old seem beyond self-consciousness, or indeed consciousness of any kind. I conclude that we are logically and mythologically bound to accept these beatific groups as showing us the way the ancients represented death.[4] I have in fact found one marked "After the Last Supper," but the words are pencilled in and may lack authority.

If we did not know how uncommon was the belief in an afterlife during the twentieth and twenty-first centuries, one could entertain the alternative that these classical figures were meant

[4] We find the same serenity in the users of certain soap flakes. This coincidence suggests that the flakes procured euthanasia. One brand was significantly called Lux.

for angels. But mature reflection rules out this hypothesis; I will at most concede that they may have been Supermen, in the very special condition of immobility. Since all other icons show action, or at least animation, I find it far easier to believe that this sober grouping, these firm outlines, are the work of the religious artist contemplating death. Under conditions then prevailing, it happened more and more frequently that whole families died simultaneously. Their friends coming to pay their last visit, without any hope of reunion hereafter, would find them posed by the undertaker's art in familiar attitudes, clad in ritual white—in fact in that one-piece knitted suit as advertised (with or without buttons) which would match the wreath of lilies and the silk-lined coffin. Over the abyss of centuries, one feels a catch in the throat at the thought of these once-living men, in whose desperate symbolism the white of snow, fitting like a new skin, meant death and peace.

Yet despite this symbol of hope, each year in midwinter—on December 25 to be exact—there occurred a nation-wide panic about the renewal of life. It may have come down from the old fear that the earth would not bear in spring. If so, with urbanization and technological farming the fear shifted from the earth to the self. Wearied by a routine divorced from nature, the citizen began to question his own survival. "Who and what am I, why so pale and listless?" Early November saw him sitting before a sunlamp to cure the paleness; the end of the month would see him, and particularly his wife, storming the shops.

It was a saturnalia of devotion to the goddess ADVT. The vernacular name Splurge indeed suggests a baptismal rite—to immerse oneself and wallow in things and be made new by contact. Life was goods after all. By an historical irony, the Anglo-Americans associated this feast with the short-lived founder of Christianity, who always showed the greatest alacrity in leaving his coat in another's hands, and who died possessed of one garment and three nails. His worshippers nonetheless celebrated his birth in a smothering of cloaks, scarfs, ties, silks, baubles and furs. This fact proves again that myth and religion are uncertain allies, but it also enables us to feel the pathos of that puzzling lyric in the American Anthology:

> The first thing to turn green in Spring
> Is the Christmas jewelry.

That "shopping" on these regular occasions was an essential

part of mental health is naturally assumed by the advertisers. But the practical proof of the assumption was never more striking than in the serious incidents of the so-called Reconversion Period of the mid-forties. Drained of goods by war, the people nearly perished. They starved, not in their bodies but in their imaginations: six years virtually without the consolation of ads were to them as the suspension of the sacraments would be to us. The shops, though bare, were haunted by women as by insects seeking their prey, while the entire population grew irritable, distempered, antisocial. Women fought over pylon hose (i.e., leg coverings) and men committed suicide for lack of telegrams. Diaries tell us that those who by luck secured even a single object—an icebox or a full-tailed shirt—showed the restorative effect immediately. It was at the worst of these bad times that a laconic sage summed up the mood in the famous phrase, "Money no Object."

Such is, in rough outline, the mythology of the Anglo-Americans as far as archeological research can reconstruct it. I reserve the right to give a fuller account at some later time and to make it more vivid, though I trust not more persuasive, by the addition of plates in color. Meanwhile it may help to settle any lingering doubts if I conclude with a few words on the historical link between the faith in ADVT, on the one hand, and the powerful class of medicine men, on the other.

What distinguishes ADVT from all other great creeds is that its beginnings were perfectly natural and its final form completely miraculous. But at all times it was entangled with established religions. We know that the Greeks, almost as soon as they learned to write, began to inscribe curses on sheets of lead, which were then placed in their temples to call down the vengeance of the god on the person so advertised.

In the early Middle Ages, the public crier could be hired for any sort of advertising and it is on record that new religious dogmas were sometimes entrusted to his powers of publicity. Throughout every period, the marriage market made use of kindred devices and called on the gods to further and sanctify the deed. With the advent of the daily printed sheet, about the middle of the eighteenth century, the real cult of ADVT begins. Dr. Samuel Johnson, an early anthropologist, complains in 1759 of abuses then coming into practice: "It is become necessary to gain attention by magnificence of promises and by eloquence some-

times sublime, sometimes pathetic . . ." and it is "a moral question" whether advertisers do not "play too wantonly with our passions." [5]

But the junction of all the elements into what I ventured to call a *mytho-pinaco-prosopopoeia* (fable in pictures personifying things) came at the end of Dr. Johnson's century, when a medicine man of Bristol, Dr. Joseph Fry, had the revelation that his Maker had chosen him to extend the business of importing cocoa, and had ordained the means. He carried out this injunction in a small way at first, then on a national scale; himself boasting that he was the first man, not indeed to import cocoa, but to import the idea of a *signed guarantee on each and every package* into the distribution of goods. From him were descended the brothers Smith, Lydia Pinkham, and other eponymous figures worthy to rank with Beowulf.

In time, the signed guarantee became superfluous. A strong assertion in print, with an illustration lending color to it, sufficed to make converts. The suffering martyrs to a cough became willing martyrs to *Rem,* the well-named. But an overextension of this true church nearly caused its undoing: too many rival assertions neutralized one another. New guarantees were needed, fuller of Authority than manufacturers could command. They appealed, and not in vain, to a new class of medicine men, the laboratory testers.[6] Their success was shown by the fact that in a short time all advertising emanated from a few Oratories and Laboratories, keeping up, for appearance's sake, a pretended competition among products.

In the final phase, the tester was simply symbolized by a white coat, a piece of apparatus, and the look of a seer. Behind him, invisible but using him and his device, was the newest type of Thaumaturgist, to whom no miracles were impossible. I refer to the Expert in Public Relations. He was believed capable of making fraud innocuous, starvation pleasant, and wars remote. It was rumored that such a man had once succeeded in making the public take an interest in the curriculum of a university. But this exaggeration can be dismissed.

Heretics could now and then be found who tried to undermine the common faith. But their small numbers can be inferred from the fact that they were never molested. They might deride myth-

[5] *The Idler,* No. 40.

[6] "A medicine man sits on a deerskin when he makes medicine. He puts herbs in a can, adds water and blows bubbles through a straw to purify it."—From a contemporary account.

adology, calling its effect "the massage of the mass age," the larger body of believers could ignore them and sincerely continue their search for myth. Perhaps this was as it should be, for myth will move mankind most when they do not call it so, and what men find indispensable, they preserve. The conveniences of life, as their name implies, are matters of convention; so Chesterfield must forever repeat "They Satisfy," though things in themselves do not. But things enhanced by art and color, sex and slogans, did give the illusions of a lotus-eating life to the men of the strange civilization I have described. The role of ADVT was to suffuse visible matter with invisible virtues, adding to bread the nutrition it had lost and to stone or steel the warmth it had never had.

SOCIOLOGY

FAREWELL, MY LOVELY MAGNOLIAS

by J. H. MARION, JR.

WITH varying degrees of concern, thoughtful Southerners for years have watched one of their section's rich material resources—the fertile productive topsoil of many fine Southern farms—drain slowly away down the rivers to the sea. Today it is good to be told that by a better care of the land this age-old fatal erosion is being checked.

It would be a good deal better, though, and much more reassuring, if we of the South could be told that in thus protecting our soil we are beginning at last to solve other highly important conservation problems that confront us. We can be told that, of course, but not truthfully: for the real fact is that our main problems in this area today happen to be about nothing material but something human. A most expensive erosion now going on in the South, and going on pretty much unretarded, is that deadly variety involving the immense, immeasurable loss of many outstanding, useful people—men and women of first-rate talents and ability—to other sections of the country. It is a wearing away that takes place so quietly that many intelligent Southerners are perhaps not even aware of it; yet nobody who looks at the figures can doubt that on the crest of a pretty broad river—a branching river that runs chiefly north and west and which like the Old Man among rivers "just keeps rollin' along"—vast chunks of the South's most fertile human topsoil have for generations been ebbing away.

It is high time, I want to submit, that we Southerners who boast of our regional patriotism waked up and took the measure of this unflattering and impoverishing fact.

One needs no detective's eye to uncover ample evidence of what has been going on. Almost anybody with eyes open, out of his own community or acquaintance, could name half a dozen of these superior Southern exiles without half trying. Take, for

From THE YALE REVIEW, *Helen MacAfee, Managing Editor*

Copyright, 1946, by The Yale Review.

example, my own friend Jim. Jim and I grew up in the same town in the South together. He went to a Southern college, graduated with honors, went on to Oxford on a Rhodes scholarship, came back to a chair in a Southern university, grew restive and resigned, and now is teaching philosophy in one of the better schools of the Middle West. His mind, character, and ability are the sort the South can ill afford to lose; but lost him we have—and Jim's name, alas, is legion. Scattered all over the North and West, in a wide variety of enterprises and institutions, you can find people like Jim by the score. They may, to be sure, have retained their Southern accent, and more than a trace of the scent of cape jasmine may still cling to their garments. But what is important is that, while they once were Southerners, they are now ex-Southerners. They have quietly cut their Southern roots, shaken the dust of Dixie off their feet, and now are pursuing their careers in other, if not more sunny, climes. What is more, except for an occasional visit, most of them, it is safe to say, have no desire whatever to go back.

So far most of us stay-at-homes have taken all this with our customary Southern calm; but we can't shrug them off, these exiles, as unimportant people—not as a group anyway, and certainly not when the total impact of their departure upon the South is soberly considered. Take a brief but closer look at them —their number, quality, and variety. Recent careful studies paint the picture fairly clearly. There is the one made a few years ago by Dr. Wilson Gee of the University of Virginia, for example. Dr. Gee took the latest volume of "Who's Who in America" and scientifically dug into it to see how many of the eminent Americans listed there had been born in the South, and how many had moved away to other parts of the country. What he found is of more than academic significance. Of the 6,015 southern-born white persons listed in that volume of "Who's Who," no less than 2,229 were at that time living outside the South. Of those who had gained eminence as educators and religious workers, nearly a third had waved the South good-bye and were making their contributions elsewhere. Nor was that the worst of it. More than a third of the distinguished business men born in the South had left it, and so had nearly half the editors and authors and upwards of eighty-five per cent of the actors and artists. It was true, of course, that many such people of comparable ability had *come into* the South from other parts of the country, but even so the swap was far from even; for as compared with the 2,229 out-

standing people the South had given away, it had received only around fourteen hundred non-Southerners of the same general type—the net loss to the South, to be exact, being 813. And on top of that, Dr. Gee declared, "It is a demonstrable fact that the South does not receive man for man the same grade of persons that it sends to other parts of the country."

This means, quite simply and bluntly, that with the South thus losing its most able and talented people about three times as fast as it is losing its native white population as a whole, this part of the nation, which for the past eighty years has stood in direst need of social rebuilding, is being systematically drained of a large amount of its most creative and vigorous leadership.

Far from being dismayed or even impressed by such revelations, of course, the great majority of my fellow Southerners may keep on saying, "So what?" The loss of all this talent matters little, many apparently believe, because what really counts in their estimation is not the number and quality of those who leave but the quality of those who stay. "We've still got plenty of fine leaders left" is the way countless Southerners doubtless feel about it. But have we? To harbor any such pleasant opinion is to be at once socially short-sighted and false to the facts. A single sober warning from Dr. Rupert Vance, eminent sociologist of the University of North Carolina, should be enough to make us think again. Dr. Vance asserts in a recent book entitled "All These People": "More than anything else the future cultural and economic development of the South will depend on leadership. . . . Quality is demanded, but for the achievement of cultural maturity any society needs men of ability and talent, however defined, in quantity." Yet it is precisely *a sufficient quantity of quality* of which the unending migration of talent is robbing the South. That a great many fine and able Southerners, with character and gifts of leadership, are remaining in the South the figures clearly show, and for that the South should be grateful. But appreciation of these should not make us indifferent to the lost influence and power of the others. If, as it does, our region lags behind the rest of the nation economically, politically, and educationally, and if demagogues too often arise to mislead the masses and bring the name and ways of the South into contempt, the basic cause, I think, is not where we commonly look for it. It is not merely that we have too many gullible, ignorant people at the bottom but that we have too few able, informed, and well-trained people at the top. Southern schools and colleges, Southern newspapers and

magazines, the Southern bar and the Southern church, to name no more, are not getting in sufficient number the kind of leaders who help to make ignorance unpopular, reaction repulsive, and gullibility impossible. The root trouble, in a word, is with the creative and progressive Southern minority. Too many members of that group are leaving home.

Why? If any effective remedy is ever to be applied to the situation, that is the fundamental question to be faced and answered. To do that honestly will not, for many of us I am sure, be easy. For the hard, unflattering fact is that so far as the great majority of these abler Southern exiles are concerned, the main cause of their exile is not something they have seen or been offered in the North or West, but something they have known and felt in the South. They have, in a word, not so much been drawn away as driven away—and if my more ardent Southern readers will now stop reaching for brickbats long enough to read on a bit further, I think I can prove it.

But let us deal with the more obvious and superficial causes first. A number of these can be summed up in the single magic word—"opportunity." A modern Southern scholar writes, "Superior opportunities lie outside the South, and it is in search of these that the talent has been attracted from the region." And no informed person can doubt that, so far as it goes, his statement is true. If on turning out a first-rate book in history Professor B—— of Florida gets a call to a chair in Harvard, Cornell, or Michigan, we can understand it if the tender cords that bind him to Siwash-on-the-Tallahassee are soon regretfully broken. Because "money talks," and a broad field of service talks, and because for years the North and West have had the power to make them talk as the South, by and large, never could, their compelling attraction for ambitious and gifted Southerners has been strong and often irresistible. Let this much be frankly admitted.

What many of us are not prepared to admit is that outside opportunities of *any* kind tell the whole story. It requires something more than bigger money and wider fields of usefulness to account for this steady and prodigious exodus of Southern talent —something more than both together that is far less tangible than either. Consider, by way of parable, this picture drawn by a Northern observer just after the close of the Civil War: "The number of Southerners living at the North, particularly in the city of New York," he wrote, "seems almost fabulous. They are . . . selling prints, shoes, and groceries on Broadway, Cortlandt

and Canal; furnishing matter for the critical and local columns of the newspapers; clerking in wholesale houses, and, in a word, filling every imaginable place of business from a candy shop to the spacious counters of the merchant prince. Judges and lawyers who were the ornaments of the Southern bench and bar; brilliant journalists, poets, and novelists; eminent statesmen and military leaders; . . . and even beardless boys, full of ideas and forsaking a doomed country—they are all there by the thousands and tens of thousands." Now a casual eye, perusing these lines, may see as the one explanation of all that "humanity uprooted" the mere superiority of Northern opportunity. But take another look at that phrase, "full of ideas and forsaking a doomed country." That description was true not only of the beardless boys but of the great majority of those who in the wake of Sherman fled the South for greener pastures. What pulled them up and out from a land that many fondly adored was not the prosperity of the North so much as the prostration of the South. It was the "doom" of their section that propelled them towards the open doors of another. I believe that is a parable of what has been happening ever since.

The modern South, to be sure, is far from being the doomed region it was in 1865. But if that term is inappropriate now, the word "defeated" at least is less so. For the fact is, unwilling as we may be to admit it, that we Southerners, by our unwitting and often chronic complacency, our oversensitiveness to criticism, our intolerance of liberal thought and progressive movements, and by our frequent nostalgia for "dear dead days beyond recall" (which in many respects aren't worth recalling)—the fact is that by such moods and attitudes we have been giving ourselves a far bigger beating than Grant and Sherman or even old Thaddeus Stevens ever dreamed of giving us. Hard words? Yes, but I put them down deliberately, speaking in love what I believe is the truth.

Take a familiar but rather classic illustration. A few years ago when a famous study of Southern economic conditions prompted President Roosevelt to call the South the nation's "Economic Problem Number One," it ought to have been clear to all Southerners (it was, of course, to some) that so astute a politician as Mr. Roosevelt would never have called the South anything that he felt was in the slightest degree insulting. All he was trying to do, of course, was to face facts and coin a phrase that might stir people to deal with the facts realistically. But was that the way

the South took it? Judging by the foam at some mouths, you might have thought the President had called the South everything from a carpet-bagger to a sore-back mule. In a three-column editorial entitled "North Carolina Begs to be Excused," the "Charlotte Observer"—to mention only one response of dozens like it that might be cited—took off its coat, spit on its hands, and hotly repudiated the whole idea on the ground that "you can doubtless walk around a rich man's estate and find some garbage."

It is, I am convinced, by such essentially immature responses to mature and well-meant criticism, both inside and outside the South, that our region is repelling many of her ablest sons and daughters and thereby throwing away much of this priceless raw material of progress. Granted, to be sure, that there is another side to the picture: granted that there is a gracious, wise, progressive, and charming South. But it does nobody any good, we need to realize, to look so hard at one side of his life that he comes to believe it is the only side; that's pathological, no matter which side is looked at; and what is true of an individual is no less true of a nation or part of a nation. Yet it is precisely that kind of morbid overconcentration on the brighter side of our life that is today our section's main spiritual affliction. Instead of examining ourselves to see wherein we might change and improve ourselves (something, by the way, that all sound science and true religion bid us do), we have got into the proud and pernicious habit of justifying and defending ourselves. The result, all too widely, has been a stifling and deadening atmosphere of mental and spiritual repression. Young men have come along, and older ones too, "full of ideas" and a real desire to move the South along, but all too often the incentive to create and the ambition to serve are crushed out by the deadly pressure to see, hear, and speak no evil about dear old Dixie, and to think little or nothing that will upset tradition.

As a good example of what too often still happens—though normally in less spectacular fashion—take the case of the young historian John Spencer Bassett, whom North Carolina forty years ago virtually handed over to Smith College. When, as a professor in Trinity College in 1903, Bassett wrote an article in which he casually referred to Booker T. Washington as "perhaps the greatest man save Robert E. Lee born in the South in a hundred years," he at once became the hounded victim of one of the most savage man-hunts in Southern educational history. Spurred on by a Raleigh newspaper, which all during the furore kept printing his

name as "bASSett," citizens high and low went after him like a pack in full cry thirsting for blood—and one day they got it. Though defended by his fellow professors, president, and board of trustees, Bassett finally gave up and took the chair at Smith which offered him a chance to breathe freely again and to write whatever he pleased about Booker T. Washington.

I know, of course, that we seldom do this kind of thing so brutally any more, but new chapters on the same old theme, nevertheless, go on being written to the loss and shame of the South. To take but one more example, let me mention a fairly recent exile who can speak for himself. A young newspaper writer of outstanding ability, he was awarded some years ago a Nieman Fellowship for study at Harvard. As he was about to leave Alabama for Cambridge, he says, he got a letter from one of his old college professors. It closed with the words, "You must return to the South for service in your chosen field." Another letter said: "One thing only, come back home when your experience with Harvard ends." But the young writer seems to have had different ideas, and in a caustic letter to "The Nation" he tells why. "Before I departed for Harvard," he says, "I told a friend that the wisest thing I could do would be to print a handbill denouncing Jefferson Davis as a scoundrel and his cohorts in rebellion as arrant fools. Then I should be run out of Alabama on a rail. That, I thought, would be better than, after a year abroad, being looked on with scorn and contempt as soon as I was heard to mutter one critical comment on Southern affairs."

These are not pleasant words. I don't even think they are all strictly true. But we shall make a mistake if, annoyed by any bitterness or distortion in them, we fail to face honestly the truth in them. It might be immensely consoling if we could wave aside all such words as the petulant outpourings of brash young cynics; but we can't. There are many other ex-Southerners who feel the same way and who, when they speak, bear essentially the same testimony: young teachers, for example, who, convinced of a truth than ran afoul of Southern pride or custom, have heard the ominous voice of some president or board of trustees saying, "You can't teach in here!"; young preachers who, eager to speak for God in the spirit of Amos and Micah and Jesus, have found their Southern congregations far readier to venerate the memory of dead prophets than to open their ears to a live one. Nor is it merely in the field of race relationships that these would-be speakers-out have a difficult time; it is, partly because of our

tradition there, almost everywhere. Our racial pattern is so rigid, its daily compulsions are so at variance with our principles and our finer human instincts, and the atmosphere it sets up is so pervasive, that its repressive and stultifying effects are felt in practically all areas of our social life, making it harder for the typical thinking Southerner to be avowedly unorthodox and liberal, about anything, than perhaps similarly placed individuals elsewhere in the country.

Towards the end of his "Southern Exposure," a mellow book portraying the charm of an antique South he all but idolized, wise old Peter Wilson declared: "Out of the very sympathy and unity which a vanquished people develop there may grow a tyranny of prejudice. That has happened to us in the South" until now "we punish intellectual pioneers as we punish political renegades." Any wonder, therefore, that many of the pioneers are now doing their pioneering somewhere else? Any wonder that, putting personal liberty and integrity above sectional loyalty, many of our better minds and more progressive spirits are going where they can find in fuller measure the values they prefer? "Entreat me not to leave thee"—that much at least of the charming little speech of Ruth the Moabitess I am sure a good many Southerners must have spoken in their hearts to a South they loved as Ruth loved Naomi; but if as a region the South insists on suffocating itself in the stale air of its own complacency, we must not complain if many of these same Southerners pointedly refuse to go on and say, "Where thou diest will I die, and there will I be buried"! For the stern truth is that many of these superior folk have fled our borders not so much for their *living* as for their *life*. Behind their loss to our section is not merely the drawing power of other regions but the coercive and confining force of our own.

What, then, is to be done? To try to stop this particular migration entirely would, of course, be neither wise nor wholesome. Within reasonable limits, regional interchange of talent is a good thing, serving at once to allay provincialism and to foster the rise of a truer national consciousness. But when by an unintentional overdisplay of generosity one section begins damaging itself to the point of practically mortgaging its future, its prodigality, for its own good, had better be checked as soon as possible.

Whether Southerners in general are willing to pay the price of that, I don't know. But let us be optimistic enough to assume that many of them will be. What will the price involve?

Basic to any vital remedy, I am persuaded, must be the cold-

sober realization that nothing we can import—material or personal—can take the place of the native talent we are now exporting. It is because at bottom too many of us don't believe this that more is not being done to keep more of the right sort of Southerners at home. Take by way of illustration the popular belief that about all we need for safeguarding Southern prosperity is more Northern industry and Northern capital—a conviction which, in some circles among us, amounts almost to a fetish. But with all due respect for Chamber of Commerce sincerity, what we need to see, first of all, is that no amount of such material imports will guarantee our prosperity unless all our expanding industry is run in a socially constructive fashion. The crucial factor is not the size of it but the purpose of it. What will be the effect of its aims and policies on human beings? Will it be run as a public service, or mainly as a kind of private gravy train for the benefit of a handful of managers and directors? The answer there will turn partly, and perhaps chiefly, on the social vision and the public sympathies of Southern people, as these are made forceful and effective in community sentiment and the laws of the States. Yet nobody can well deny that all such things will depend, in turn, upon the quality of disinterested leadership the South is to have in the field of social thought and action; and thus to go on losing, as we are doing now, so excessive a share of the very leaders who stand for a progressive and person-centered social order, will tend inevitably to make the South more and more what it all too often has been—a kind of "happy hunting-ground" for industrial enterprise in search of cheap and docile labor.

Not for a moment am I pleading, let me hasten to say, for the sort of return to a simple agrarian culture so ardently advocated by the authors of "I'll Take My Stand." In hurling their anathemas at all industrialism I am quite sure the agrarians go too far. But, disagree as we may with their back-to-grandfather philosophy, the agrarians are everlastingly right in their insistence on the superiority of spiritual values over any and all the material by-products of a bloated industrialism; and because a purblind devotion to the gods of Progress and Prosperity does have a way, as they so clearly see, of crushing and killing our appreciation of personal values and human character, it is only as we succeed in keeping, in sufficient quantity, the kind of liberal, humane, and courageous leaders we are now bestowing so prodigally on the rest of the country that our total prosperity will be assured. And that is why I say—though it may sound a bit naïve to many—that

if our Chambers of Commerce are really enlightened, they will be as zealous in keeping such forward-looking Southerners around as they are in trying to inveigle enterprising Northerners in. For a proper supply of the former there is no adequate financial or material substitute.

Nor any adequate human substitute either. That our section, as I have already said, has been immeasurably enriched by the human resources poured in from the outside, is undeniably true. No informed and grateful Southerner would think for a moment of arguing otherwise. In scores of Southern pulpits, classrooms, editorial offices, and similar positions of leadership, valuable Northerners and Westerners are serving with ability and often distinction, and the total influence for good of their cross-fertilizing contribution is beyond computation. But the fact remains that on many prickly social issues they simply cannot speak with the same force and authority, nor call us to repentance with the same success, as can many of those who, in the words of Brer Rabbit, have been "bred and born in the brier patch." There is no use denying the truth of Howard Mumford Jones's observation that Southerners, by and large, "never accept the outlander"—we don't: not, certainly, when we think the outlander is trying to reform us, and often not when he comes and lives among us without any condescension or trace of missionary zeal whatever. Thus no matter how unreasonable or unfair this attitude may be —I happen to think it is often both—we must not blink for a moment the fact that we are now saddled with it, as a section, and probably will be for some time to come. Its fundamental meaning, whatever else it may imply, is unavoidable. Of attractive and forceful southern-born leaders who love the South and know its problems, and who while never forcing an impossible pace are yet eager to call the South forward to better ways of living—of such folk of our own we cannot have too many. We need to raise all we can and then keep our fair share of those we raise, because no other brand of leaders can, for a while at least, fully take their place.

But concerning these invaluable human assets of ours, that isn't by any means all we need to do. Recognizing their indispensability is only the first step. The second is harder but no less important: *we must give them their heads.* We must allow them ample freedom for the kind of thought, speech, and action which will keep blowing through our Southern life the cleansing and ventilating winds of new ideas and dissenting opinions.

If there is one pre-eminent social lesson that is being taught today by the fate of modern Germany and Japan, it is the life-and-death importance of wholesome national self-criticism. When a people becomes so satisfied with itself that it stops criticising itself, it begins at once to liquidate itself; it starts committing social hara-kiri by falling upon the sword of its own ego. What sealed the fate of Germany, for example, was not the witchery of one man but the virtual self-abrogation by the people as a whole of their right to think and speak freely of the Nazi state—the surrender, in a word, of a priceless and germinal freedom into the blighting hands of the *Fuehrer* and his henchmen.

That isn't the pass, of course, to which we have come in the South. Far from it. But while we have no *Fuehrer,* and while it would be unfair to brand our region as fascist, it might be well to bear in mind that a glorified past, a sacred pattern of life handed down to us by our fathers, may impose upon us—without our knowing it even—a tyranny almost as baneful as that of a living dictator. That has happened once at least, beyond question, in our Southern history. A hundred years ago, as all who know the story are sadly aware, the South was in the midst of a thirty-year period almost as ruinous, intellectually and socially, as the period in modern Germany between 1933 and 1945. Whereas up to about 1830 slavery could be discussed fairly freely, pro and con, after that it could be discussed freely in only one way—*pro.* Slavery was "right," "just," and "Christian"—that was the party line, and woe unto him who dared to say it nay! Books on the Negro appeared which in many ways sound today like the anti-Semitic tommyrot of the late Dr. Goebbels. Pulpit, press, and private tongues took up the racial dogma, and such was the pressure brought to bear upon individual objectors that, with all the anger and heartache of refugees fleeing a modern Gestapo, scores and hundreds of outstanding Southerners quietly pulled up and left. Of many Southern intellectuals who stayed, the fate of William Gilmore Simms, if not typical, was at least revealing. After trying vainly for years to gain readers for a vital literary magazine—which won attention and praise in the North but not in the South—Simms in 1857 virtually gave up with the bitter remark, "I am sick of the labor of drawing water in a sieve."

It is the deeper lesson of that dark period that our region must learn if too many of our better Southern leaders are not to go on being lost to us—often lost with the feeling not so much of being exported as being deported. The fact that we have far more free-

dom of thought now than our section had in 1845 must not blind us to the ugly and stubborn fact that we have far less of it than we ought to have. Our goose-stepping, admittedly, may be a far cry from the old ante-bellum variety, but it's goose-stepping nevertheless, and a region of goose-steppers, we need to remember, is no more admirable nor wise than a nation of goose-steppers. On the Negro question, to be specific, we must have done with this stupid cultivation of a hush-hush attitude that makes it all too easy for those who want more justice in this field either to keep their opinions under their hats or take them north of the Mason-Dixon line. The great majority of Southerners who are liberal thinkers on that or any other question, it is safe to say, are not demanding or expecting universal agreement or applause; nor would they like to be surrounded with so soft and balmy a social air that all need for courage would disappear. But they would like the privilege—that privilege to which they are entitled as Americans and which they believe is a primary condition of a people's social health—of voicing and even living their dissent without being looked upon as either crackpots or criminals, or both.

The cost to itself in granting that privilege may be more, to be sure, than the South wants to pay. But there is no cheaper road to the conservation of its human wealth and the social values on which adequate progress depends. We cannot be saved by our charm and grace, or by that amiable optimism which so often makes us feel that everything will somehow "work itself out all right" in the end. Nor will it be enough to seek redemption in the popular and fairly painless remedy known as "better education." That will be indispensable, of course, but even the building of first-rate universities and graduate schools will do small good in the long run if, when our better-trained young people emerge, we are not prepared to give them a hearing and are determined to receive from them nothing but the ideas they had when they went in. Creative leadership, like plows and fertilizer, obeys the law of supply and demand, and there is no way in the world to keep the supply from drying up except to keep the demand from dwindling. A renaissance of realism, tolerance, and vital self-examination, therefore—a rebirth that will save us from being, in Ellen Glasgow's phrase, "a section slipping through life without looking it in the face"—that is what is called for, and what we must experience, if more of our bright young Southerners are to be kept at home. Without that, any other price we attempt to

pay will be about as effective as sentimentally singing "Dixie" or waving the "bonnie blue flag."

Ralph Barton Perry says in a wise passage of his monumental study of "Puritanism and Democracy": "When a man plants a garden, he dreams of a diverse pattern of flowering. He does not, however, attempt to regulate its growth. He plants seeds, he provides favorable conditions of soil, moisture, sun, and air. He spaces his plants so that in their growth they will not interfere with one another. He may even prune them and train them. But he counts heavily, most heavily, upon the genius of the several plants themselves and upon the principle of growth which is inherent in each. If he did otherwise, if he opened the seeds and uprooted the plants, subjecting them to perpetual supervision and manipulation, he would have no garden, but only a dead architectural design. . . .

"Similarly, a liberal polity will define areas within which individuals and groups can grow and flower in accordance with their inherent propensities. It will prevent their mutual interference, it will provide favorable conditions of soil and climate. Its ideal of life is not simple and uniform; on the contrary, it aspires to richness and abundance through the spontaneity of its constituent parts."

Nothing but the re-ordering of our Southern life in accordance with that profoundly vital truth will do. Nothing less will avail to keep at home in sufficient numbers the people we can ill dispense with—the human tools by which alone our material and moral values can be conserved and our region brought abreast of the rest of the country.

Unlike William Gilmore Simms, let's be sure, many of our ablest young men today are not going to stick around the South "drawing water in a sieve" till they are sick of it—not if they can help it. They will simply go off somewhere else where they can find a bucket. I say that if we Southerners know what is good for us, and if we are half as smart as many of us claim to be, we will, at any cost to ourselves in pride or money or effort, supply them with the bucket first!

THEATRE

THE STATE OF THE THEATRE

by HAROLD CLURMAN

MY FRIEND Irwin Shaw recently wrote a preface to his play *The Assassin* in which he pointed out that what ailed the theatre was (a) the critics (b) the unions (c) the try-outs (d) the theatre owners, producers and directors and probably (e), (f), (g) the audience! Nearly everything he said was true, though all the points he made might be added up to *one*. None of the isolated complaints are much more than cocktail party chitchat unless a single truth, of which the items listed are merely facets, is recognized. But it is precisely this simple and formidable acknowledgment that we fear to make.

Our American theatre today is poisoned in all its parts because it is run primarily as a business. But even as a business the theatre is unsound because it is founded on the separate unit of the individual show. Each of these units is financed and sold singly without any relation to one another. There is no continuity either in program or in financing. While this condition obtains, nothing can be basically right in our theatre-world, and all our well-intentioned criticism and noblest vows must remain pointless and futile. Let us see why this should be so.

Only last week I read a play by one of the few authentic dramatic poets of our day, a play which I consider a masterpiece, and which almost anyone in the theatre would concede was a work of the highest distinction. It has a noble theme, it is entirely lucid, it offers great opportunities for theatrical virtuosity to actors, director and producers. It calls for a large production of the most careful sort. Equity would probably agree that it should have at least five weeks of rehearsal, but it actually requires more.

Now since we have no repertory theatre or any organization with a continuous and stable financial policy, the funds of a previously successful show cannot be used to support the undertaking of the play under discussion. From a practical standpoint, it has

From the NEW YORK TIMES *Drama Section*
Copyright, 1946, by The New York Times Company.

to be viewed as an independent venture. The following therefore has to be considered. It will hardly repay its backers unless it runs a year or more to almost capacity houses. Its potential picture-sale value is slight: it is a costume play with some of the intellectual calibre of Shaw's *St. Joan*—but without any possible battle scenes! If, when it is produced, the running costs are high, the real-estate interests are impatient and business should fail to attain smash proportions during the first week of its run it will become a very dubious affair. If moreover the production is not "perfect," the press would undoubtedly prove forbearing and lukewarm. Then the play will prove a flop indeed. To do such a play in terms of a single investment is a species of folly.

My point is that since these are the inevitable conditions dictated both by the organization and the ideology of show-business, the attempt to do anything beyond what is deemed sure-fire becomes an increasingly unprofitable and even unworthy occupation. The playwright with something to say becomes disheartened and intimidated—there are no other words to describe at least half a dozen of our outstanding playwrights—and begins to produce his work in between more lucrative jobs, and ultimately not at all. The producer and director—already operating with the aid of picture money or promises—must eventually seek out a more active and useful way of functioning, and 95% of the most promising new acting material will inevitably look for a place where it is assured sustained employment—which means outside the theatre. The theatre audience today is for the greater part an audience conditioned to a depressed standard of theatrical effort. It follows the lead of a press that responds to what seems trim and efficient which, under the circumstances, must generally derive from basically routine and unambitious sources. Thus the corruption that ostensibly begins at the "top"—with the producers and the backers—affects each and every constituent element of the theatre from playwright to audience and critic.

Is Hollywood then the villain of our piece? Certainly not. We cannot blame Hollywood for doing more successfully what we have accepted as our own aim—to make money out of entertainment. To be brutally factual, we should admit that the theatre today virtually owes its existence to the presence of the picture and radio business. . . .

The real damage done us by Hollywood—and it is our own fault—is not that it has created competition for us but that we have assimilated its philosophy. The theatre today can only re-

cover its value by returning to its original purpose, which was to serve as a means of expression, measuring its success in terms of the human and spiritual worth of its product. Are our great Museums of Art, our large Symphony Orchestras, our Opera, our Public Libraries flops? They do not make money, but can one deny that they play an important role in our community life?

The unredeemed "realist" will say "If the shows you like aren't sound properties, if they can't make money, they don't belong in the theatre." I would readily agree—if I accepted the premise that immediate profit should be the theatre's main objective. Was Wagner a success on his opening nights? Ibsen? How much money was there in Eugene O'Neill before *Anna Christie* and *Strange Interlude*? Chekhov was not "commercial"—even in Russia—till the Moscow Art Theatre by dint of repetition and the enthusiasm of an enlightened criticism put him over.

More than this: some of the proudest things our American theatre boasts of—such as the work of Eugene O'Neill, and the best productions of the twenties and thirties were fostered by people who thought of theatre in the first place as something more than a profit yielding enterprise. I refer, of course, to the Provincetown Players, to Arthur Hopkins, to the Neighborhood Playhouse, The Theatre Guild, the Civic Repertory Theatre, The Group Theatre, The Federal Theatre Project.

To fail in business is somehow to be foolish. In a vital theatre place must be allowed for the "failure" as much as for the success. The masterpiece of tomorrow may grow from what may seem incomplete today. This is true in every art, since no one knows what destiny awaits the clumsy Cézanne, the offending Picasso, the fumbling Dreiser, the nerve-jangling Stravinsky when they first appear. Who won first prize the year Euripides failed to capture it? . . .

In a theatre, which has no room for the untried, the new, the challenging, because all these may not immediately win the hearts of the critics' circle plus the plaudits of the picture companies plus the approbation of the ticket agencies plus the indulgence of the booking offices and the audience for whom all these are gods, there is little hope for a future above the level of a pretentious flea circus.

Such is our theatre, not because any individual person or group of people is bad or untalented, but because it has set itself the false goal of profit in a realm where having such a goal is uncreative and finally even unprofitable.

Each of the theatre's particular ailments must be viewed in this light. Consider, for example, the matter of unions. Certainly many of their rules and regulations are extremely detrimental to everyone concerned. But can we ask the theatre's mechanics to think of anything beside their immediate gain when its artists are in the end also forced to think of nothing else? As long as we acquiesce in theory and in practice to the false principle of the theatre primarily for profit we must be subject to the inescapable logic of business.

When we go back to the true source of the theatre's strength, we shall be in a position to build a theatre worthy of our best traditions. Projects such as those in Dallas, Texas, in Abingdon, Virginia, the Theatre Inc. in New York, and the American Repertory Theatre (of the Misses Crawford, Le Gallienne and Webster) are moves in the right direction. In such organizations —and they do not constitute even a minimum of what we require —acute business sense and wise showmanship will be as essential as in every modern undertaking. But these will be put at the service of the true theatre which Bernard Shaw—no idealistic slouch!—defined as "a factory of thought, a prompter of conscience, an elucidator of social conduct, an armory against despair and dullness, and a temple of the Ascent of Man."

WAR

INDUSTRY

AMERICA AT WAR

by HANSON W. BALDWIN

THE Second World War was a war of mass, but not, like the First, of massed manpower; it was a war of massed machines. In view of this, American production and construction, which reached Wellsian proportions, can be said to have been directly responsible for the victory over Germany and Japan. Such a statement, though true in a strictly military sense, is of course only part of the story. This article, summarizing the record of American industrial production and analyzing the merits and defects of certain of the weapons which it turned out, purports to tell only that part. It deliberately leaves out of account the spiritual imponderables which determine how, and how successfully, material power is used. It does not discuss the political factors responsible for the fact that we fought the Axis nations with powerful allies and not alone, and it makes no attempt to describe the brave and great accomplishments of those allies. Instead, it concentrates on the physical aspects of our own war effort. They need to be stressed, for perhaps the chief military lesson of the ordeal through which we have just passed is that although size of armies is an important element in modern warfare, as the Russian campaigns showed, wars today are not won by "big battalions" but by big industries.

Our industrial potential was the greatest advantage which we possessed over our enemies in the Second World War. We possessed no such overwhelming advantage in training for combat, in will-to-fight, in leadership, in tactics and in the quality of our equipment; indeed, the enemy was often on a par with us, or superior to us, in these respects. But we could build an airfield or a pipeline in a fraction of the time the enemy needed; and we could turn out ten tanks to his one. Our armies were not the largest; but together the United States Army, Navy and Air Force undeniably formed the mightiest fighting force ever assembled in history. Our

From FOREIGN AFFAIRS, *Hamilton Fish Armstrong, Editor*

Copyright, 1946, by The Council on Foreign Relations Inc.

factories and shipyards, operating with our industrial management, skilled workers, factory superintendents, foremen, cost-accountants and efficiency experts—in short, American capital and labor, united in a free-enterprise system—gave that fighting force the sinews of its strength. If ever the United States forgets that industrial "know-how" is essential to victory in modern war, it will be on the way to becoming a second-class Power.

To say this is not to disparage the fighting men who gave their blood for victory. As General of the Army George C. Marshall rightly emphasized in his last report as Chief of Staff, "technology does not eliminate the need for men in war." Man is still master of the machine. Leadership, too, is of basic importance. Furthermore, of course, the quality of the equipment must be high, or its quantity will not avail. But the fact remains that quantity—the mass quantity of American production lines—overwhelmed the enemy in this war. Previous articles in this series have had to concentrate so much upon the operational history of the war that our prodigies of production, supply and construction were, in the main, overlooked. These will now be briefly recounted, and an attempt will also be made to compare a few of the weapons we produced with those of the enemy.

"By any standards," the Mead investigating committee of the United States Senate has reported, "the war production task has been a huge success. . . . The failures have been in the confusion, the delay, and the waste of effort, matériel, and money. More could have been done, and it could have been done sooner and at much less cost. But this is the counsel of perfection and it is the wisdom of hindsight."

What were some of the practical accomplishments of American factories?

Before 1939, it was an accepted truism that wars are fought with the navies in existence at the moment the conflict begins. Not so on this occasion. During this war, the United States built an incomparably larger navy than was possessed by any nation before it began. This fleet, bigger than all the other fleets of the world combined, isolated Japan.

The Navy's "pipeline," or floating-base system of supply, permitted a continuity of naval operations which five or six years earlier was unimaginable. The Fleet's service forces—humble toilers of the sea—serviced the combatant ships so well that the field of fleet operations can now be considered global; the Navy is

tied to its base no longer. Before the war, the maximum practicable limit of fleet operations was considered to be 1,500 to 2,500 miles from base. During the war, our ships thought nothing of remaining away from our most advanced permanent bases, Pearl Harbor or the West Coast, for months and even years on end. The modern fleet in wartime rarely casts anchor. It is refueled, reprovisioned, reammunitioned at sea; it gets mail and movies at sea; new planes from ferry carriers are flown aboard the fleet carriers; new pilots, spare parts, engines—all of the thousand and one items a fleet needs—are brought by the ships of the service forces to the fleet's operating area and transferred at sea. At an advance base in some island atoll, mobile floating drydocks, floating machine shops, barracks ships, water-distilling ships, supply ships, tankers and a score of other types repair and service damaged vessels and give the fleet a "breather" between operations. The logistical achievements of the naval war in the Pacific defy all comparisons.

American shipyards and factories produced this service force—the 829,000 tons of it built in Navy yards and the 2,813,000 tons turned out for the Navy by the Maritime Commission. The development of the process of supply had to be matched by a comparable development of skill in seamanship; it takes a good seaman, indeed, to bring his ship alongside a broad-beamed tanker in a heavy sea and fuel while underway. Good seamen are made by experience, and many were the ships damaged in such operations while green officers learned the A.B.C.'s of blue water. But ship repair and maintenance facilities, at advanced bases and back on the West Coast, though gorged with large numbers of ships damaged by *Kamikaze* pilots, were always equal to the task. The American Fleet became the most seagoing fleet in the world, though a great many of the Americans who manned it had never before known salt water. This result could not have been attained, however, without the support of a gigantic industry. A vast industrial establishment is now a *sine qua non* of modern sea power.

The production of the amphibious fleet of almost 80,000 landing craft and boats forms another epic. Our ability to land and supply great forces over open beaches confounded both the Germans and the Japanese. The craft involved, many of them of "Buck Rogers" design, offered peculiar production problems. They were surmounted with a rapidity which amazed the enemy.

Other examples of the indispensability of American industry to the armed services are the special antisubmarine vessels and

equipment which were produced at top speed in order to meet the submarine menace. The number of destroyers, destroyer-escorts and patrol vessels of many types which was built is almost incredible. They were equipped with all sorts of amazing new devices, like the antisubmarine rocket launcher called the "hedgehog."

A basic factor not only in the victory on the seas but also in the world-wide victory on land was obviously the bridge of ships produced for the American Merchant Marine. We were able to build ships far faster than the submarines could sink them, even at the height of the U-boat campaign. The total number of Maritime Commission ships built was 5,425, totaling 53,239,000 tons. The millions of tons of special naval combat and auxiliary and amphibious shipping were additional to this figure. Millions of man-hours also went into the work of converting and repairing ships. There has been nothing in history even remotely approximating this shipbuilding achievement.

Perhaps even more impressive was the record of American aircraft construction. When President Roosevelt in early 1942 called for 60,000 planes, many government officials and observers (including this writer) thought he was making a propaganda gesture and that the goal was excessive, if not impossible of attainment. Yet the nation proceeded to produce 296,601 military and special purpose planes, many of them of new design, and incorporated in its production schedule thousands of modifications and changes each year. In other words, the American factory combined flexibility with mass production. Air power, of course, was absolutely indispensable. Without air superiority, the startling victories of the last two years would have been impossible.

The record of the production of weapons for the ground armies was only slightly less impressive than were the shipbuilding and aircraft construction programs. Almost 87,000 tanks, 2,434,553 trucks, 17,400,000 rifles, carbines and sidearms, 315,000 pieces of field artillery and mortars and 4,200,000 tons of artillery shells gave our ground forces the superiority in mobility and fire power which, as General Marshall rightly pointed out, played such a major rôle in our triumph. With them should be mentioned a staggering variety and number of other items, running all the way from 51,000,000 pairs of shoes to 1,412,506 sulfadiazine tablets. In our ground battles we sometimes enjoyed only a slight superiority in numbers (particularly in the early days in North Africa, in the campaigns in Sicily and Italy, and in some of the battles in

western Europe), but due to our tremendous production of ammunition and weapons our superiority in fire power was sometimes immense. And the jeep and the two-and-a-half ton truck, as well as the other automotive vehicles, born in Detroit, were the basis of our strategic as well as our tactical land mobility.

Here, then, are three clear-cut ingredients of victory: tremendous superiority at sea and in the air, and on land a superiority in fire power (sometimes slight, but generally marked) and in mobility. The superiority at sea enabled us to project our strength across the oceans, to outflank the enemy, to choose our places for attack, and to land where the enemy was weak. Once our superiority in the air was established, it aided us immeasurably in all combat operations on land and sea, and correspondingly hampered the enemy. It protected our industrial installations and those of our allies; and it enabled us to project our striking power into the heart of the enemy's country, reducing his industrial output and hence his fire power and mobility. External and internal blockade by sea power and air power were extremely important in weakening the Axis nations. Our massed artillery fire was a product of the factories of America; and our ability to replace matériel losses quickly intensified our hitting power.

The 1944 report of the War Production Board tells the story:

> In 1944 a flood of munitions poured from our forges and foundries, mills, factories, and ordnance plants to a height and at a speed that could hardly fail to inundate those who lay in its path. The stream had been growing rapidly in power from year to year, coming close to flood level in 1943 and rising still higher in 1944. The 1944 munitions record in terms of number of weapons is even more spectacular than the $61,300,000,000 value of the year's output: 96,359 planes, including 16,048 heavy bombers; 30,889 ships; 17,565 tanks; 595,330 Army Service Force trucks; 3,284 heavy field guns and howitzers, and 7,454 light ones; 152,000 Army aircraft rocket launchers and 215,177 of the 2.36-inch bazookas; 1,416,774 short tons of ground artillery ammunition; and much more besides. . . .
>
> A country that, despite manpower shortages, material pinches, the tremendous production engineering problems presented by skyrocketing military requirements, and other difficulties, could produce in 1944 $199,001,000,000 in goods and services, was an invincible opponent.

If we are to understand the lessons of this war correctly, and be guided by them in framing our postwar standards of national defense, the advantages conferred upon us by mass production must be emphasized again and again. These advantages should not blind us to the fact that though we excelled in quantity, we

by no means always excelled in quality. The Japanese, with what has been characterized somewhat too scornfully as their "five-and-ten-cent store industry," were not often ahead of us in quality of equipment; but in some weapons the Germans had a distinct superiority.

The claim that our men were better equipped than any ever before sent into battle is, generally speaking, perfectly true; but it is true because of the quantities of equipment with which they were supplied rather than because all the items were of high quality. Some articles were better qualitatively as well as in more profuse supply. Our automotive equipment, heavy bombers, radar (though not all of it), aircraft carriers and landing craft were much better than the enemy's. Our proximity fuse—one of the war's greatest developments—our antiaircraft fire control director and our radar "gun sight" licked the buzz bombs and wrought frightful attrition in the Japanese Air Force. Our recoilless guns and the Garand rifle were excellent. But the enemy had qualitative advantages in many categories.

At the start, the Japanese jungle equipment, the Zero fighter, and notably the Japanese torpedoes and mines, were superior in very many respects to comparable items of American equipment. During the course of the war we overtook Japan's lead in most if not all of these categories; but even at the end some models of Japanese torpedoes carried heavier charges than ours, and the others were just about as heavy and as accurate as our own. In the last months, the Japanese introduced some heavy mortars and heavy rockets which our troops viewed with considerable respect. And at the war's end the Japanese possessed the three largest submarines in the world—one of 5,700 tons and two of 3,800 tons each. The biggest of these had three decks, three planes, a hydraulically operated catapult, a crew of 200 men and capacity for 1,000 tons of supplies. Though inferior in some respects to American submarines, these ships had adequate radar and radio, were painted with radar-repellent paint, and were equipped with the German *Schnorkel,* or air intake and exhaust tubes, which enabled them to cruise submerged at periscope depth more or less indefinitely. We had no submarine of corresponding size or utility.

The Germans possessed a clear-cut technical lead in many categories right down to the end of the war. Some of them were as follows:

(1) Rockets. Some of the German antiaircraft shells were

rocket-propelled and controlled by radar or radio (thus resembling our proximity fuse), and some were designed to weaken the effectiveness of our aircraft radar. The Germans had a definite laboratory lead in the development of missiles of many types—controlled and guided, target-seeking, and free. This lead was being narrowed at the war's end. Nevertheless, they had under development a transatlantic rocket that would be capable of making the crossing in about 17 minutes, and new forms of V1 and V2, some of them piloted models, were in the experimental stage. Antiaircraft rockets, airborne rockets and many other types considerably in advance of our thinking in this field were also under development. The German bazooka was better than ours.

(2) Aerodynamics and aircraft propulsion and armament. The Germans had progressed further in experimental work on the problem of compressibility than we had, and had developed a new wing form. New wind tunnels with far greater velocities than any we possessed were in use or under construction. In jet propulsion, the Germans were technologically several years ahead of us. Some of their newest aircraft armament was equal to, or superior to, our operational equipment.

(3) Artillery. The improved German 88 mm. gun was probably the best three-purpose gun (antitank, antiaircraft and field artillery piece) developed during the war. Many new types of artillery, including very huge mortars and long-range field guns, were under development or construction. Some of them had rocket-assisted shells. Among these were a 380 mm. howitzer and rocket "guns" with smooth-bore barrels, 400 feet long, intended for the bombardment of London. A new 120 mm. antitank gun was likewise in development. The Germans were also working on a 32-inch siege gun, with a barrel 141 feet long, which fired an eight-and-a-quarter ton projectile.

(4) Infrared rays. The Germans were well advanced in the use of infrared for photography, and for tank and aircraft detection.

(5) Tanks. The Germans made no attempt to build an all-purpose tank, as we did, but developed many different types. Ours had some advantages over German models, but generally speaking, German tank development was well ahead of our own.

(6) Torpedoes. The German electric, acoustic and "spider" torpedo—the latter controlled by a long, thin, trailing wire—were superior to ours.

(7) Marine engineering. The Germans had developed engines using far higher pressures and temperatures than ours, although these were not yet satisfactory. They were also experimenting with chemical engines.

(8) Submarines. The Germans had designed submarines with new hull forms and new types of engine, as, for example, those which operated on the principle of hydrogen peroxide propulsion used in rockets. These vessels had the extraordinary underwater speed of 18 knots, and new ones being designed had underwater speeds up to 21 and 25 knots. They could remain submerged at periscope depth indefinitely, breathing through the *Schnorkel,* which added only a slight feather of foam to the wake left by the periscope. Armed with improved instruments and torpedoes, these new submarines would have been a major menace had the war continued. The Germans also used, with some success, a considerable number of ingenious midget submarines, man-controlled torpedoes and motor boats. They clearly were ahead of us in the development of submarines, despite our continued assertions to the contrary.

(9) Mines. The German land and sea mines were more advanced than our own. The "oyster" or pressure mine, used in Cherbourg harbor, was a particularly crafty one.

(10) Machine guns and machine pistols. In weight, flexibility, cyclic rate of fire and general utility, the German machine guns and sub-machine guns had many advantages over ours. German powder gave off less smoke—a fact noted in General George C. Marshall's report; and German use of flash-hiders made the positions of their weapons difficult to spot.

This list of qualitative advantages of the Germans in weapons and equipment could be extended. For instance, the enemy's combat clothing was in many respects superior to ours; however, that point should not be labored, for the quality of some items of our clothing was better.

The foregoing should not be taken as lessening the importance of the rôle played by American mass production. Nor does it indicate that there is anything wrong with American inventors, except that there are not enough of them. There is a considerably higher proportion of scientists to practical engineers in England, for example, than in this country; we have emphasized engineering development and production at the expense of the laboratory, and our wartime policy toward scientific education has put us still further behind. Nor, again, was there anything basically

wrong with American design. The German Army, however, had a more flexible system for the development of new weapons and for correcting the faults of equipment disclosed in the test of battle. Too often, the enemy beat us to the battlefield with weapons and ideas.

It may be argued that our success in producing the first atomic bomb shows that the United States Army is farsighted and quick to adapt and to learn. But the history of the atomic bomb illustrates precisely the main point that this article is attempting to make. For the "secret" of the atomic bomb—a secret we still possess—is the secret of mass production and industrial "know-how," the secret that underlay our progress toward victory throughout. We hold no monopoly in the theory of atomic fission; indeed, the Germans were at one time well ahead of us in nuclear physics. Many of the key physicists and scientists in our experiments were of foreign birth, many of them German. The real secret of our success with the atomic bomb is simply the skill and efficiency of American industry. There is scarcely a branch of that industry which did not contribute to making the bomb. Machines never before built, never before even dreamed of, new chemical processes, carbon of a purity never heretofore refined, are part of the secret. All the industrial and manufacturing talent of America contributed. The real secret of the atomic bomb is not a formula of physics but the unwritten summary of the total industrial experience of Americans.

There is an important lesson in this. We must remember that for a time Germany was ahead of us in the development of the atomic bomb, as she was in many other branches of military science, and that we overtook her lead in this and in some other fields (notably that of radar) largely because of our greater industrial resources and production know-how. Those factors, plus the initiative and ingenuity of American scientists and engineers, gave us the bomb first. It is worth noting that many of our outstanding developments in the field of military equipment were not the product of the vision of the Army and Navy, but of the Office of Scientific Research and Development—of civilian scientists and engineers, working with American industry under general government supervision.

General Marshall shows in his report that the battle deaths of the United States Army per month of conflict in this war—a monthly average of 4,576—were greater than in any of our

previous wars (although losses in the Civil War were far greater in proportion to population). Our toll of about a million killed, wounded and missing was nevertheless considerably lighter than most civilian and military leaders had dared expect in a conflict of such scope. The official breakdown of the casualty lists as of October 1, 1945, is as follows:

	Dead	*Wounded*	*Missing*	*POW's*	*Totals*
Army	206,622	571,664	22,552	121,638	922,476
Navy	34,322	24,569	9,443	1,721	70,055
Marine Corps	19,744	55,462	835	865	76,906
Coast Guard	808	213	95	....	1,116
			Grand Total		1,070,553

As General Marshall points out, and as all observers have reiterated, the mass of weapons and equipment which we were able to produce and to send overseas, not only to our own forces but to our allies, spared us far heavier casualties. Some of the statistics of this victory of supply are here summarized, from official sources:

Cargo Shipped by the Army

December 1941 — August 1945

Theater	*Tons*
American (Atlantic)	4,559,542
Mediterranean	27,703,582
European	45,300,680
American (Pacific)	6,892,300
Middle Pacific	17,614,954
Western Pacific	18,357,484
Asiatic	6,367,805
Total	126,796,347

Passengers Embarked for Overseas Theaters

Theater	*Totals*
American (North Atlantic)	40,767
Latin American	166,134
Mediterranean	1,071,642
European	3,344,063
American (Pacific)	245,745
Middle Pacific	1,097,838
Western Pacific	1,073,673
Asiatic	253,492
Total	7,293,354

In addition to these amounts, almost a million short tons of supplies were sent overseas to maintain the six Marine divisions and ancillary units which did such great work in the Pacific. And the Navy shipped millions of tons—a number as yet uncalculated—from our coasts to provision the fleet. The sum total, dwarfing our accomplishments in the First World War, represents a prodigious achievement. We produced the goods and we distributed them—by train, ship, plane, truck, muleback, pipeline, shank's mare. We sent them over most of the known world and often into terrain hitherto scarcely charted—across the oceans, down the great rivers, over the plains of Europe, above the rearing crags of the Himalayas, through the jungles of New Guinea and Africa.

Construction kept pace with production and transportation. Army engineers and Seabees, transportation-corps troops and dock "wallopers," turned the earth, built new railroads, carved roads out of mountains, opened passages where none was before. American machinery, used with American mechanical aptitude and optimism, built in a few days airfields of a sort which our enemies took months to complete. We made ports where the open seas had lapped for centuries, cleared out blocked harbors, constructed roads through jungles. Construction, as well as production, changed military strategy. The two together were responsible, for example, for the Burma campaign, an overland invasion, supplied by air from India, which defied all previous military rules and made an amphibious invasion superfluous.

Here, from J. A. Krug's final WPB report, is an indication of what we sent to our Allies:

> In a little over four years the United States transferred under lend-lease goods valued at more than $37,000,000,000, besides rendering some $4,500,000,000 of service to our Allies. Shipments included almost $21,000,000,000 of ships and munitions, over $2,000,000,000 of petroleum products, more than $8,500,000,000 of industrial materials and products, and $6,000,000,000 of foods and other agricultural products.
>
> Impressive as these figures are, they do not fully measure the problems involved in supplying such amounts. Foreign demand was primarily for materials and components needed to supplement domestic production of the Allied nations, and the emphasis was on specialty items which caused disproportionate impacts on United States production capacity. Thus Soviet steel requirements were primarily for alloys and the more difficult carbon shapes. . . . U.S.S.R. and United Kingdom requests . . . were for tools and machinery of a particularly elaborate and complex nature, and often quite different in design from what our

> factories were accustomed to produce. Electrical equipment . . . had to be built in accordance with European standards; machine tools and various instruments had to be designed for metric measurements. . . .

And so, by the grace of God, by the courage of the men of the United Nations, and by American industrial know-how, the war was won. The material power which turned the scales was that of big industries, not of big battalions. And—a final point—the unparalleled American production machine which sent that power to the firing lines, those manned by our own men and those manned by our Allies, was based on a free-enterprise system.

The experience reveals our strength and our weakness. Political know-how is, obviously, a primary component of our safety; our government's first task must be to try to achieve a working international agreement to maintain peace. This survey, however, does not attempt even to broach that part of the subject. In view of the uncertainties that nevertheless cloud the future, we clearly must emphasize fundamental scientific research and applied development far more than we have done in the past. This time we had quantity but not always quality; we must make sure that henceforth our weapons will be the best, as well as the most abundant. The keystone of our material power is our mass production skill. Facing the uncertain world of tomorrow, we would be stupid indeed if we frittered away this birthright.

NOTES ON AUTHORS

THURMAN ARNOLD was Assistant Attorney General in charge of the Anti-Trust Division, a judge on the federal bench, professor at Yale, and is now in private law practice in Washington, D. C.

THEODORE BAIRD has taught at Western Reserve University, at Union College, and since 1927 at Amherst, where he is Samuel Williston professor of English.

HANSON W. BALDWIN is one of the foremost military experts in the United States. He is the author of many books on military affairs and military writer for the *New York Times.*

JACQUES BARZUN, scholar and writer, is professor of History at Columbia University. Among his best-known books are *Darwin, Marx, Wagner* and *Romanticism and the Modern Ego.*

RICHARD M. BENNETT has designed many schools, homes and public buildings. He has taught at the Polytechnic Institute, the Pratt Institute, New York University, at Columbia University and now at Yale. He is co-author of the Utopian novel *The First to Awaken.*

ERIC BENTLEY is a teacher at Black Mountain College and an Associate Editor of the *Kenyon Review.* He is the author of *A Century of Hero-Worship* and *The Playwright as Thinker.* His forthcoming book will be on Bernard Shaw.

BERNARD BRODIE is an expert on naval strategy and tactics and the author of basic books on these subjects.

HAROLD CLURMAN, producer and director, was one of the founders of the Group Theatre and is intimately concerned with present-day trends in the field of drama.

DAN W. DODSON is associate professor of Sociology at New York University. For several years he has served as executive director of the Mayor's Committee on Unity in New York City. Dr. Dodson is managing editor of the *Journal of Educational Sociology.*

MATHURIN DONDO is a professor of Modern Languages and has taught at the University of California, Pennsylvania State College and at Hunter College in New York City. In addition to being a landscape painter, he is the author of many books and plays, as well as being an interpreter of France.

CLYDE EAGLETON is a professor of International Law at New York University. He worked on the UN charter for two years in the State Depart-

ment and served as technical expert with the U. S. delegation at the San Francisco conference.

JAMES FEIBLEMAN wrote *Death of the God in Mexico,* a book of poems; *Unlimited Community; In Praise of Comedy.* He has contributed widely on philosophical and literary themes.

HORACE L. FRIESS is professor of Philosophy at Columbia University and editor of the *Review of Religion.* He is the author of *Religion in Various Cultures* and the contributor of many articles on German philosophers.

CHRISTIAN GAUSS was Dean of the College of Princeton University for twenty years. Upon his retirement in 1945, he was made Dean of the alumni and was recently elected President of the United Chapters of Phi Beta Kappa.

RALPH W. GERARD is professor of Physiology at the University of Chicago. He was one of the founders of the American Association of Scientific Workers and is the author of books and essays dealing with neuro-physiology and allied subjects.

WALTON HAMILTON is professor at Yale Law School and has worked at various times and in various capacities for the federal government.

ALVIN H. HANSEN is the Littauer Professor of Political Economy, Harvard University. He has written widely in many media on economic themes.

CARYL P. HASKINS heads the Haskins Laboratories which he established in Boston and New York City. He was a Research Associate of the Massachusetts Institute of Technology, professor at Union College, and during the war was Deputy Executive Officer of the National Defense Research Committee. He is the author of *Of Ants and Men* and *The Amazon.*

SIDNEY HOOK is a professor and lecturer at the New School for Social Research in New York City. He is the author of philosophical and metaphysical books.

ROBERT H. JACKSON is an Associate Justice of the Supreme Court. He was representative of the United States and chief of counsel, International Military Tribunal, Nuremberg, Germany.

WOLFGANG LANGEWIESCHE is a free-lance writer on aeronautics and research pilot for Kollsman Aircraft Instruments.

HUGO LEICHTENTRITT has lectured on music at Harvard University, Radcliffe College and at New York University. He has published many books and essays on musical themes.

MAX LERNER was formerly professor of Political Science at Williams and has been assistant to the publisher of *PM* since 1943. He is the author of *It Is Later Than You Think, Ideas Are Weapons, The Mind and Faith of Justice Holmes,* and other volumes.

BEN W. LEWIS is professor of Economics at Oberlin College. He has had many special jobs with the federal government.

EDWARD R. LEWIS is a lawyer and the author of *A History of Political Thought in America: 1860 to 1914.*

J. H. MARION, JR., is Minister of the Grace Covenant Presbyterian Church in Richmond, Virginia. He is a Southerner, born in South Carolina.

JOHN BARTLOW MARTIN was formerly an Indiana newspaperman. He is now a free-lance writer specializing in the American domestic scene.

MILTON MAYER serves as assistant professor in the University of Chicago and tutor in the Committee on Social Thought. He has written for many magazines and is a contributing editor of the *Progressive* and the *Negro Digest.* During the war he was a conscientious objector on political grounds.

GEORGE MILBURN has written *Oklahoma Town* and several other books, being a frequent interpreter of the American scene.

RUSSEL B. NYE has taught at Adelphi College, at the University of Wisconsin and is now professor of English and director of Language and Literature at Michigan State College, East Lansing. He received the Pulitzer Prize in biography (1944) and has written widely on American historical and literary themes.

I. I. RABI is professor of Physics and Chairman of the Department of Physics at Columbia University. He received the Nobel Prize in Physics (1944). During the war he acted as Associate Director of the Radiation Laboratory of the Massachusetts Institute of Technology, being closely identified with the development of radar.

J. B. RHINE heads the Parapsychology Laboratory, Department of Psychology, Duke University. It is there that Professor Rhine has conducted his experiments in extra-sensory perception and allied subjects.

STEPHEN B. SARASOHN is a Graduate Resident Scholar, Department of Public Law and Government, Columbia University.

CARL O. SMITH is associate professor of Government at Wayne University.

ELEANOR E. TIMBERG is a graduate of Smith College and the London School of Economics. Much of her knowledge of the radio industry was gained through the research she has done for Morris L. Ernst's *First Freedom.*

HYATT HOWE WAGGONER is a member of the faculty of the University of Kansas City and an editor of its *Review.* He has published widely on literary subjects.

HANS W. WEIGERT is associate professor of Geography and International Relations at Carleton College, Minnesota. He is the co-author of *Compass of the World.*

VERNON A. YOUNG has taught English at the University of California. He writes criticism for the *New Mexico Quarterly Review* and the *Arizona Quarterly,* of which he is the Southwest books editor. He has directed and acted in plays on the West Coast.

PAUL A. ZAHL is an officer and principal investigator of the Haskins Laboratories. Dr. Zahl served on the wartime Committee on Sensory Devices. He is the author of a book and many articles in the field of experimental biology.