

Japanese government could not understand what had happened to that radio station. Radar had reported no planes overhead, except a small force which could not possibly have caused any damage. You will read of what the colonel found. You will read of many other interesting things, including answers by Dr. Brown to some important questions about the future.

Dr. Brown believes that the release by the War Department of the official Smyth Report outlining the history of our development of atomic energy gave the world essentially as much information as we ourselves possessed late in 1942. It took us less than three years from that date to develop the bomb. It is therefore conservative, says Dr. Brown, to estimate that other nations will have a bomb within three years of the issue of the Smyth Report.

From this premise Dr. Brown goes on to some sobering conclusions. He calculates that it would take 500 Nagasaki-type bombs to destroy the 200 cities in the United States with populations over 50,000. But the atomic bombs used over Japan do not represent the ultimate in destruction efficiency. Dr. Brown says that a detonating charge equivalent to 10,000,000 (1,000 times as great as the Hiroshima bomb) is a possibility with which we must reckon. It seems clear that we are now at about the Kitty Hawk stage in atomic weapons and that estimates of what existing bombs can do must be regarded as substantial understatements.

In considering methods of defense against the bomb, Dr. Brown examines what he considers the only possible partial defense. He believes that the relocation and dispersal of our population and industries would materially increase the difficulty a hostile nation would have in annihilating our people and our factories. It seems that from an enemy's point of view our present city structure is ideally suited to atomic bomb attack. The effect of an atomic bomb is to a large extent a question of population density. Therefore if we want to continue the present system of unrestricted nationalism, we should reduce the density in our larger cities to about 1,000 persons per square mile. That would give the following populations to our five largest cities: New York, 365,000; Chicago, 211,000; Philadelphia, 135,000; Detroit, 152,000; Los Angeles, 452,000. This density of 1,000 could be increased slightly by making "strip cities," that is, cities about a mile wide. Strip cities would allow us to double the population density, to 2,000 persons a square mile. Such a dispersal would reduce the

casualties of a 500-bomb raid to about 2,000,000 killed. This contrasts with the total of 56,000 civilians killed in England during World War II. This figure of 2,000,000 deaths is based however on the use of Nagasaki type bombs. The use of the ten-mile radius type bombs, if dropped on New York under present conditions would cause 5,000,000 deaths, if dropped under conditions of dispersal would kill 300,000 out of the 365,000 population, and in either case would eradicate structures over an area of 300 square miles.

The danger comes not only from attack from outside the country. "It is quite conceivable that the agents of another nation could, over a period of time, secrete a large number of bombs in houses, apartments, and shops located in our large cities. Each bomb could be equipped with a timing device, so that the explosions throughout the country would occur almost simultaneously. If that mode of attack were used we might not know the identity of our enemy with certainty until too late." The only defense against this kind of attack is an investigation bureau of sweeping power, which would inspect all imports and all residences, shops, and factories, with or without the owner's permission. The effectiveness of such an inspection system would vary directly with the loss of personal liberties it would cause.

These are samples of the sober, understated analysis of the material and political consequences of the atomic revolution by a scientist who knows what he is talking about. There is much more—an analysis of the effect of atomic weapons on our present Constitutional requirement for declaring war, for example. Atomic counter at-

tack following an atomic attack on us must be a matter of minutes at the most. We cannot wait for a joint resolution of Congress. Must we change this Constitutional provision?

Unlike some of his scientific colleagues, Dr. Brown believes it is his duty as a citizen to have an opinion on the political remedy to the bomb. Some scientists have felt that they should stick to their own specialty, and that politics should be left to the statesmen. Dr. Brown, correctly, does not agree. His opinion is that the business of world organization is much too serious to be left to the professionals. He therefore makes his case for the proposition which almost everyone accepts—that we cannot control atomic or any other weapons except by eliminating war, and that we cannot eliminate war except by setting up a world authority having the characteristics of a government and enforcing the ban on war by law operating directly on the individual.

But although everyone, or almost everyone, accepts this conclusion, many say that the rule of law is not practical now and must be regarded as an aspiration toward which gradual, and short, steps are all that can be taken now. Dr. Brown disagrees. He feels deeply that it is later than we think. The United States, because it now has the bomb while other nations do not, has a short and crucial time during which it can take the lead in persuading the nations to set up the rule of law. Our era of supremacy will be short; and when the other nations get the bomb it will be geometrically harder to get them to agree. The clay is still soft, but not for long. "The urgency to act boldly and quickly to prevent the final, great catastrophe of humanity is overwhelming."

Allegory with Goose Pimples

ANIMAL FARM. By George Orwell. New York: Harcourt, Brace & Co. 1946. 118 pp. \$1.75.

Reviewed by LOUIS M. RIDENOUR

GEORGE ORWELL'S "Animal Farm" is intrinsically a very amusing book. It deals only incidentally with animals and farms; it is an extended allegory dealing with the history of the Soviet Union. Even a reader as ignorant of the detailed history of Russia as I am can spot the Bolshevik revolution, the early successes of the Red Army, the excommunication of Trotsky (who seems to be a pig named Snowball), the growth of the internal Terror, the various industrial Five-Year Plans, the Russo-German pact and its breakdown, and similar prominent land-

marks. No doubt there are a great many minor parallels which will not be lost on a reader who is well informed in terms of Soviet history.

The book is a splendid technical job, whose easy and diverting style never once lags from beginning to end. It is no simple matter to sustain a fable like this one for more than a hundred pages, and Mr. Orwell does it admirably. He does it, apparently, with two main purposes in view. The first is to amuse; the transposition of human actions and attitudes into the antics of non-human animals has been a good dodge since Aesop. On the other hand, the author satirizes the communist state. Much of his attention is devoted to showing how the grand promises of the early days have been compromised by expediency and

dissipated by the growth of personal ambition and love of power among the pigs who lead Mr. Orwell's miniature communist state.

The writing of "Animal Farm" was finished in February, 1944. I dare say that if I had read it then, or within eighteen months of that time, I should have thought it extremely funny, and I should have been greatly impressed by the way in which the book points up the major current weakness of the Soviet Union—that it is a tyranny of the blackest sort. I should have generated a complacency concerning our own form of government by considering the drawbacks of a different rule which pretends to be devoted even more thoroughly to the rights of the common man. In the context of today, "Animal Farm," although still intrinsically amusing, carries a most alarming reminder.

Like a number of old ideas, several naval vessels, and more than a hundred thousand people, my ability to derive unconcerned amusement from "Animal Farm" is a casualty of the atomic bomb. The increasingly tyrannous doings of the pigs who run the farm seem far more ominous than funny at a time when we must deal with the pigs in an atmosphere of flawless reciprocal trust or all perish together.

Nothing but the lust of men for power over other men, and the xenophobia generated by that lust, seems today to stand in the way of the creation of firm and workable arrangements for the worldwide control of atomic energy. The price of failure is clear; yet the efforts for world organization and peace may fail.

On Memorial Drive in Cambridge, a few nights ago, my daughter, who is not quite six, noticed the monument which marks the landing of the Norsemen on this continent a thousand

years ago. I told her what it was for. She said, "If there had been some Americans here then, they would have fought them off."

When a child picks up this sort of reasoning—God knows how, I suppose by osmosis—before she can read and write, and when it is clear that such an approach to world problems will mean the destruction of us all, it is difficult to be amused by the moral decline of some pigs debauched by power over their barnyard fellows. No doubt I have got atoms before my eyes, and ought to be able to dissociate world problems from a simple rural allegory, but I can't. In the last war I saw fairly extensively what chemical explosives can do, and as a scientist I have had some training in appreciating the significance of the factor of a million which separates these chemical explosives from the new explosives we now know how to make. When pigs act like people, or people act like pigs (depending on how you look at it), I am disturbed, for I know what is at stake.

If the carefree humor of "Animal Farm" is gone, then, the biting satire remains. My own pleasure in this satire is greatly reduced by my realization that its object is, as usual, far less the communist system than the nature of man himself as this nature has been revealed in the latter-day development of the communist system. It is easy to admire the superb craftsmanship with which the attack is carried out, but it is not comfortable to contemplate the probable results, in terms of future history, of the traits of human character elaborated in the satire.

The message of "Animal Farm" seems to be, not that Russia's leaders have enslaved and exploited their people, though perhaps they have, but that people are no damn good.

This Is Bermuda

BERMUDA JOURNEY. By William Zuill. New York: Coward-McCann. 1946. 403 pp. \$4.

Reviewed by WALTER B. HAYWARD

WHEN one visits Bermuda and talks to Bermudians a salient fact soon stands out: Into the fabric of Bermuda life have been woven strong human threads, many of which are linked to the sea, as befits an island people. An old lime-washed house beside a cove is a reminder that smuggling was once a fine art among Bermudians; another on a hillside among the cedars was built with the spoils of privateering; a hidden reef is the scene of a never-forgotten shipwreck; a crumbling seventeenth-century fort recalls the days when Spain was the enemy to be feared.

Mr. Zuill, the author of what he calls a "leisurely guide," has long been a collector of Bermudianiana. He knows his native land from Daniel's Head to St. David's Head. He writes with an intimate touch and also with the conviction that although Bermuda is changing, the things that gave her character and marked individuality must not be neglected. There is no doubt that the islands are entering a new era. For they are now an American military outpost as well as a unit of the British Commonwealth; the impact of American occupation has already put its mark on the colony.

But much of the old Bermuda remains. Though American bulldozers may rip up primitive St. David's and tie islands together in the Great Sound, they cannot destroy traditions, customs, folklore. And it is these with which the author largely deals in "Bermuda Journey." He escorts us through Hamilton, the lively capital, and takes us around the alleys of ancient St. George's, pausing now and again for a bit of local history, or description, or to paint a portrait of some rugged character—Tew the pirate, who had a strange streak of integrity; Hezekiah Frith, who sailed the high seas under letters of marque, much to his profit; Parson Richardson, forthright and original in all his affairs; John Davenport, merchant and miser who kept his gold and silver in arrowroot kegs—£75,000 of hard cash.

In the gallery are Canadian and Irish political prisoners, English convicts, Boer prisoners of war, shipmasters and shipbuilders, the men who stole powder from George Washington, authors and poets, Tom Moore among them. For each there is a pertinent yarn.



—Etching by Clara Mairs in Fine Prints of the Year 1932