

The Things War Machines Can Do

SCIENCE AT WAR. By George W. Gray. New York: Harper & Bros. 1943. 296 pp. \$3.

Reviewed by BERNARD JAFFE

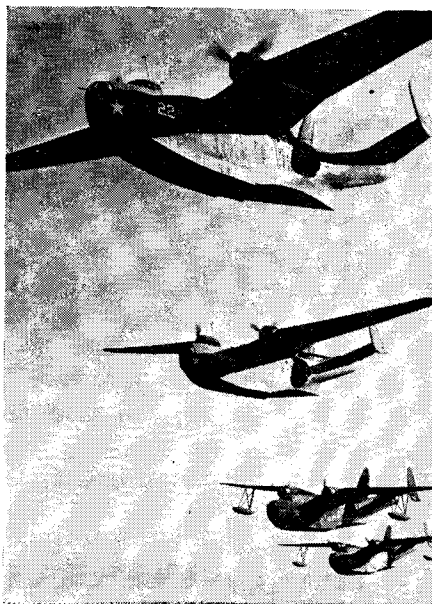
MORE than two thousand years ago Archimedes beat back the Roman legions at Syracuse with giant mechanical slings and other machines built with his knowledge of mathematics and mechanics. Ever since then scientists have been called upon to help win wars. The accelerated tempo of modern scientific advance has made the role of the scientist more vital than ever. Hitler knew this, and his engineers fashioned his war machine out of the three new giants of twentieth-century scientific discovery. Synthetic chemistry supplied him with new alloys, new fuels, new rubber, new nitrates. The airplane gave him a formidable Luftwaffe, and radio and electronics furnished the nerves for his vast and intricate monster.

Mr. Gray gives the first fairly complete report of the contributions of science to the war being fought around the world. During the first year of this war Hitler's machine seemed irresistible. But Hitler's plan for world conquest was doomed to fail, for he had not reckoned with one fact. His ultra-scientific juggernaut was compounded of many cunning applications of science, but it contained not a single new basic discovery. There was not a single secret fundamental principle in the whole of it. It was put together by scientific data and laws tracked down in research laboratories from all parts of the earth. Science, fortunately, is an international development, and the fields of science had not been preempted by the fascists.

When, therefore, the Luftwaffe tried to bomb England into submission in 1940 it failed. German air power was successfully met by two weapons built out of the same equations and formulas used by the Axis engineers. In 1935 Robert Alexander Watson Watt, an English physicist, hit upon an idea which was developed into the *radiolocator*. Lord Beaverbrook called this instrument the Golden Cockerel which, as described in Pushkin's story, "at the first approach of enemies, even afar off, would lift his comb, flap his wings, turn his beak in the direction of the raiders, and crow, Beware." England's radiolocator, similar in principle to our own *Radar*, which was independently developed also before the war, sent out radio impulses in all directions. An enemy plane which happened to intercept these rays would

reflect them back to the sender and reveal its presence. The other weapons which neutralized the German planes were the Spitfire and the Hurricane. The Messerschmitt carried five guns, the Hurricane and the Spitfire each had eight guns mounted in a straight line in their wings. The heavier firing power, the easier maneuverability of the better armored British planes cut the Nazi aircraft to ribbons. British science and technology had beaten the so-called superior "Aryan" science.

Hitler's magnetic mine fared no bet-



Structures of the sky. U. S. Marine Patrol bombers in flight formation.

ter. One of them was washed up on a British beach. Examining a new type of mine was a risky business. But men were found heroic and skilful enough to take it apart. Its mechanism was found to be very simple. No unknown principle was involved in its construction. A small swinging needle set off its explosive charge. Dropped on the bed of the Thames estuary or left floating partly submerged in the enemy sea lanes it was a treacherous weapon to deal with. As a ship came within fifty feet of the mine, the ship's magnetic field would set the magnetic needle swinging, and the mine would explode right under the hull of the enemy vessel. British scientists fought the magnetic mine with magnetism. It was really simple. Ships' hulls were wound with metal coils. Electric currents of carefully calculated strength were sent through these metal girdles. The currents set up magnetic fields of force of opposite polarity to that of the ship. The iron boat was rendered non-magnetic or degaussed. The mine's magnetic needle

would not be affected by the degaussed ship even though the vessel actually scraped the hidden trap. The heritage of international science made it possible for free men to protect themselves with the same laws of science which the aggressors had misused.

When, later, Hitler's unfailing intuition sent the Nazi hordes into Russia, fascist science was confronted with Soviet science. The heroism of Stalingrad's defenders would have been of no avail had not twenty-five years of wisely planned, generously financed, and skilfully executed scientific research, both theoretical and applied, forged the scientific weapons they used. Again when, this time, American science finally came to grips with Axis science on the sands of Africa in 1943, it was the same story. The powerful German tanks were stopped by new weapons of Yankee inventiveness. The 105 mm. gun mounted on the chassis of our General Grant tank proved a powerful antitank gun, and a small supplementary weapon, the *bazooka*, blasted Rommel's hopes in his massive Mark IV tank. The American *bazooka* is of the rocket projector type. Its two-foot rocket is fired by one foot soldier from a gun carried by his teammate. One direct hit is enough to demolish an enemy tank.

Mr. Gray describes the present battle on the scientific front with freshness, simplicity, accuracy, and with the dramatic effect which he has more than once before used so effectively. His report includes new facts about land mine detectors, a new submarine detector called *Asdic* (Anti-submarine Defense Investigating Committee), microwaves, uncanny instruments which direct the fire of our anti-aircraft guns with electronic devices guided by intricate yet almost instantaneous mathematical directions, blood plasma, pentothal, aeromedicine, and even the techniques of psychological warfare—the war of ideas.

Much, of course, remains untold because of military secrecy, and, because of the appearance of "Science at War" during the smoke of battle, it is of necessity an interim report. Many will want to read this valuable book while awaiting a fuller study when it can be told. When such a final report is written, it would be well to include the scientific devices also used by the Chinese, the Russians, and the Japanese which would give the complete picture of world science at war. This reviewer can think of no better reporter for this assignment than Mr. Gray.

"The Psychiatric Novels of Oliver Wendel Holmes" has been selected for a November award of the Trade Book Clinic of the American Institute of Graphic Arts.

The Battle for Yugoslavia

MY NATIVE LAND. By Louis Adamic.
New York: Harper & Brothers. 1943.
507 pp. \$3.75.

Reviewed by MILAN HERZOG

I HAVE just returned from a trip through the Yugoslav settlements in the Middle West. In Cleveland, in the practically all Slovenian and Croat St. Clair Avenue, I saw the first copy of Louis Adamic's latest book, "My Native Land," on a real estate broker's desk.

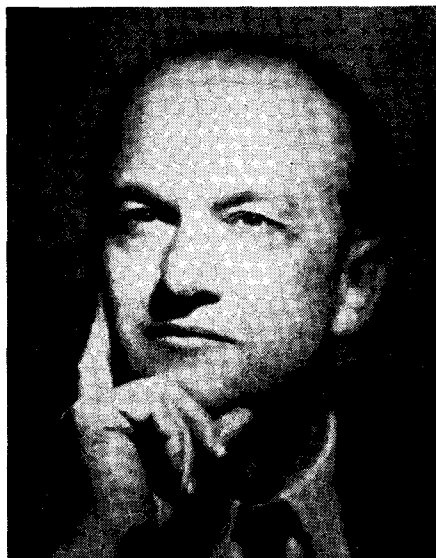
"Here it is," he exclaimed, caressing the book with his eyes. "It came this morning. I am among the earliest subscribers of every book our Lojza (Louis) turns out."

The office was soon filled with Slovenians and Croats I had come to interview and, naturally, the conversation turned from Frank Lausche, a Slovenian-American, who has just been re-elected mayor of Cleveland, to Louis Adamic, the new spiritual leader of the progressive majority of South Slav Americans, not only in St. Clair Avenue, but in most other centers throughout the country.

Everyone in the group was a fierce pro-partisan sympathizer, ready to give and work for the Cause, presented to them by the greater portion of the Yugoslav press in America, and by the bulletins Louis Adamic was publishing either as author of "Two Way Passage," or as President of the United Committee of South Slav Americans. It was this leader of men, Louis Adamic—no longer merely a writer of social and ethnological books—who created "My Native Land." The book is Adamic's political credo, a resumé of his honest convictions, a textbook for his followers, and a very personal pronouncement for, or against, certain politicians and policies.

"My Native Land" is the story of the creation, development, and heroic fight of the Yugoslav partisans, and by that very fact it is also a fierce attack against General Draja Mihailovich and the Yugoslav Government-in-Exile. As an ardent supporter of the ideals and the struggle of the Partisans, the author is a vigorous adversary, too sharp in some instances. But, as we said before, this book is no historical study; it is not even a history of the guerrilla warfare in Yugoslavia during 1941-1943. It is a political pronouncement based on partisan radio propaganda and partisan documents available to Adamic and sincerely regarded by him and his followers as the only valid presentations of facts in occupied Yugoslavia. As a political book (the word pamphlet would not be adequate) it sometimes

lacks system, accuracy, and clearness, but it abounds in punch. The historic section in the middle of the book shows the same qualities of virility and idealistic flame and also the same lack of full objectivity. As such it will provoke discussion, it will cause debate, and will be useful for the clarification of many important postwar problems that are surging forward with the progress of the war, but have been steadily kept in the background



Louis Adamic

by those who are afraid to discuss them. Louis Adamic, the political thinker and statesman of South Slav problems, writes fearlessly. He was never more outspoken than in this book. For instance:

They (the Partisans) are thinking of a Yugoslav federation whose territory will be somewhat larger than that of the pre '41 Yugoslavia. . . . This new Yugoslavia will be built from the ground up (instead of at the top, as was the old Yugoslavia), largely under the new wartime leaders and people who will emerge after the liberation. Most of the politicians who left the country in April '41 will be barred from sharing in its recreation. . . . The trend of thought is toward collectivism, much of it to be organized around the village *zadruga* or cooperative.

The author then describes the possibility of a wider Balkan federation, including Bulgaria. As President of the United Committee of South Slav Americans, he has Bulgarians and Macedonians in his ranks. The outspoken political-thinker Adamic, is ready to brave any of the many storms his book is expected to create, and he goes on to say: "Such a federation would then be ready for inclusion in any bigger combination, including Sovietization. I believe that a majority of

people forming the Yugoslav Liberation Front and the Bulgarian underground are eager or ready for Sovietization. . . ." And then Adamic continues to expand his views on the same political subject which aroused his passions: "If Sovietization, with all it implies, does occur, it may be the simplest process. The Yugoslav or the Balkan federation would become a republic within the Soviet Union, and would most likely be headed by Tito or Dimitroff." He is an adversary of reaction, which in his judgment is incarnate in the person of General Mikhailovich and in the majority of the exiled Yugoslav politicians and diplomats who continue to support Mikhailovich even though he is a "hoax." Louis Adamic supports without reserve the Liberation Movement in Yugoslavia, which he considers a pivot to the problem of relationships among the three leading United Nations.

Adamic finished his book before the publication of the Moscow Declaration of November 1, 1943. He stresses the fact that the Atlantic Charter was drawn up before Russia was once again a powerful nation. He was afraid that the United States and Britain would not let the small nations have their free choice after victory. Before "My Native Land" was published, Louis Adamic distributed a leaflet, "War and Post-War," containing an excerpt of a chapter of his new book. The end of it presents Adamic's view on the future of American foreign policy, and it is worth quoting:

There is a vast democratic element in the United States which favors international cooperation. There always has been. But it has never been organized, formulated into a factor in our foreign policy. Most of the State Department is unaware of it; the President seems to prefer to play along with established organized groups: with the Southern bloc, with the Catholic hierarchy. The only two leaders who have addressed themselves to this democratic element are Henry Wallace and Wendell Willkie. Nobody else of any importance has done anything about it. So it is vague and scattered—unfunctional. It performs mostly by taking up collections for the Red Cross, for British and Chinese and Greek relief; by going abroad as ambulance drivers before we get into wars ourselves; by forming little brigades—like the Lincoln Brigade in Spain.

The future depends greatly on this vast democratic element in America. If that element can get organized before the autumn of '44, it will have a chance to make itself felt in a formulated foreign policy, in the acceptance of America's world responsibility; a chance to fight the battle of democracy at the peace settlement.

Who can give it leadership? Willkie? Wallace? Can Roosevelt extricate himself from his political failure of '42-'43 and lead again?