GENERAL SCIENCE

Defend German Scientists

➤ GERMAN science leaders protected political suspects, including some of the few non-Aryans in Germany during World War II, by giving them work considered of "military importance," a famous German scientist asserted in defending his colleagues against charges of being "armorers of the Nazis."

Dr. Max von Laue, co-director of the Max Planck Institute and a leading anti-Nazi German scientist, described the "often fictitious" compliance of German science leaders with military demands in a communication to the *Bulletin of the Atomic Scientists* (April), published in Chicago. He objected to criticism of German scientists' role in the war, made by Dr. Philip Morrison, Cornell University physicist. Dr. Morrison had declared that German scientists, with a few exceptions including Dr. von Laue, had worked for the military in the war.

Pointing out that the directors of large German scientific institutions were forced to comply with Hitler's orders, Dr. von Laue told how some young specialists were protected from mobilization by larger research institutes.

"Sometimes too the possibility arose of protecting political suspects from concentration camps or worse, by assigning them research work of more or less 'military importance,'" he reported.

Some of these cases included non-Aryan Germans, the scientist declared.

Dr. von Laue, who discovered X-ray diffraction by crystals, was an outspoken critic of Hitler and maintained his friendship with Einstein and other German exiles at a time when this was considered treason.

Much work by German scientists during the war was not of a military nature, he emphasized, pointing out that many unpublished manuscripts of German wartime work in physics are concerned with scientific developments unrelated to the war.

In commenting on Dr. von Laue's criticism, Dr. Morrison replied in the Bulletin that "many of the most able and distinguished men of German science . . . worked for the advantage of the Nazi state."

Dr. Eugene Rabinowitch, University of Illinois scientist and co-editor of the Bulletin, commenting editorially on the dispute, warned that discrimination against German scientists makes the job of preventing future wars more difficult.

Science News Letter, April 10, 1948

METALLURGY

Strange Behavior of Metals

➤ VERY strange behaviors of metals and other substances near absolute zero temperature, approximately 460 degrees below the Fahrenheit zero, are described by Dr. S. C. Collins, of the Massachusetts Institute of Technology, in a recent issue of *Science* (April 2), official publication of the American Association for the Advancement of Science.

Electrical properties of metals at these low temperatures are discussed. When cooled to close to absolute zero they lose practically all resistance to electric currents. Dr. Collins also discusses a form of liquid helium that climbs up and over the sides of a glass flask holding the fluid.

More than a dozen laboratories in the United States are now actively engaged in researches which extend into the liquid helium range, he reveals. This is close to absolute zero. There were only two such laboratories prior to 1946, he said.

The initial interest in very low temperatures was created chiefly by the desire to liquefy such gases as nitrogen, oxygen, hydrogen and helium. Helium, the last to yield, was reduced to a liquid state in 1908. It is the lighter-than-air, non-combustible gas used in American balloons, and employed also in medical work and as a shield in arc-welding.

The equipment used in some of the laboratories to obtain very low temperatures is a complicated machine called a Collins helium cryostat, designed by Dr. Collins. This makes it possible to obtain very low temperatures easier than could be obtained before. Helium is the working fluid, and 12 of these machines are now in use in the United States.

It has been known, since the discovery by Kamerlingh Onnes in 1911, that certain metals lose their electrical resistance when cooled to near absolute zero temperatures. Scientists say they then have superconductivity. A satisfactory complete theory of superconductivity has

not yet been advanced, Dr. Collins declares.

An electric current, once started in a superconducting circuit, continues to flow without help from an electric cell or other source of potential. Such currents may be started in a ring of the material by electromagnetic induction. Currents flowing in a superconductor are generally confined to a very thin surface layer.

There are two forms of liquid helium, known as Helium I and Helium II. The only unusual feature of Helium I is the fact that its viscosity decreases as the temperature decreases. Helium II, however, has many strange properties. When an open thermos flask containing it is surrounded by a larger thermos vessel, the Helium II liquid quickly distributes itself between the two vessels, establishing the same level in both. The liquid seems able to flow over the retaining wall as if by a siphon. This ability of one form of helium to climb the walls of a container has already been used as a one-step process to separate the two forms.

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• Books of the Week •

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C. In the case of free publications order direct from issuing organizations.

BREEDING LIVESTOCK ADAPTED TO UNFAVORABLE ENVIRONMENTS — Ralph W. Phillips — *FAO (Columbia University Press)*, 182 p., illus., paper, $1.50. Concerned with the kinds of animals that thrive under harsh climatic conditions.

THE DIARY AND SUNDRY OBSERVATIONS OF THOMAS ALVA EDISON—Dagobert D. Runes, Ed.—*Philosophical Library*, 247 p., illus., $4.75. Intimate glimpses into the daily life and thoughts of a great inventor.

ENCYCLOPEDIA OF HOME CARE AND REPAIR —William J. Hennessey and William W. Atkin—*Lantern*, 409 p., illus., $3.95. If you want to know what is a gambrel roof, how to start a coal fire, or how to resurface a stucco wall with shingles, you will find the answers to these and many other questions all in alphabetical order in this book.

FUNDAMENTAL EDUCATION: Common Ground for All Peoples—Special Committee to the Preparatory Commission, UNESCO—*Macmillan*, 325 p., $2.50. Here is not only stated the problem of world-wide illiteracy and ignorance, but methods are suggested for meeting it.

GEM TESTING—B. W. Anderson—*Emerson Books*, 256 p., illus., $5.00. How to identify jewels, to distinguish one stone from another and the genuine from imitations.

GOOD NEWS ABOUT DIABETES—Herbert Yahraes—*Public Affairs Committee*, 32 p., illus., paper, 20 cents. Practical information for diabetics and their families and friends.

INTRODUCTORY PHYSICAL METALLURGY—Clyde W. Mason—*American Society of Metals*, 134 p., illus., $3.00. Lectures before the ASM.

MASONRY SIMPLIFIED, VOL. I: TOOLS, MATERIALS, PRACTICE—J. Ralph Dalzell and Gilbert Townsend—*American Technical Society*, 367 p., illus., $4.50. Of interest to homebuilders and architects as well as the workmen for whom it is intended.

MASONRY SIMPLIFIED, VOL. II: PRACTICAL CONSTRUCTION—J. Ralph Dalzell and Gilbert Townsend—*American Technical Society*, 405 p., illus., $5.00. Covering all sorts of construction from chimneys to septic tanks and including ratproofing, termite protection and other items important to the home planner.

PRECISION INVESTMENT CASTINGS—Edwin Laird Cady—*Reinhold*, 356 p., illus., $6.00. Describing for the benefit of engineers a relatively new method for making parts and semifinished or finished products economically.

STRANGE PREHISTORIC ANIMALS AND THEIR STORIES—A. Hyatt Verrill—*Page*, 262 p., illus., $3.75. Not intended as a scientific book, the purpose is rather to entertain with stories of the amazing creatures who walked this earth in times gone by.

TRIBES OF THE LIBERIAN HINTERLAND—George Schwab—*Peabody Museum*, 526 p., illus., paper, $7.50, cloth $10.00. The report of the Peabody Museum expedition to Liberia.

TWELVE WALKED AWAY—Marguerite Gaylord Tate—*Harcourt, Brace*, 150 p., $2.50. The interesting narrative of an airplane crash in the Swiss Alps and the rescue.

USING SALTY LAND—H. Greene—*FAO (Columbia University Press)*, 49 p., paper, 50 cents. Telling how to reclaim much land not now useful for agriculture.

VITAMINS AND HORMONES: Advances in Research and Applications, Vol. V—Robert S. Harris and Kenneth V. Thimann, Eds.—*Academic Press*, 478 p., illus., $7.50. Another in a series of critical reviews in this important field.

Science News Letter, April 10, 1948

BIOLOGY

Nobody Eats Terrapin Now, So Breeding Project Ends

➤ TERRAPIN in North Carolina waters —2,600 of them—are being put out on their own. They have been spoon-fed all of their lives—and some of them are up to 50 years old—but from now on they must forage for themselves.

The 2,600 diamondbacks represent the last of the breeding stock used in a joint federal-state project to restore these gourmets' darlings, sadly depleted by decades of too-intensive hunting.

The project has been measurably successful, with a total of a quarter-million young terrapin restocked into waters along the South Atlantic coast.

Of late years the demand for terrapin has fallen off considerably. Congressional appropriations have ceased. So the breeding colony at Beaufort, N. C. will be turned loose to hunt for their own grub.

Science News Letter, April 10, 1948

CHEMISTRY

Citric Acid Made from Milk in New Process

➤ CITRIC acid, the acid of lemons and oranges, is made from milk in the process on which Joseph Szucs of Yonkers has received patent 2,438,136. He feeds a suitable mold on a solution of dried skim milk plus necessary mineral elements, and the mold secretes the acid.

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A trace of *copper* in stock feed has been found beneficial.