

SCIENCE

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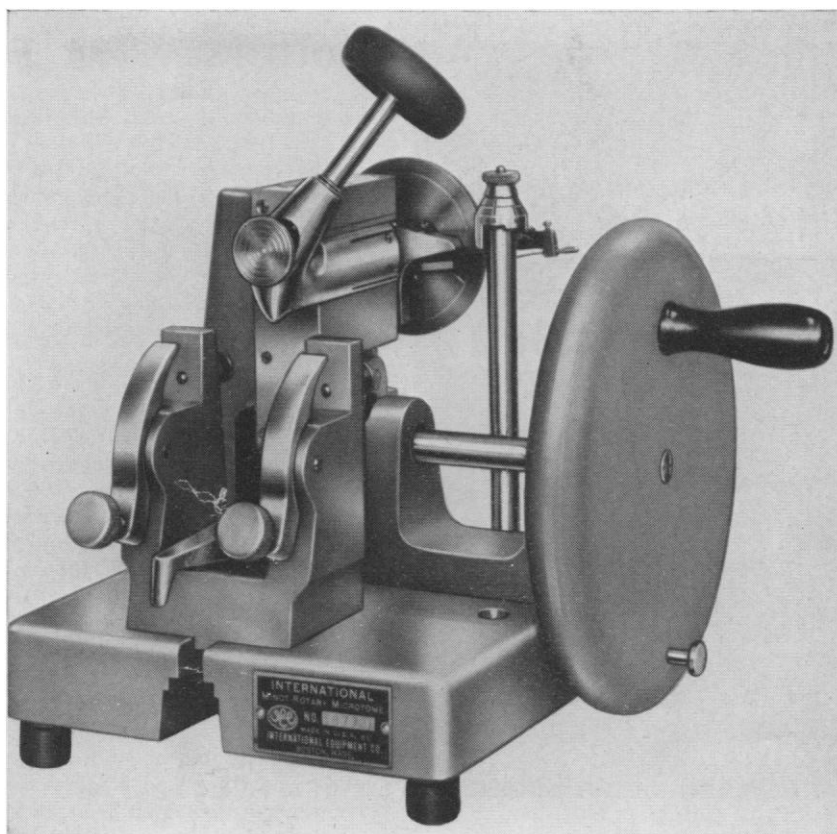
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Letters

German Scientists and Atom Bomb

If any proof were still needed of the unfortunate fact that some scientists, when discussing political or moral problems, tend to think unscientifically, Condon's thoroughly prejudiced review of my book *Brighter Than a Thousand Suns* would become a prize exhibit [*Science* 128, 1619 (1958)].

In order to prove that I am "propagandizing" for a favorable view of some German scientists under the Hitler regime without "real evidence," he suppresses all the evidence in my book which does not suit him. Condon does not mention the fact that excellent men and proven opponents of the Hitler regime like Otto Hahn, Paul Rosebaud, Wolfgang Gentner, and Hans Suess (who has since become a United States citizen) deliberately refrained from helping the Nazi war machine (see pages 97 and 98 of my book). He suppresses the long story I have told about Fritz Houtermans, who completed his first study of the uranium problem in September 1940 and wrote during the war on the "Problems of Release of Nuclear Chain Reactions" but saw to it that this study did not get into the hands of the Army Weapons Department (page 95). Condon does not comment on Nobel prize winner Max von Laue's words, when consoling Houtermans, who came to him in panic after he had heard that Heisenberg and Weizsaecker had started working on the "uranium problem": "My dear colleague, no one ever invents anything he does not really want to invent" (page 94).

I maintain—and after all there is the main evidence behind me, the surprising fact that the German physicists, so greatly feared for their scientific ability, did make so amazingly little progress towards a nuclear bomb—that lack of enthusiasm—"passivism"—born out of their fear of what Hitler might do once he had an atomic bomb restrained their actions, whereas the scientists on the Allied side (and as a fighter for the Allied cause, who received the written official expression of gratitude from the United States Government for my active part in fighting Hitler, I am one who belongs with them) had then every reason to believe that their cause was just. But I feel that the dropping of the bomb on Hiroshima has somehow tarnished this proud feeling.

It is simply not true that I have been "singling out the atomic scientists for moral condemnation." First of all, I did not condemn them. I simply wanted to show that they became the captives of a machinery they had helped to build.

Throughout my book I tried to make my reader feel some understanding of and compassion for men who, owing to the fact that they lived in a world in which science, politics, and morals were unfortunately "compartmentalized," finally acted as they did.

If there is a villain in my book it is that old-fashioned "specialization" born precisely in the German universities and later carried over into the American universities, which tends to make scientists narrow and one-sided by presenting a part of life rather than the whole of it—to turn them into people who agree sometimes much too easily with rather horrible decisions put before them. And if my book has any hero it is the new spirit of awakening universalism and modesty grown precisely out of the ghastly experience of the atom bomb.

I wholeheartedly agree with Condon that a team of historians ought to write the crucial history of those men as soon and as objectively as possible. Having gone into that field with fewer preconceived notions than some of the men who now defend in a rather emotional way the "official view" against the facts I have discovered, I am convinced that such a team will not only find fault with me but will also find some merit in my having unearthed some facts which until now had been buried under the bouquets of professional courtesy and veiled by the mist of nationalistic thinking.

ROBERT JUNGK

London, England

Source of Fallout

A question has been raised about the source of the fallout whose partial analysis we reported in the article "Long-lived cobalt isotopes observed in fallout" [*Science* 128, 417 (1958)]. The objective of this article was to report the detection of measurable quantities of radiocobalt in three specific samples of fallout material. These quantities were expressed in terms of radiocobalt-strontium atom ratios. It was noted that the samples were from a single detonation.

It is now possible to state that the samples were from a "clean" bomb and that bombs of higher relative fission yield would result in lower cobalt-to-strontium ratios than those reported. Data available to us indicate that the amount of induced radiocobalt produced is approximately proportional to the total yield (fission plus fusion) of a weapon. Consequently, the $\text{Co}^{60}/\text{Sr}^{90}$ ratio is proportional to the total-yield/fission yield ratio.

PETER O. STROM, JAMES L. MACKIN,

DOUGLAS MACDONALD

PAUL E. ZIGMAN

U.S. Naval Radiological Defense
Laboratory, San Francisco, California

WE'RE LEARNING WHY TWO EARS ARE BETTER THAN ONE



Which speaker is making the sound? In echoless chamber at Bell Labs, Robert Hanson measures test subject's ability to localize sounds—observes how two ears operate in partnership. This and other tests may point the way to better telephone instruments.

In listening to stereophonic music, how is it that our ears and brain construct a picture of the entire orchestra with but two samples (the sounds from two speakers) to work with?

How is it that our ears and brain are able to pinpoint *one* voice in a roomful of talkers—to listen to it alone and ignore the rest?

What makes *two* ears better than one?

Bell Telephone Laboratories scientists are searching for the answers. For in finding them, better telephone instruments and better ways of transmitting sound will surely result.

Our hearing performs feats that no electronic system can yet duplicate. How? Laboratories scientists believe the secret lies in the way our two ears function in partnership and in the way

our neural network connects them with our brain. *The problem:* to discover what functions the network performs and to see whether electronic duplication might enhance understanding.

The work is under way. Electronic circuits that simulate the operation of nerve cells have already been created—and conceptual models of the neural network are being constructed.

Alexander Graham Bell's interest in deafness and hearing led to the invention of the telephone. Bell Laboratories' current explorations in binaural sound may well lead to important new advances in the transmission of speech and music.



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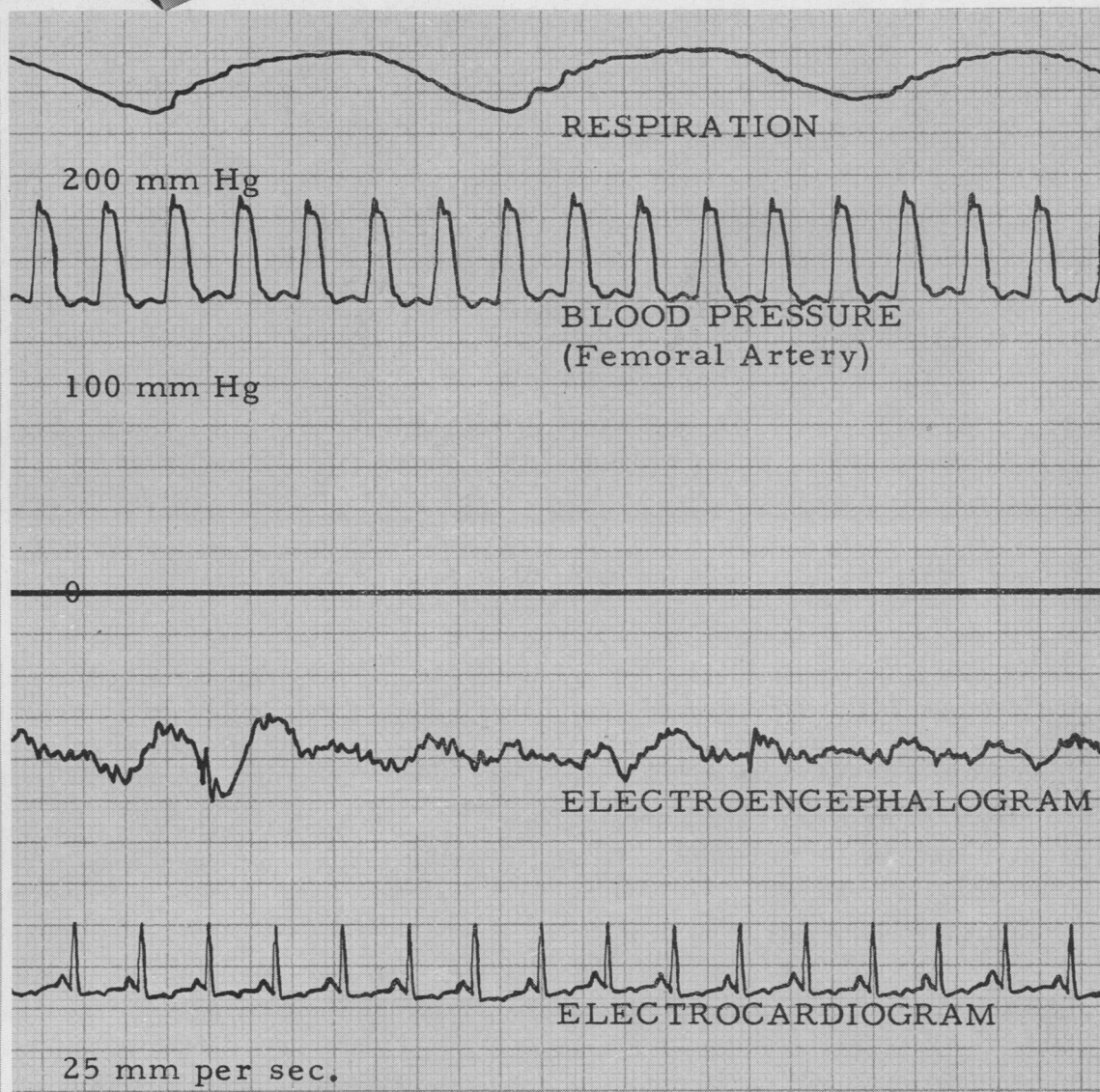
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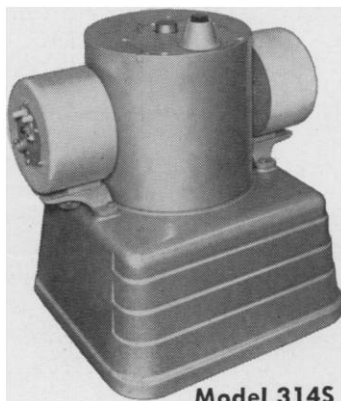
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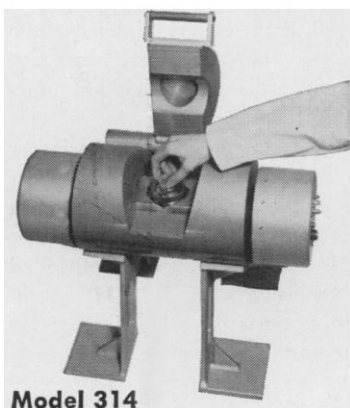
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Meetings

Wildlife Management Institute

The Wildlife Management Institute, a recent affiliate of the American Association for the Advancement of Science, was established in 1946, but its program has been continuous since 1911, when the American Game Protective and Propagation Association was established to promote better game laws and wildlife restoration through the artificial propagation of game. As new concepts developed, that program was expanded and amplified, and succeeding reorganizations became necessary in order to broaden the scope and magnitude of the work.

Since 1946, the institute's program has embraced all phases of conservation, improved management, and proper utilization of natural resources and has included the fostering of research and field investigations through the issuance of a limited number of graduate fellowships and grants-in-aid each year for specialized work in the natural sciences.

The institute sponsors and conducts the annual North American Wildlife Conference, the largest conservation meeting of its kind in the Western Hemisphere, which is attended by representatives from practically every major conservation organization, from many scientific societies and educational institutions, and from most of the state, provincial, federal, and dominion natural-resource agencies in the United States, Canada, and Mexico. These yearly conferences, if one includes the American Game Conferences—the name by which they were originally known—date back to 1915. The general and technical sessions are open to the public without a registration fee, and the published *Transactions*, which are made available at cost, are used widely as reference books in many colleges and universities and by scientific workers in the fields of biology, ecology, soil and water conservation, wildlife management, and forestry.

The institute also publishes carefully selected authoritative books on wildlife, principally monographs on birds and mammals, that have been written by leading authorities in those fields. These are priced as low as possible consistent with high standards of literary quality.

The institute maintains a staff of highly trained field representatives which works closely with the various governmental conservation agencies and private organizations at state, regional, and federal levels. Aside from their staff assignments, all of these technicians conduct important research on major biological problems in their respective territories. Two Canadian wildlife research stations, also staffed with biolo-

gists of the highest caliber, are operated by the institute—the Delta Waterfowl Research Station in Manitoba and the Northeastern Wildlife Station at the University of New Brunswick in Fredericton. Independent research is performed by the permanent staffs of these stations, and, in addition, they serve as outdoor laboratories for training graduate students in the wildlife profession.

Since the inception of the Cooperative Wildlife Research Unit Program in 1935, the institute has been one of the four "cooperators"; the others are the U.S. Fish and Wildlife Service, the state conservation agency, and the land-grant college or university at which the unit in question (there are 16 of them) is located. Like the institute's Canadian stations, these units train graduate students, and the unit leaders carry on continuing research of a special or long-term nature.

The institute is a nonprofit, tax-exempt membership organization governed by a board of directors under the chairmanship of Egbert C. Hadley of Middlebury, Vermont. Ira N. Gabrielson, its president, is a former director of the Bureau of Biological Survey and U.S. Fish and Wildlife Service. He is an internationally known conservationist and ornithologist and the author of many articles and books in these fields. C. R. Gutermuth, the vice president and secretary, is the institute's representative to the AAAS Council.

C. R. GUTERMUTH

*Wildlife Management Institute,
Washington, D.C.*

Forthcoming Events

June

1-3. Evolution, symp., annual, Saskatoon, Saskatchewan, Canada. (Mrs. L. C. Metivier, Royal Soc. of Canada, Natl. Research Bldg., 100 Sussex Dr., Ottawa.)

1-4. American Dermatological Assoc., Atlantic City, N.J. (W. M. Sams, 25 Southeast Second Ave., Miami, Fla.)

1-4. Spectroscopy, 10th annual symp., Chicago, Ill. (G. W. Bailey, Borg-Warner Research Center, Des Plaines, Ill.)

1-5. International Silk Assoc., cong., Munich, Germany. (H. Bonvallet, 25, Place Tolozan, Lyon 1, France.)

1-6. International Commission for Northwest Atlantic Fisheries, 9th annual (by invitation), Montreal, Canada. (ICNAF, Forest Bldg., Carleton St., Halifax, Nova Scotia.)

2-6. American Rheumatism Assoc., Washington, D.C. (E. F. Hartung, 580 Park Ave., New York 21.)

2-6. Rheumatic Diseases, 2nd Pan American cong., Washington, D.C. (R. T. Smith, West Point, Pa.)

3-5. Cellular Aspects of Immunity, symp. (by invitation), Royaumont (near Paris), France. (G. E. W. Wolstenholme, Ciba Foundation, 41 Portland Pl., London, W.1, England.)