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been found to possess an electric sense with which they can detect and attack fish buried in the mud.

Birds are known to be sensitive to magnetic fields and to radar beams. Their remarkably sophisticated long-range navigation techniques (which include stellar navigation) have been satisfactorily explained, but one sticky riddle still remains—what serves as the telepathic "homing beacon" that enables them to sense their distant destination points across trackless oceans so accurately *beforehand?*

Hence so-called "occult," "supernatural" or "psychic" phenomena appear to have a rational physical energy-field basis, for the most part. Not only have past investigators suggested "teleneural" control of computers and servomechanisms, but NASA people have actually seriously looked into this possibility for the past decade; and science-fiction writers have belabored this theme for decades prior to this.

A bibliography list on the above items will be mailed to readers interested in this esoteric and little-understood field.

TED POWELL
Hofstra University
Technical Services
Hempstead, N.Y.

Browsing library at AIP?

The increasing number and cost of physics books and the concurrent monetary shortage faced by universities have put science libraries into a difficult situation, which is easy to illustrate first hand:

For the 1973–74 academic year our library has budgeted about $4500 for physics books. During 1973, PHYSICS TODAY listed new books (received) having a total retail value of about $11 700. About 14% of the listed books were reviewed in PHYSICS TODAY.

Our science librarian has cheerfully agreed to let the physics department use its expertise to suggest what subset of available books should be purchased by the library from the above-mentioned budget. But even in the New York City area, which is heavily endowed with bookstores and book publishers, it is very difficult to gain direct, efficient access to a reasonably complete display of new physics books. Consequently, it is difficult for us to make confident recommendations, since most of our book information comes from publishers' advertisements.

A natural, significant step toward the solution of the above problem would be the establishment of an AIP Browsing Library. The primary purpose of the library would be to provide a reasonably complete, non-circulating collection of current physics-related books that could be browsed by librarians and physicists involved in book-acquisition decisions. All books (including conference proceedings) normally listed in PHYSICS TODAY would be displayed in the AIP Browsing Library for, say, one year following the date that the book title appeared in the "New Books" section of PHYSICS TODAY. It is anticipated that extra copies of those books that PHYSICS TODAY decided to have reviewed would be happily supplied by the publishers directly to the reviewers so that as a rigid rule, books would not leave the Browsing Library during the one-year period.

As a possible extension of the above idea, the AIP might explore the possibility of developing a SPIN-type computer filing system where (with proper approval) the table of contents and selected excerpts from the books in the AIP Browsing Library would be available along with the standard Library of Congress information, price, and possibly a mini-review with a standard format (research value, undergraduate text suitability, and so on).

In addition, it is intriguing to consider the possibility of an accessible, permanent, noncirculating physics collection composed of all the books which have served their time in the AIP Browsing Library. Perhaps some well-located public or private institution would agree to house and staff such a collection.

H. FALK
J. BIRMAN
E. ERLBACH
M. LAX
The City College
New York, New York

EDITOR'S NOTE—The American Institute of Physics is actively considering plans to establish a browsing library as proposed above. Further ideas and suggestions would be welcomed.

Invitation from Moscow

The Moscow Seminar on Collective Phenomena cordially invites the participation of visitors interested in a broad range of topics including physics, mathematics, chemistry, economics, cybernetics, linguistics and biophysics. The seminars are held every Sunday at noon, in the apartment of I. and V. Brailovsky, pr. Vernadskogo 99, korp [*building*] No. 1, kv [*apt.*] 128. The address may be reached by taxi or by ten minutes walk from Metro Station Yugozapadnaya. Visitors are invited to present papers, and are asked to visit the above address the day before the seminar to communicate title and abstract.

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This announcement has been requested by seminar leaders, who include M. Azbel and A. Voronel. They are urgently in need of contacts with visiting scientists, having been denied normal routes of information exchange as well as professional employment.

GREGG DASH
University of Washington
Seattle, Washington
EARL CALLEN
Committee of Concerned Scientists
New York, N.Y.

More on Sherwood

I enjoyed reading about the origin of "Project Sherwood" in your October issue (page 78) and wanted to share with your readers an "alternative explanation" given to me by Charles Nomand. Nomand worked with E. O. Lawrence at Berkeley and later developed the vacuum systems for the calutron magnetic separators at Oak Ridge. When I arrived at Oak Ridge in 1954, I asked Nomand about the meaning of "Project Sherwood." He explained to me that it was a project to control thermonuclear fusion and told me all about Robin Hood and Friar Tuck. But then, he added, ". . . Project Sherwood really means that it 'sure would' be nice if it would work!" We certainly have a lot of reason for increased optimism for this possibility in 1974 than we did in 1954. However, in view of Charlie Nomand's interpretation, I vote that "Project Sherwood" be retained as a relevant and fitting title.

JOHN H. GIBBONS
University of Tennessee
Knoxville, Tennessee

Birth of radioastronomy

I feel that I must correct an inaccurate statement, made by Victor Weisskopf, which you have quoted on page 28 of the November issue. Radioastronomy was not born in Holland, although his story about Oort is correct as regards the first radio observations of a spectral line. While several unsuccessful attempts to measure radio emission from the Sun were indeed first made in Europe at the turn of the century, the first actual detection of extraterrestrial radio radiation was made by Karl Jansky in 1931–32 at the Bell Telephone Laboratories in Holmdel, N.J. The only other significant pre-war observations were done by another American, Grote Reber. During and shortly after World War II, however, the Europeans, in particular the English, and the Australians very soon took the initiative away from this country and dominated the field for over a decade.

As Weisskopf also mentioned, the US is today once again being outclassed by the new radiotelescopes in England, Holland, and Germany. Unless the funding situation dramatically changes in the near future, I fear that American radioastronomy will remain "second fiddle" for a long time to come.

WOODRUFF T. SULLIVAN, III
University of Washington
Seattle, Washington

THE AUTHOR REPLIES: I agree very much with Woodruff Sullivan's statement and I regret that I have not been accurate enough in my interview about European science. Surely the credit for having made the first detection of radio emissions from outer space goes to Karl Jansky. It would have been perhaps more accurate if I said radioastronomy was not born, but was "raised" in Holland.

VICTOR F. WEISSKOPF
MIT
Cambridge, Massachusetts

No crystals in biology?

The impact of quantum concepts on biological systems is currently being felt. In particular, your May issue (page 9) contains a quantum-mechanical formulation by Charles Lumsden and Melvin Silverman of membrane processes. In the majority of biological systems, it is questionable if there is sufficient regularity to carry out quantum-mechanical calculations of electron states based on crystalline-lattice derived methods. Crystallinity is a precise mathematical concept, and although there is a great deal of organization in the molecular sense and some biological materials can be crystallized, the incidence of *in-vivo* crystallinity (as opposed to order) is probably rare. A review of the literature will turn up very few diffraction patterns, or other evidence, showing what is accepted to be crystallinity.[1] Thus, the quantum-mechanical formulation of most biological systems requires the application of quantum mechanics for disordered systems. Until recently, this has presented a virtually intractable problem.

The discovery of amorphous semiconductor switching in melanins, by J. E. McGinness, P. Corry, and P. Proctor[2] represents data that identify the melanins as amorphous semiconductors. This prototype system makes it clear that the direction of formulation is away from crystallinity and into the concepts of conductivity through disordered systems. As a further example, G. Kemeny and R. Rosenberg[3] have shown that conduction through proteins and many biological materials may be of a polaron nature. This discovery is interesting because, in amorphous ma-