

THE INSTITUTE ON RELIGION IN AN AGE OF SCIENCE: A TWENTY-YEAR VIEW

by Ralph Wendell Burhoe

The Institute on Religion in an Age of Science (IRAS) provides a channel of communication between the religious community of our society and its scientific community. It recognizes the essential roles of both religion and science, but regards the chasm that separates religious and scientific thinking as one of the most serious weaknesses of our culture.

THE SOURCES OF THE INSTITUTE

IRAS was born from the cooperation in the early 1950s of two groups which felt that the significance of new insights from the sciences were vital for reforming and revitalizing basic religious understandings and institutions.

One parent group consisted of scientists who were members of a Committee on Science and Values of the venerable American Academy of Arts and Sciences. Beginning about 1940, under the leadership of astronomer Harlow Shapley, president, and neurophysiologist Hudson Hoagland, secretary, the Academy had been devoting meetings and conferences to elucidating what science and scholarship might reveal about what is good or evil for man. In 1948, with the encouragement of the Academy Council, Ralph Wendell Burhoe, then executive officer, convoked a Committee on Science and Values, the charter document of which stated: "We believe that the sudden changing of man's physical and mental climate brought about by science and technology in the last century has rendered inadequate ancient institutional structures and educational forms, and that the survival of human society depends on a re-formation of man's world view and ethics, by grounding them in the revelations of modern science as well as on tradition and intuition." When George Wald was chairman of this committee in 1952, he suggested that the information on man coming from the sciences was not so denigrating of man and the higher religious traditions as the public, including some theologians, seemed to think; therefore it might be well to talk with the theologians!

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The other parent group consisted of leaders of an interfaith summer conference on "The Coming Great Church" meeting at Star Island, in the Isles of Shoals, off Portsmouth, New Hampshire. This conference began in the summer of 1950. The interchanges of ideas made for better understanding between the religious bodies within Christianity and between Christianity and other religions. But always it seemed as if some really important elements for the making of a "Great Church" were missing because the conference involved only the people and ideas within religious traditions and largely overlooked the relevance for religion of the interpretations of reality provided by modern science.

In the fall of 1953, conference founder Lyman V. Rutledge (minister of the Community Church, Dublin, New Hampshire) invited conference member Ralph Wendell Burhoe, who had been urging that scientifically acquired knowledge offered rich new insights for the interpretation of any religion and a common frame of reference for all religions, to arrange the conference program for the summer of 1954. Burhoe presented fourteen scientists and other scholars who had been giving thought to the implications of scientific findings for morals and religion, most of them associated with the Academy Committee on Science and Values.

THE STAR ISLAND CONFERENCES

The Fifth Annual Interfaith Conference on the Coming Great Church held on Star Island from July 31 to August 7, 1954 was entitled "Religion in the Age of Science." The following papers were presented:

- "Theological Belief in the World Today," by EDWIN PRINCE BOOTH, professor of historical theology, Boston University;
- "Has Science Caused a Crisis in Ethics and Religion?" by KARL W. DEUTSCH, professor of history, Massachusetts Institute of Technology;
- "Notes on the Religious Orientation of Scientists," by GERALD HOLTON, assistant professor of physics, Harvard University;
- "The Nature of Belief—Scientific and Religious," by C. J. DUCASSE, professor of philosophy, Brown University;
- "Faith and the Teaching of Science," by EDWIN C. KEMBLE, professor of physics, Harvard University;
- "Can Science Be Separated from Ethics and Religion?" by PHILIP FRANK, leader of the Vienna Circle and the Institute for the Unity of Science;
- "Truth in Science and Religion," by HENRY MARGENAU, professor of physics, Yale University;
- "The Cosmos and the Hope for Man in the Psychozoic Era," by HARLOW SHAPLEY, professor of astronomy, Harvard University;

- "The Origin and Nature of Life," by GEORGE WALD, professor of biology, Harvard University;
- "Freedom and Probability," by H. B. PHILLIPS, professor of mathematics, Massachusetts Institute of Technology;
- "Religion and (or) Science," by PAUL E. SABINE, engineer;
- "Should We Fear a Science of Man?" by B. F. SKINNER, professor of psychology, Harvard University;
- "Body, Mind, and Morals," by ROY G. HOSKINS, former director of neuroendocrine research, Harvard Medical School;
- "This Life," by A. G. HUNTSMAN, professor of zoology, University of Toronto; and
- "The Recovery of the Whole Man in the Church," by SAMUEL H. MILLER, minister, Old Cambridge Baptist Church (later dean, Harvard Divinity).

Science, the weekly journal of the American Association for the Advancement of Science, published a report of the conference in its October 1, 1954 issue, including:

Ten scientists explained how they thought scientific and religious knowledge would be integrated. . . . Conference members, numbering more than 200 [the capacity of the island], included theologians, clergymen, and laymen of ten Protestant denominations, as well as Jewish, Buddhist, and Vedanta groups. . . . While there were a number of both scientists and clergymen who held that religious truth was hardly susceptible to being approached by scientific methods, except perhaps in the negative sense of being prohibited by scientific beliefs, there was a strong and seemingly growing recognition that today man can increase the scope and validity of his understanding of his destiny and of his relationship to that "in which he lives and moves and has his being," not only by reading ancient texts, but also by building up the science of theology in harmony with other science. . . .

That the attempt to integrate religious doctrines with those of science would tend to bring harmony out of the confusion and antipathy among the many religious groups of the world was the theme of one panel discussion. . . .

The new strategy, suggested by many from both the camp of science and the camp of religion in this peace conference in the cold war between science and religion, is that theology should no longer stake its claims in the area where science is ignorant, but rather that theology should accept and integrate with the developments of the several branches of knowledge represented by the sciences. . . .

The general tone of the conference throughout was one of cooperative cordiality and even elation. There were many testimonials of exciting mind-stretching and new appreciations on the part of both the scientists and the clergy. Booth's daily chapel essays provided many insights into the values and validity of some of the great religious traditions of the world. The clergy and lay members of the conference were deeply impressed with the grand sweep of knowledge about man and his destiny in terms of the scientific view of the universe; and they were amazed at the concern of

scientists to help, as Wald put it, to “organize human experience so that persons can feel at home in the universe, some sense of direction in their daily lives, some hope for the future, some purpose in their lives.”

Many came away with a deeper understanding of what Pope Pius XII may have meant when he said to the Pontifical Academy of Science, 22 Nov. 1951: “In fact, according to the measure of its progress, and contrary to affirmations advanced in the past, true science discovers God in an ever-increasing degree—as though God were waiting behind every door opened by science.” There were suggestions that more specific cooperation should be developed between scientists and theologians. It was proposed that interdisciplinary seminars be established to develop modern moral and religious doctrine in the light of science and that all relevant branches of science should be represented in theological school faculties.¹

On November 9, 1954 the meeting of the Coming Great Church Conference Committee voted to “resolve itself into the ‘Institute on Religion in an Age of Science.’” The new Institute consisted of an executive committee (council) and an advisory board elected from members of the Committee on Science and Values of the Academy, from former members of the Coming Great Church Conference Committee, and from other groups.²

Edwin Prince Booth, who had been chaplain and a leader of the Conference on the Coming Great Church, was elected first president of IRAS. He stressed the significance of scientific revelations for theology. He constantly urged theologians and clergy to call upon scientists to spell out their new information, and for the theologians and clergy to ponder this and to make something religiously significant of it. Booth was a key spirit in the formation of IRAS and in inspiring scientists and secularists to concern themselves seriously with religion. Lyman Rutledge, who was chairman of the organizing committee, and later was elected honorary vice-president of IRAS for life, and who also shared the vision of a world-uniting religion enlightened by the sciences, was the practical organizer who brought together the people and facilities.

Every year since 1954, IRAS has brought together on Star Island some two hundred people from all branches of learning for a week-long summer conference to explore the insights science may provide for religion. Many distinguished scholars in the psychosocial, historical, and theological disciplines have sought to illuminate the character of religion; those in the biological and anthropological sciences to illuminate the nature of man among living systems; and those in the biophysical sciences to illuminate still more primary elements of that reality which is all powerful for the sciences as much as for theology, which created man, and upon which hu-

man destiny ultimately depends. Efforts were made to involve in the conferences younger people who were studying for or entering religious and scientific professions; and these were in some years aided by grants for scholarship funds made by the Rockefeller Foundation. Various inquiring people of all ages and backgrounds have attended, the only exclusions having been due to the limited capacity of Star Island.

From these conferences there has been spread a new climate of opinion, starting from some of the more than fifteen hundred people who have been directly involved and from the publication of several dozen of the papers. Nineteen papers from the first five conferences were selected by a small committee and, edited by Harlow Shapley, were published as *Science Ponders Religion*,³ which was put on the Religious Book of the Month Club list. More than forty Star Island Conference papers have been published since 1966 in *Zygon* and many others in various journals and books.⁴ Themes of the Star Island Conferences are listed in Appendix B. Appendix C lists the major papers presented at Star Island conferences as well as some presented at other IRAS Conferences.

OTHER ACTIVITIES

It would be a mistake to gain the impression from this report of the Institute's summer conferences that this is the only activity in which IRAS has been involved. The broad, general purposes of the new IRAS were restated in its 1955 constitution: "to promote creative efforts leading to the formulation, in the light of contemporary knowledge, of effective doctrines and practices for human welfare; to formulate dynamic and positive relationships between the concepts developed by science and the goals and hopes of man expressed through religion; to state human values in such universal and valid terms that they may be understood by all men whatever their cultural background and experience, in such a way as to provide a basis for world-wide cooperation." To implement these purposes, plans for programs, beyond what could be accomplished at the Star Island Conferences, were developed beginning in 1955.

On August 3, 1956 at the annual meeting on Star Island, the council approved development of a number of programs, including: (1) meetings and conferences in addition to the midsummer week on the Isles of Shoals; (2) publication of a journal of religion and science, a popular magazine, and a newsletter; (3) a center for advanced studies in religion in an age of science; and (4) curriculum

enrichment in theological schools and universities on the implications of science for theology and human values.

Proposals for all these programs were developed in several documents from 1955 to 1958 and were presented to foundations and other sources for funding. In spite of the failure to get significant funds, some progress was made in each program:

1. *Meetings and conferences* were the most immediately feasible and most fully developed of these programs. In addition to the nineteen conferences at the Isles of Shoals, the Institute has held over a hundred conferences and symposia of its own (sometimes at universities and theological schools), or in conjunction with the meetings of religious, scholarly, and scientific societies. Also, members of the Institute have given many hundreds of lectures and discussions on college campuses, in churches, and elsewhere, where they have shared the growing IRAS views on the possible integration of scientific and religious thinking. These meetings ranged in size from small seminars and study groups of a half dozen persons to lectures and symposia with audiences of several hundred persons.

2. The *publication program* got under way in the first ten years from 1954 to 1963 with various IRAS members publishing their papers in various journals and books. As already noted, the book *Science Ponders Religion* was generated specifically by IRAS. Occasional mimeographed newsletters and other publications were issued, but the establishing of a journal had to wait for significant sources of funds.

3. The *advanced study* program also began with a number of voluntary and occasional efforts. From 1955, a number of IRAS members in various places initiated periodic or occasional seminars and symposia. Sometimes they met at meetings of other groups. Papers on human nature, destiny, duty, and opportunity in the light of the sciences were presented and discussed.

4. The *curriculum-enrichment* program was moved forward by communicating to theological schools and universities the possibilities of the sciences for illuminating theology and human values. This project was carried out largely by the conversations, lectures, and conferences that individual members or small committees of IRAS enthusiastically volunteered. Resources for travel for these purposes were augmented by a grant from the Danforth Foundation, which made possible, in the late 1950s and early 1960s, more than a dozen two-day visits by teams of scientists—sometimes with a theologian—in response to solicited invitations from theological

schools to discuss with their faculties and students some of the potentials of the sciences for religion. The IRAS activities and personnel also stimulated a number of new courses in the relation of religion and science, including early ones at the schools of theology at Boston University and Tufts University.

By the beginning of its second decade, more of the hopes of IRAS began to be realized. The enthusiasm of the scientists who cooperated in producing conference programs and the convincing notions they brought with them persuaded certain religious leaders and laymen who had become involved in the IRAS programs that here was an overlooked resource for religion that should be made more widely available—particularly for the training of religious leaders.

One of the individuals who sensed this possibility was Dana McLean Greeley, a clergyman in Boston and then the president of the Unitarian Universalist Association. Another was Malcolm Read Sutherland, Jr., then vice-president of the Unitarian Universalist Association. They sensed the irony that the epoch of greatest scientific advance in human history should be the epoch of minimum theological utilization of scientific concepts and perspectives. On the one hand, religious institutions were being rejected in large measure because their historic wisdom was presented in outmoded myths incredible to many. On the other hand, from the sciences there was available very credible and reliable knowledge about man's nature, destiny, and cosmic setting which was providing new corroboration of many traditional insights of religion, invaluable to man in perceiving his role and meaning in the scheme of things and in relating successfully to his fellowmen and to his environment.

This knowledge explosion and religious crisis required more of theologians than bit-by-bit replacement of not so accurate with more accurate propositions. The time was ripe to erect a newer, better structure—more responsive to human capacities, more stimulating to human potentialities, more harmonious with all fields of knowledge.

From his associations with IRAS members, Greeley suggested in 1958 the virtue, especially for the newly federating Unitarian and Universalist churches, of some of the exciting potentials of the sciences for credible religious belief. As a result, in 1959, he established a Commission on Theology and the Frontiers of Learning. More than half of the commission's members were scientists, philosophers, and theologians who had participated in IRAS programs or had been involved with Burhoe in the Academy's programs on science and

human values. The commission's recommendations, published in 1963, called for the development of an "Institute for Advanced Study of Theology in Relation to the Frontiers of Learning."⁵

In 1960 Sutherland became president of Meadville Theological School, affiliated with the University of Chicago, and in that year he contracted IRAS people to help him test out his hope that some of the implications of the sciences for religion might become a significant element in theological education. After a three-year program of experimental seminars at Meadville involving IRAS and other scientists, in 1963 Sutherland sought the help of IRAS in establishing both a new department on theology and the sciences for the curriculum of the school and a Center for Advanced Study in Theology and the Sciences, very much along the lines proposed by IRAS in 1956 and by the recommendation of the commission published in 1963. In 1964 the new Center at Meadville, nonsectarian in character, was established. Burhoe resigned from the Academy to accept the directorship, and the board of advisers, under the chairmanship of M.I.T., physicist Sanborn C. Brown, involved men most of whom had served in IRAS projects or related projects of the Academy.⁶

The Center was designed to operate on four levels: (1) to conduct a program of research and study in the philosophy of religion and science at the faculty level in order to develop and articulate theological interpretations of human destiny, illuminated by the sciences as well as by the wisdom of the religious heritage about the nature of man and the ground of his being, and to relate these theological interpretations to the total curriculum of the school; (2) to guide advanced-degree and postdegree scholars in research; (3) to conduct programs of continuing education for practicing ministers and lay leaders so they might share the insights gained by these inquiries; and (4) to publish its work for examination and criticism by a broader world of scholarship and for dissemination to a still wider group of professional and lay leaders.

This last-listed level of the new Center led to the accomplishment of one of the most ambitious, long-term projects for which IRAS had been hoping since 1956: the publication of a journal. *Zygon* became possible under joint financing and a joint publication board of IRAS and the new Center at Meadville. It has been published quarterly at the University of Chicago Press since 1966.

Zygon, now in its eighth volume, has published over fifty papers presented at IRAS conferences, as well as many generated by the

Center at Meadville. About half of *Zygon* papers are from conferences of other groups or from individual scholars. It is read by scholars, scientists, clergymen of all faiths, professional people, with a few at least on each continent and a few in each of the United States. It has high ratings from such critical evaluators as the *Library Journal*. In addition to influencing theological thinking, letters to the editor testify that its ideas are finding their way into the preaching of clergy of many faiths and are stimulating the formation of new societies and agencies to work in this field.

The advanced-study program, the first of the above four levels of the program of the Center for Advanced Study at Meadville, has offered an opportunity for elements of the IRAS vision to reach theologians of various faiths who have participated in its seminars and who have been Fellows and Research Associates of the Center. The view that there may be positive potentials for theology from the sciences is thus being spread by teachers in many schools.

The relation of IRAS with Meadville Theological School has thus led to a Center for Advanced Studies, a journal, and an impact on teaching in theological schools. Announcement of the transformation of the Center to a new stage of independent status appeared in the September 1972 issue of *Zygon*.

A rather significant activity of IRAS has been its Committee on Science and Human Values (Ralph Burhoe, chairman, L. C. Birch, and Theodosius Dobzhansky), working with a grant from the Alfred P. Sloan Foundation. The first major symposium of this committee was held as a part of the annual meeting of the American Association for the Advancement of Science in Chicago in 1970, and the papers were published in the *Zygon* issue of June 1971. Another such symposium on Science and Human Purpose was held at the Institute on Man and Science in Rensselaerville, New York in October of 1972; the papers are being prepared for publication.

These, then, are some of the more direct activities of IRAS and their outcomes: the summer conferences, the other conferences and symposia, the wider publication through books and journals, a Center for Advanced Study, the generation of new curriculum elements in theological schools. The intellectual substance of these activities is found in many publications, particularly in *Zygon*.

A complete history of IRAS cannot be given in a few pages. The list in Appendix C of the papers that have been presented at IRAS meetings provide a sample of some of the significant work. Many of the authors of the papers have also been active officers and council

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members who have made IRAS a living institution. In Appendix A, we list the major officers of the first twenty years. Though we cannot list here the hundreds of other persons who have served as officers and organizers and operators of the Institute and its meetings, without their spirit, energy, and wisdom IRAS could not have succeeded.

THE IMPACT OF IRAS

It is often very difficult to measure the impact of small institutions, even over a twenty-year period. IRAS has had a membership which has, from 1954 to 1972, been kept within the range of about fifty to two hundred persons. The effect of the speeches, conversations, and writings of a few hundred of the distinguished and active members of IRAS over these two decades as their ideas have influenced one another and spread through at least a few people on all continents of the world would need to be evaluated to tell the whole story, and that could only be given an informed estimate. Harlow Shapley was perhaps the widest ranging of our missionaries. It is a fact that tens of thousands have been in some way touched with messages originating from IRAS, including especially academic and professional people. A fraction of them have been to some degree moved to new insights into the fruitfulness of efforts to integrate religion and the sciences.

In addition to the direct activities of IRAS reported above, there are numerous evidences of the wider impact of the IRAS views that the sciences can be useful for religion. For instance, a Midwest clergyman and some associates were inspired by the IRAS idea to convoke what has been called the Colloquium on Man. It has involved a group of some twenty or thirty university professors, clergymen, and theologians in the Midwest who have met together about once a year for the past five years to develop and publish a more credible faith about human destiny. A clergyman who attended one of the early Isles of Shoals conferences went to the West Coast and developed a somewhat related group called the Conference on Science and Religion. Reports come in from clergymen, professors, and laymen from the east to the west coasts of America and from other continents—from Catholics, Protestants, Jews, Muslims, and Oriental faiths. They tell us of the value they find in IRAS ideas, especially as spread through *Zygon*, in preaching and teaching.

While it is clear that IRAS has had a considerable impact, it is also clear that IRAS has not as yet provided the significant revitalization of the world's social institutions that enculturate man's ultimate or

long-range concerns. Neither has any other group. The very different and often antiscience revival of primitive forms of religion and “countercultures” can be discounted as inadequate for the complex, interdependent, spaceship world in which religious values must be relevant to the novel requirements laid upon humanity by science and its technological potentials. Such revivals of primitive patterns is psychologically and historically predictable whenever people become fearful that the present condition is dangerous and when the presently operating value system seems inadequate. The tendency to turn to the primitive is a warning sign that all is not well; but it is not necessarily a genuine path to man’s salvation.

We may say that in its first twenty years IRAS has started to explore a significant possibility for the integration of the wisdom inherent in the higher religious faiths with the new philosophy, world view, or model that the sciences portray of the nature of the realities with which humans must cope. It has uncovered some significant notions as to why and how this could be done, and it has spread this information directly and indirectly to a considerable number who are taking up the task.

THE FUTURE OF IRAS

In my view IRAS is one of the groups most likely to work through to a more adequate solution of the problem of human salvation in the new and drastically different human cultural situation that is being produced by science and its technology. Some historical notes are helpful in understanding what needs to be done and how the task can be accomplished.

As IRAS was waxing, a very significant and related series of Conferences on Science, Philosophy, and Religion, initiated in the late 1930s by Rabbi Louis Finkelstein of the Jewish Theological Seminary in New York, was waning. There was a considerable overlap in membership through the American Academy of Arts and Sciences. The CSPR left a record of more than a dozen significant volumes—but those conferences and volumes did not keep a sharp focus on the problem of integrating religion and science. This failure to find a dynamic and vital integration is characteristic of many other efforts, and such a failure may in the end bring a downfall of IRAS. But the CSPR case is cited primarily to suggest that the cultural climate was not yet ready, and good and wise moves often fail to blossom or bear fruit until the climate of opinion is ready.

During the past two decades of IRAS the world has rapidly evolved through a cultural evolution with regard to traditional reli-

gion. The implications of science and technology have diminished the credibility and hence the effectiveness of many forms of religious faith around the world. We have seen the decline of neoorthodoxy in Protestantism, the rumblings around Vatican II in Roman Catholicism, and similar declines in traditional faiths spreading in Muslim and far-Eastern populations. The falling away in attendance and in fiscal support of churches is widely documented. The symptoms of a new "religions" concern—often at the level of desperation that calls for even a primitive faith—only document the decline of traditional religion.

At the same time, there has been a worldwide revulsion against science and scientific technology. The countercultural movements are symptomatic of widespread misunderstanding of and disrespect for science and technology. I believe that the loss of faith in the validity of the scientific pictures of reality is a dangerous illusion for a population that has in fact chosen and in fact continues to live by the highly complex fruits of a scientific technology. I further believe that, without some effective institutions for enculturating the highly sophisticated complex of values necessary for men to live with all other men in the tightly interwoven systems of spaceship Earth, the inexorable consequences of population and pollution explosion, energy and materials depletion, and a concurrent loss of morale and morals could bring upon the human species the worst disaster of its past million years.

These trends suggest that the moment is almost at hand when the IRAS idea of a sound and credible integration of the wisdom in the higher religions with the understandings of modern science will have its day.

That human disasters and salvations are in large measure programmed by error or truth in the minds of men seems clear. Political and police actions can do little against what is enculturated and tied to deep emotional desires and fears widespread in a population. Economic affluence does not bring purpose and meaning. Even revised enculturation or education is not very effective for rapid changes in adult levels of population. The question is whether a new and sound, scientifically credible, religious faith will enable men to find meaning, morals, and morale in an explosive period of advancing science and technology before their misunderstandings of themselves and their place in the scheme of things creates widespread disaster.

IRAS therefore needs to enlist larger numbers of persons and resources to work on the basic IRAS goal.

This need was presented to the IRAS council at its 1972 annual meeting. In response, the council unanimously “resolved that in order to maintain and advance the aim central in the Constitution of IRAS—‘to formulate dynamic and positive relationships between the concepts developed by science and the goals and hopes of man expressed through religion’—we mount an active recruitment of members from the increasing number of competent persons who share this aim and we provide [such further] meetings, conferences, and publications [as may be necessary] more adequately to meet this aim.”

At the same meeting, the IRAS council was informed that the Center for Advanced Study in Theology and the Sciences (CASTS) at Meadville Theological School had been reorganized (see *Zygon* 7 [1972]: 168–87) as an independent Center for Advanced Study in Religion and Science (CASIRAS), and that CASIRAS was to assume the responsibilities previously carried by CASTS as copublisher of *Zygon*, whereupon the IRAS council voted to accept CASIRAS as the copublisher.

Therefore, IRAS and CASIRAS, as partners in a critical task, face the future together. Both need the support and help that readers of this story can bring to them. CASIRAS is the center for study and teaching. IRAS is the membership organization for those who wish to join and help in various ways toward the above-reflected goals.⁷

NOTES

1. Ralph Wendell Burhoe, “Religion in the Age of Science,” *Science* 120 (1954): 522–24.

2. The Charter Members of IRAS were (members of the executive committee or council of 1954–55 are indicated by an asterisk):

*Rev. Carl Bihldorff, minister, First Parish, Brookline, Mass.;

*Dr. Edwin Prince Booth, professor of historical theology, Boston University (president of IRAS and chairman of the executive committee);

Dr. Marion J. Bradshaw, acting dean, Bangor Theological School;

*Ralph Wendell Burhoe, executive officer, American Academy of Arts and Sciences (IRAS secretary-treasurer);

Dr. Karl W. Deutsch, professor of history, Massachusetts Institute of Technology;

Dr. Alfred E. Emerson, professor of zoology, University of Chicago;

Dr. Philipp Frank, lecturer on philosophy of science, Harvard University;

*Dr. Dana McLean Greeley, minister, Arlington Street Church;

Dr. Gerald Holton, associate professor of physics, Harvard University;

Dr. Roy G. Hoskins, Office of Naval Research, Boston;

Dr. A. G. Huntsman, professor of zoology, University of Toronto;

*Dr. Edwin C. Kemble, professor of physics, Harvard University;

Dr. Henry Margenau, professor of physics, Yale University;

Dr. M. F. Ashley Montagu, professor of anthropology, Rutgers University;

*Dr. Henry Alexander Murray, Psychological Clinic, Harvard University;

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Dr. Henry Bayard Philipps, professor emeritus of mathematics, Massachusetts Institute of Technology;

*Rev. Lyman V. Rutledge, minister, Community Church, Dublin, N.H.;

Dr. Paul E. Sabine, engineer, Colorado Springs, Colo.;

*Dr. Harlow Shapley, professor of astronomy, Harvard University (chairman of the IRAS advisory board);

Dr. B. F. Skinner, professor of psychology, Harvard University;

Dr. Henry Nelson Wieman, professor emeritus of philosophy of religion, University of Chicago.

3. Harlow Shapley, ed., *Science Ponders Religion* (New York: Appleton-Century-Crofts, Inc., 1960).

4. A few examples: Edwin Prince Booth collected and edited several IRAS Star Island Conference papers and a number of other papers in a volume entitled *Religion Ponders Science* (New York: Appleton-Century-Crofts, Inc., 1964). A. G. Huntsman was much stimulated by the discussions at Star Island and used considerable material from his IRAS papers in his *Life and the Universe* (Toronto: University of Toronto Press, 1959). Harlow Shapley likewise was stimulated by IRAS and interwove elements of his IRAS papers in his *Of Stars and Men* (Boston: Beacon Press, 1958).

5. See chap. 2 of *The Free Church in a Changing World* (Boston: Unitarian Universalist Association, 1963), p. 46.

6. The members of the Scientific Advisory Board for the Center for Advanced Study in Theology and the Sciences at Meadville Theological School were:

Sanborn C. Brown, professor of physics and associate dean, Graduate School, Massachusetts Institute of Technology (chairman);

Ian G. Barbour, professor of physics and chairman of the Department of Religion, Carleton College;

George Wells Beadle, president, University of Chicago;

Theodosius Dobzhansky, Rockefeller Institute;

Alfred E. Emerson, professor emeritus of zoology, University of Chicago;

Lawrence K. Frank, independent scholar;

Ralph W. Gerard, dean, Graduate School, University of California, Irvine;

Erwin R. Goodenough, professor emeritus of religion, Yale University;

Hudson Hoagland, executive director, Worcester Foundation for Experimental Biology;

Aharon Katchalsky-Katzir, president, Israel Academy of Sciences and Humanities;

Chauncey D. Leake, professor of pharmacology, San Francisco Medical Center;

Henry Margenau, professor of physics, Yale University;

Kirtley F. Mather, professor emeritus of geology, Harvard University;

Robert S. Morison, director, Division of Biology, Cornell University;

O. Hobart Mowrer, professor of psychology, University of Illinois;

Hermann Joseph Muller, professor of zoology, Indiana University;

Henry Alexander Murray, professor of clinical psychology, Harvard University;

Filmer S. C. Northrop, professor emeritus of philosophy and law, Yale University;

John R. Platt, professor of biophysics, University of Chicago;

Van R. Potter, professor of oncology, University of Wisconsin;

Harlow Shapley, professor emeritus of astronomy, Harvard University;

Melford Spiro, professor of anthropology, University of Chicago;

George Wald, professor of biology, Harvard University; and

Anthony F. C. Wallace, professor of anthropology, University of Pennsylvania.

7. This "Twenty Year View" of IRAS was drawn in part from "A Ten-Year View" edited by Sanborn C. Brown and published by IRAS in 1963. I have also been substantially helped by Calla and Frances Burhoe, Rachel Davis, and Anne Grant. Various members of IRAS have reviewed and corrected the MS.

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APPENDIX A: IRAS OFFICERS 1954-73

PRESIDENTS

- 1954-60 EDWIN PRINCE BOOTH, professor of historical theology, Boston University
1960-62 HARLOW SHAPLEY, professor of astronomy, Harvard University
1962-67 SANBORN C. BROWN, professor of physics, Massachusetts Institute of Technology
1967-68 MALCOLM R. SUTHERLAND, JR., president, Meadville Theological School
1968-69 CARL BIHLDORFF, minister, First Parish, Brookline, Massachusetts
1969-71 HUDSON HOAGLAND, director, Worcester Foundation of Experimental Biology
1971-73 JEROME R. MALINO, rabbi, United Jewish Center, Danbury, Connecticut

VICE-PRESIDENTS

- 1954-60 HARLOW SHAPLEY
1954-59 DANA MCLEAN GREELEY, minister, Arlington Street Church, Boston
1959-64 KIRTLEY F. MATHER, professor of geology, Harvard University
1969-70
1960-61 CARL BIHLDORFF
1962-63
1961-62 EDWIN PRINCE BOOTH
1963-67 MALCOLM R. SUTHERLAND, JR.
1964-65 ERWIN R. GOODENOUGH, professor of history of religion, Yale University
1965-68 HUDSON HOAGLAND
1969-71 JEROME R. MALINO
1969-71 EDWARD G. MURRAY, monsignor, Sacred Heart Church, Roslindale, Massachusetts
1970-73 WARREN BUSSE, physicist, DuPont Corporation
1972-73 GEORGE A. RIGGAN, professor of theology, Hartford Seminary Foundation

HONORARY OFFICERS FOR LIFE

- President RALPH WENDELL BURHOE
Vice-President LYMAN V. RUTLEDGE

SECRETARY

- 1954-61 RALPH WENDELL BURHOE, executive officer, American Academy of Arts and Sciences

ZYGON

1961-62	CARL BIHLDORFF
1962-63	JOSEPH N. BARTH, minister, Kings Chapel, Boston
1963-64	CARL BIHLDORFF
1964-66	FRANCES BURHOE, office manager, American Academy of Arts and Sciences
1966-68	WARREN F. BUSSE
1968-71	RUTH E. WINTER, special events officer, Lake Forest College
1971-72	DOROTHY C. WALKER, writer, Sea Cliff, New York
1972-73	NANCY HOUK, research associate, Department of Astronomy, University of Michigan

TREASURER

1954-61	RALPH WENDELL BURHOE
1961-67	FRANCES B. BURHOE
1967-71	RALPH WENDELL BURHOE

APPENDIX B: IRAS STAR ISLAND CONFERENCE THEMES

1954	Religion in an Age of Science
1955	"What Is Man That Thou Art Mindful of Him?"
1956	What Are "Good" and "Evil"?
1957	What Is "Truth"?
1958	What Is the Role of Religion in an Age of Science?
1959	Religion and Science and the Responsible Society
1960	Some Relations of the Psychological Sciences to Religion
1961	Science, Religion, and the Human Potential
1962	The Purpose of Life
1963	The Condition of Man in Society
1964	What Is Religion?
1965	How Can Man Know Right from Wrong?
1966	Coping with Death
1967	Relevance of Religious Concepts to Contemporary Life and Thought
1968	Computers and Religion
1969	Aggression: Its Biological, Psychological, and Social Roots, and the Place of Religion in Its Control
1970	Ethics and Ecology
1971	Conflicts of Values and Sources of Power
1972	Technology and the Human Future
1973	The Humanizing and Dehumanizing of Man

APPENDIX C: SOME OF THE PAPERS PRESENTED AT IRAS,
1954-72

NOTE: References are given for the place of publication of many of the papers, though not for all. In the references, Z = *Zygon*; SPR = *Science Ponders Religion*, ed. Harlow Shapley (New York: Appleton-Century-Crofts, Inc., 1960); RPS = *Religion Ponders Science*, ed. Edwin Prince Booth (New York: Appleton-Century-Crofts, Inc., 1964). The year following the title indicates the year the paper was presented. An asterisk prior to the year indicates the paper was presented elsewhere than at Star Island.

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BLANSHARD, BRAND. "The Knowledge of Good and Evil." 1957.
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