is soluble in water and may readily be sublimed, as well as the compound $CF_3SeHgCl$. The dimercurial is the analog of the sulfur compound $Hg(SCF_3)_2$, which has already been mentioned, and, indeed, may be produced in a similar way from the diselenide, $(CF_3)_2Se_2$, by reaction with mercury in ultraviolet light. The bromination of the diselenide at 150° gives only selenium tetrabromide and bromotrifluoromethane, but at lower temperatures CF_3SeBr_3 and CF_3SeBr can be isolated.

Although indications have already been obtained that the preparation of other fluorinated organometallic compounds of other elements (e.g., Al, Ga) will be possible by the general method described above, it is questionable if this approach will prove satisfactory in all cases. Indeed, it is already known that the more reactive electropositive metals react readily with free fluoroalkyl radicals and are converted to fluorides. There is thus a need for other approaches to this problem. One, which is of considerable interest from the point of view of reaction mechanism, is the use of radical exchange reactions, as illustrated by the work already mentioned on the preparation of arsenicals containing both alkyl and fluoroalkyl radicals. A more general solution to the problem is now available, however, with the successful preparation of perfluoroalkyl Grignard reagents (*18*). It has already been shown that these compounds, although appreciably more difficult to manipulate than their hydrocarbon analogs, can under suitable conditions react with organic functional groups such as —CHO, $>C=O$, —COOR, —CN, —COCl. Furthermore, reaction of trifluoromethyl magnesium iodide with silicon tetrachloride yields, with related compounds, bistrifluoromethyl silicon dichloride $(CF_3)_2SiCl_2$ (*19*). This opens up interesting possibilities in the field of perfluorosilicones.

The above account does no more than outline the present state of knowledge. The perfluoroalkyl derivatives of the elements other than carbon constitute a vast new branch of chemistry, the study of which is only just beginning. It is already apparent, however, that such a study will throw considerable light on the current theories of chemical reactivity, as well as providing compounds of value in both the academic and industrial worlds.

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The International Astronomical Union

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THE International Astronomical Union held its eighth general assembly in Rome, September 3–13. Founded in 1919 by the International Research Council (now the International Council of Scientific Unions), it is the oldest among the scientific unions of the world. Because the earth is a sphere and at any one place on its surface only half the sky is observable, astronomers have since ancient times depended more than other research workers upon international cooperation.

The Astronomical Union is unusual in another respect—it is the only union in which the USSR takes an official part, with 32 other participating countries. This is a source of professional gratification to the astronomers of the United States; it is also the origin of a large number of thorny problems. To deal with the latter, as well as with the more ordinary problems that confront all unions, the Department of State, working with the National Research Council, appointed a delegation to the Rome meeting, which consisted of J. J. Nassau, I. S. Bowen, G. M. Clemence, D. Brouwer, and F. L. Whipple as members. G. P. Kuiper was appointed as an alternate. I was named as chairman of the delegation.

The United States delegation held conferences in

[1] The views expressed in this article are my own. I present them as an American astronomer, and not as the president of the International Astronomical Union.

Rome and kept in close touch with all developments. As the American vice president of the union, I worked with the executive committee, which consisted of the president, B. Lindblad (Sweden), the general secretary, B. Strömgren (Denmark and United States), V. A. Ambarzumian (Soviet Union), and three other vice presidents.

The Soviet Union's delegation of 12 members took an active part in all discussions and contributed to the scientific symposia on various subjects. They had brought with them a large number of books and periodicals on astronomy, which they distributed generously among the participants of the meeting. Dr. Ambarzumian reiterated on several occasions that international cooperation in astronomy is of the utmost importance, and that the Soviet astronomers will continue their efforts to preserve it.

Despite these friendly overtures, however, differences resulting from the enormous gap in ideology that now separates the East from the West appeared at once to intrude themselves into the realm of science from the administrative and from the subject matter side. As to administrative differences, I may cite the matters of selecting a place for the next meeting of the assembly and of electing the president of the union.

Without prior notice to the executive committee, the Soviet delegate, Dr. Ambarzumian, presented before the Rome general session an address in which he invited the union to assemble in the Soviet Union at its next meeting in 1955. The Soviets had previously (1948) issued an invitation to meet in Leningrad for the assembly in 1951. Although the executive committee had at first accepted this invitation, it reversed its decision in 1950. At that time the Soviet astronomers reproached President Lindblad and General Secretary Strömgren, apparently for the part the Soviets believed these officers took in reaching the decision. The next year (1951) the executive committee met in Paris. At this meeting the Soviets renewed their invitation to hold an assembly in the Soviet Union. The executive committee, however, again declined and agreed to meet instead in Rome for its 1952 conference. Thus, Dr. Ambarzumian's offer at Rome was the third invitation to astronomers to meet in the USSR.

The United States delegation unanimously agreed that it could not vote in favor of the Soviet invitation, and the executive committee decided against acceptance. Dr. Ambarzumian then proposed that he withdraw his invitation, and that an invitation from Poland extended by E. Rybka be accepted. The members of the executive committee felt that there was even less reason from the standpoint of astronomical interest and scientific productivity to meet in Poland. Dr. Ambarzumian would not yield his position and repeated over and over that "the Soviet delegation insists that the Polish invitation be accepted." He declared that any other decision would be "political" and would be detrimental to science and the cause of international cooperation. This uncompromising stand of the Soviet delegation was a new experience in the affairs of the Astronomical Union, and it resulted in visibly uncomfortable and embarrassed feelings among the national delegations.

The United States delegation had expressed the wish that I undertake to explain frankly why we believe that a meeting in the Soviet Union under the existing conditions is undesirable. I was given the opportunity to do so inside and outside the sessions of the executive committee, and I stated that, contrary to certain press reports, the U. S. government had in no way exercised pressure upon its astronomers in the matter of the earlier cancellation of the Leningrad meeting; that it had issued no instructions to the American delegation in regard to the latest Soviet invitation and would undoubtedly accept the opinion of that delegation, whatever it might be; and that the individual opinions of the American astronomers, being unhampered by government policy, might be assumed to range from one extreme to the other. I pointed out that most astronomers undoubtedly felt as I did: that it would be inconsistent with our feeling of self-respect to become the guests of an organization whose members keep up a barrage of insults of the kind that had appeared in a recent book by Professor Parenago, who had applied to us the word *mrakobesy* (literally, "obscurantist devils" or "devil worshippers"); that we hoped that such indications of hatred against Western scientists might be temporary in character; and that the time would come when we could feel assured that a meeting in the Soviet Union would be a success. I added that, because of a number of analogous considerations, the United States delegation had withdrawn its own invitation in 1948 to the Astronomical Union to meet in this country and had not renewed it. In sum, I stated that, rather than risk a limited or inharmonious assembly, we had decided to wait until political tensions had disappeared.

Since the executive committee could not reach unanimity on the question of the meeting place for the next assembly, the matter was left to a vote of the general session. Out of seven original invitations, five were quickly eliminated. The USSR withdrew in favor of Poland; Great Britain (proposed by Harold Spencer-Jones) withdrew, largely in view of Dr. Ambarzumian's objection; Belgium had made its invitation subject to its being agreeable to all other nations (the Soviet Union objected and thus eliminated it); Argentina (proposed by Professor Gratton) was considered not suitable at the present time; an invitation from Norway (tendered by Professor Rosseland) was too tentative to permit immediate action. This left Poland and Eire (the latter having announced its invitation through Professor Brück, of Dublin). The vote was 21 for Eire, five for Poland; two abstained.

Another difficult administrative problem arose in connection with the election of new officers. President Lindblad proposed me as a candidate for president of the union. I replied that the American astronomers had decided to nominate J. H. Oort, of Leiden, Hol-

land, who had previously indicated that he would not be available, but who might be persuaded to accept the election as a "draft." The Soviet delegate, while expressing his highest personal regard for the candidates, registered his objection to the election of either. He then nominated A. Danjon, of France. The executive committee (whose meeting I did not attend) voted on the three candidates, and then the matter was referred to the general assembly. The latter body chose me for president by acclamation.

My acceptance speech was intended in part to relieve the tension brought about by the vote on the place for the 1955 meeting. I spoke, in part, as follows:

I am deeply touched by your action, and I thank you. I am also intensely embarrassed, and at this particular moment I should much rather be exploring the catacombs of Rome than standing here before you exposed in full glare to your friendly, yet searching gaze.

I believe that I do not possess some of the qualifications that have made other presidents great. But in one respect, and in one respect only, I feel qualified to carry out the task that you have assigned to me. Because of my family's background, and also because of the experiences of my own life, I have become a confirmed internationalist and believer in the necessity for international cooperation. I feel most at home in an organization such as the International Astronomical Union.

During the postwar years our Union has made great strides forward, under the wise direction of Sir Harold Spencer-Jones and Professor Lindblad. There have been many important developments since the Zurich meeting. Of most of them our general membership knows little, because much of the work of this Union is done in commissions. But three particularly great events stand out in our minds:

First, there was the admission of Germany. This action represented the healing of a wound that had threatened the very life of the Union from its beginning.

The second development was the rise of the symposia. Never before have we had so many excellent symposia. And with this development has come the realization that purely scientific matters should have precedence over matters of an organizational character.

The third, and perhaps the most significant, development is the tremendous impact upon this meeting of the scientific contributions from the Soviet Union. The wholehearted cooperation of the Soviet astronomers, their generosity in the distribution of books, and their understanding in the matter of preparing in advance printed translations of their symposium papers, are a source of hope for us and for the world.

These and many other advances have been the result of President Lindblad's work for the Union. I propose a standing vote of thanks to Bertil Lindblad.

There had been some concern about electing as president an American scientist, and, as a matter of fact, the election of Dr. Oort would have been in many respects an excellent solution. Nevertheless, I agree with Dr. Strömgren, Dr. Oort, and Dr. Lindblad that the choice of the executive officers of the union should not be determined primarily by political considerations. The office of president involves a considerable amount of work, most of which is of a purely scientific nature. It should be assigned to a person well versed in the real business of the union.

There have been two previous American presidents: W. W. Campbell, director of the Lick Observatory and later president of the University of California (1922–25), and F. Schlesinger, director of the Yale University Observatory (1935–38). Two presidents were French, three were British, one was Dutch, and one Swedish.

Returning to the question of our relations with the Soviets, it is inevitable that the present tense political situation be reflected in them. Soviet scientists are probably guided by detailed instructions from their government, and they find it difficult to understand that American scientists are not bound by similar instructions. Informally I had opportunities to explain that we do not have a "party line" that rigidly determines our action, that among the American astronomers many different views are permitted to be represented, and that our course is charted in accordance with the wishes of the majority.

On the purely scientific side there were important symposia on stellar evolution, astronomical instruments, a catalogue of the positions of faint stars, and on the spectra of variable stars. The most important single advance was contained in a lecture by J. H. Oort, on the structure of the galaxy as inferred from observations with a new radio telescope. This strange instrument, resembling a large wartime radar antenna, records hydrogen waves from interstellar space having a wavelength of 21 centimeters. These waves pass unobstructed through the vast clouds of cosmic dust which restrict our vision in ordinary optical light. Dr. Oort presented an outline of our galaxy as it might appear from a distant point some millions of light years away. The result is a pattern of spiral arms like a huge fiery pinwheel, rotating at an immense speed and with its arms trailing behind.

Most astronomical research work is unclassified—and this is one reason why free international meetings of astronomers are relatively little affected by security regulations. Individual astronomers may be diverting their attention temporarily to practical research in the field of physics, and this may have resulted in the absence from Rome of persons who normally would have been present. It is impossible even to venture a guess as to what extent this may have reduced the attendance from the various countries. With about 500 astronomers officially registered, the meeting was the largest ever held under the auspices of the Astronomical Union.

In the scientific symposia, especially the one on stellar evolution, it became apparent that there had appeared between the Western astronomers and the Soviets a rift that had no direct bearing upon the political situation. There has always been a serious language barrier between us and the Soviets. Previously, most Soviet scientists knew the English, French, and German languages, and they had no difficulty in reading and using our publications. It is my impres-

sion that, although they still greatly surpass us in linguistic proficiency, there is an increasing tendency to disregard as unimportant our discoveries and ideas.

On our side the problem is even more acute. Since 1947 the Soviet scientific publications have been entirely in the Russian language. There are no longer even abstracts in English or French. No matter how understandable may be the Soviet demand for "equal rights" in the matter of languages, there is no doubt that most Western scientists fail to make use of Soviet scientific work. For many years they have been pursuing a course of scientific activity that has remained unknown, or little known, in America, and our own advances no longer benefit them as they should. At the stellar evolution symposium various misunderstandings could be attributed to this lack of knowledge and of interest on the part of each group in what the other was doing. This lack of knowledge is sure to generate contempt.[2]

I fear that there may already be signs of disregard on our part for the work of the Soviet astronomers. Such an attitude would be a great mistake and would render a disservice to the United States. The fact that the Soviets have been unaware of some recent discoveries at Mount Palomar or at Harvard does not render their work useless or prove that they are not capable research workers.

My own careful appraisal, based upon my knowledge of the Russian language and upon thousands of hours spent in studying their publications, leads me to conclude that:

a) They have more research workers in astronomy than we have;

b) Their training is, on the whole, better than ours;

c) They possess, on the average, less initiative than do our scientists;

d) Their natural abilities are about the same as ours, but they tend to do better in theoretical studies than in observational and experimental work;

e) The present output of research in the Soviet Union is enormous in amount, but its quality is inferior to ours;

f) They do not now possess astronomical telescopes of the power of our 200-inch, 120-inch, 100-inch, and even our 82-inch and 69-inch telescopes, but they are making rapid strides in the construction of new and, in some respects, novel auxiliary equipment; and

g) The acceleration in all fields of astronomical endeavor—training, research, publication, and public instruction—is livelier than in the Western world.

[2] There is plenty of contempt for our work in the Soviet publications (see my article in *Science*, **116**, 206 [1952]), but at the Rome meeting it was either very cleverly concealed or, more likely, it was never genuinely present.

News and Notes

American Anthropological Association

THE 51st annual meeting of the American Anthropological Association was held Dec. 28–30, at the University Museum in Philadelphia. The total number of registrants was 450, the largest in the history of the association.

The chairman of the Program Committee, G. R. Willey, had arranged symposia on Human Nature; American Ethnology—An Inventory; Anthropologists and Technical Assistance (cosponsored by the Society for Applied Anthropology); Methods of Determining Significant Degrees of Relationship (cosponsored by the American Association of Physical Anthropologists); Recent Progress and the Present Status of American Archaeology (cosponsored by the Society for American Archaeology); and Old World Archaeology—The Integration of Relative Chronologies (cosponsored by the Archaeological Institute of America). In addition, there were programs of miscellaneous papers devoted to such topics as New World archaeology and culture history, applied anthropology, Asiatic ethnology, African and Haitian ethnology, the ethnology of Oceania, social anthropology, American Indian acculturation, and American ethnology and culture history. The total number of papers listed for presentation was 91, of which a few were cancelled because of the inability of the speakers to be present.

A special luncheon was held by the American Ethnological Society to discuss informally publication problems in ethnology. About 60 persons were present, with G. P. Murdock presiding.

The Executive Board held meetings on Dec. 27, 28, and 30, the chief matters of discussion being the annual budget and problems of publication. Sol Tax, incoming editor of the publications of the association, was invited to present his program of action. He vigorously supported an aggressive publication policy designed to expand the *American Anthropologist,* the *Memoirs,* and the *Bulletin.* His goal is to increase the annual number of issues of the *American Anthropologist* from four to six, and to multiply the annual numbers of the *Memoirs* series. Dr. Tax presented proposals for financing this expanded program and was able to report heartening progress. The Executive Board, as part of its business, also voted to accept 54 persons as Fellows.

The annual business meeting of the Council, presided over by Wendell C. Bennett, president of the association, was attended by 143 Fellows. At this time the election of the following officers was announced: J. O. Brew, president-elect for 1953, and Harry Hoijer and Lauriston Sharp, members of the Execu-