to be not very satisfactory. Morozov and Soloviev (*18*) have recently proposed to construct the walls of vessels containing plasma not of conducting materials but of such materials in which the velocities of propagation of electromagnetic waves in an appropriate range of frequencies are as small as possible. If a current flowing in plasma along the surface of such a wall is displaced toward this surface with a velocity exceeding the velocity of propagation in the wall of waves of a certain frequency, then these waves will be radiated by the current into the wall. The recoil force acting on the current will tend to repel it from the wall and thus to stabilize the current.

I wish to emphasize that I have no definite opinion on the possible advantages and disadvantages of methods of heating and of stabilization or on their technical feasibility. They were selected by me only as examples of possible applications of the general theory which I outlined in the beginning of this article. The applications mentioned were necessarily confined to a very limited domain of physics.

I can only hope that I have succeeded to some extent in conveying the impression that there are further possibilities for applying this theory to new and interesting physical problems, and that work done on these lines may be useful in solving these problems or at least in getting an insight into the general physical mechanism of some of the relevant phenomena.

References

1. Concerning an exception to this rule—the so-called transition radiation—see V. L. Ginzburg and I. Frank, *J. Phys. U.S.S.R.* **9**, 353 (1945).
2. The fronts of the wave are conical, owing to the cylindrical symmetry; AOB is the projection on the plane of drawing of such a cone.
3. I. Tamm and I. Frank, *Compt. rend. acad. sci. U.S.S.R.* **14**, 109 (1937).
4. A. Sommerfeld, *Göttingen Nachr.* **99**, 363 (1904).
5. A. Joffé drew our attention to Sommerfeld's paper.
6. I. Frank, *ibid.* **7**, 49 (1943).
7. V. L. Ginzburg and I. Frank, *Compt. rend. acad. sci. U.S.S.R.* **56**, 583 (1947).
8. For the case of electromagnetic radiation it was shown first by quantum-theoretical reasoning (Ginzburg) and then by means of classical electrodynamics [G. Marx and G. Györgyi, *Ann. Physik* **16**, 241 (1955)] that ε/c' (c' being the phase velocity) is in fact equal to the total momentum radiated, which comprises both the momentum of the radiation proper and the momentum acquired by the medium.
9. E. Fermi, *Phys. Rev.* **57**, 485 (1940).
10. The fact that short plasma waves are very strongly absorbed in plasma itself has no influence on the phenomenon, since the condition of radiation $c'(\omega) < v$ is satisfied only for long enough plasma waves ($\lambda > D$), the damping coefficient of which is small in comparison with their frequency.
11. D. Pines, *Revs. Modern Phys.* **28**, 184 (1956).
12. In principle this mechanism of absorption was indicated as long ago as 1949 by D. Bohm and E. P. Gross [*Phys. Rev.* **75**, 1864 (1949)]. The work of these authors is intimately connected with earlier work of A. Vlasov. A detailed and very lucid mathematical treatment of this subject was presented by R. Z. Sagdeev and V. D. Shafranov at Geneva in September 1958.
13. Radiation takes place if there is, say, one electron of velocity v or a cluster of such electrons, the dimensions of the cluster being small in comparison with the length of the wave radiated. If, however, electrons of a given velocity v are distributed continuously in space, then they do not radiate, since their wave fields are destroyed by mutual interference. But they do absorb.
14. L. Landau, *Zhur. Eksptl. i Teoret. Fiz.* **16**, 574 (1946).
15. V. L. Ginzburg and V. V. Zhelesniakov, *Astron. Zhur.* **35**, 694 (1958).
16. V. L. Ginzburg, *Compt. rend. acad. sci. U.S.S.R.* **56**, 145 (1947).
17. A. Morozov, *Plasma Physics and Thermonuclear Reactions* (Moscow, 1958), vol. 4, p. 331.
18. A. Morozov and L. Soloviev, *ibid.*, p. 391.

Science in the News

Soviet Bloc and West Accept Plan for Space Research

Scientists from the Soviet bloc have agreed to cooperate with Western scientists on problems of space science within the framework of the Committee on Space Research (COSPAR). Agreement was announced on 9 January by the new president of the committee, H. C. Van Der Houlst of the Netherlands. The present arrangements followed a year of discussion by East and West about how each side should be represented on the committee. The Committee on Space Research was established in October 1958 to continue the cooperation in space studies that characterized the International Geophysical Year.

The solution to the problem of representation was to create a seven-man inner cabinet, or bureau, consisting of the president of the committee and six other members. These members, like the president, are elected to office, but with this restriction, that there must be a balance between East and West in the nationalities of the six members elected. Three members of the bureau are from the Soviet bloc (the Soviet Union, Czechoslovakia, and Poland) and three members are from Western nations (the United States, Great Britain, and France). A clause in the committee's new charter bearing on the committee's executive council indicates the power of this bureau. The clause provides that "any decision of the Executive Council must be confirmed by a vote of two-thirds of the seven elected members."

Representation on the Committee on Space Research is open to all national scientific unions and institutions that are recognized by its parent body, the International Council of Scientific Unions, and that are actively engaged in space studies. The unions designate representatives to the committee, but the presence of the seven-man bureau will serve to prevent the sudden appearance of a host of new representatives whose purpose is solely to gain a voting advantage for some country. The first International Space Science Symposium, which opened in Nice, France, on 10 January, was sponsored by the committee.

Early U.N. Talks Asked

On 8 January, in another development, the United States asked the Soviet Union to agree to arrange a meeting in the very near future of the permanent United Nations Committee on the Peaceful Uses of Outer Space. Informed observers note that the United States

may be seeking an arrangement whereby advance notice would be given by any country of its plans to launch objects into outer space.

The permanent 24-nation committee was established by the U.N. General Assembly last December after the successful completion of direct negotiations between the United States and the Soviet Union on the question of the membership of the committee. The committee is to have seven members from the Soviet bloc, 12 from the West, and five from neutral countries. The Soviet Union boycotted the temporary United Nations Outer Space Committee, which went out of existence last September, on the ground that it was controlled by a majority from the West.

The United States has also asked that an international scientific conference on problems in space research—a conference that the United Nations is scheduled to sponsor in 1960 or 1961—be held this year. The United States suggests that the conference be held in Geneva the first 2 weeks in September.

Meanwhile, President Eisenhower conceded at his news conference on 13 January that the Soviet Union has the right to use the central Pacific as a target in its projected series of missile experiments. On 7 January, the day of the President's State of the Union address, the Soviet Union announced its plans to test rockets in that region.

Societies Sponsor Visiting Foreign Scientist Programs

A special program to provide for visits of foreign scientists to U.S. research institutions will be conducted by the American Institute of Biological Sciences during 1960–61. A $50,000 National Science Foundation grant has made it possible to expand the existing AIBS Visiting Biologists Program to include distinguished biologists living outside the United States.

Oswald Tippo of Yale University, chairman of the AIBS Education Committee, said the committee undertook the new activity in the belief that small colleges as well as large centers will be interested in obtaining scientists from overseas for seminars and for speaking or teaching assignments. Initially the program will operate on a small scale, in view of logistic problems.

Requests for speakers will be accepted from any institution. A detailed itinerary for a speaker's visit must accompany each request.

There will be no geographical limitations in the selection of speakers. Those selected will receive subsistence as well as honoraria to cover the expense of travel (by air) from any country in the world. Institutions will be asked to provide on-campus subsistence as their contribution to the program.

Each official AIBS-sponsored visit will occupy 4 weeks. During this time the speaker must visit at least four institutions, spending 3 to 5 days at each. It is hoped that at the conclusion of his AIBS assignment other groups will utilize his services while he is in this country.

Requests will be received until 1 April 1960. Immediately thereafter a committee will meet to review the requests. Notification of the action taken by the committee will be sent to each institution as soon as possible.

Requests should be addressed to the Foreign Visiting Lecturers Program, American Institute of Biological Sciences, 2000 P St., NW, Washington 6, D.C.

Engineers Announce Similar Project

The Engineers Joint Council has announced that it too will conduct an NSF-supported program for visiting foreign scientists during the next 6 months. However, the visiting scientists will be chosen by the appropriate engineering society in the five specialty areas.

Enoch R. Needles, EJC president, reports that, although the program is planned primarily to aid departments of engineering that have Ph.D. programs and active research activities, "attention will also be given, when possible, to the needs and desires of institutions whose developing programs of teaching and research could be given strong impetus by such visits." The invited foreign scientists will also be given an opportunity to attend appropriate engineering society meetings and visit nonuniversity research organizations. John S. Koss, staff assistant at the Engineers Joint Council, will direct the program from council headquarters in New York.

Physicists Report on Their Program

The American Institute of Physics reports that Denys Wilkinson of the Clarendon Laboratory, Oxford, England, was the first of the distinguished physicists from other countries to take part in the Visiting Foreign Scientists Program in Physics, which is being conducted jointly by the institute and the American Association of Physics Teachers under a grant from the National Science Foundation. During November and December, Wilkinson visited Louisiana State University, Stanford University, and the University of Washington, spending approximately a week at each institution. He discussed research problems with physicists at those universities, gave lectures on his work on the structure of light nuclei and the photonuclear interaction, as well as popular lectures, and met undergraduate physics majors.

Itineraries are now being arranged for visits by other physicists, from the United Kingdom, Germany, France, and Italy, to physics departments in the United States. The average visit will last a week.

Expressions of interest by physics departments, stating preferred times and fields of physics, should be directed to the Visiting Foreign Scientists Program at AIP (335 E. 45 St., New York 17). The Visiting Foreign Scientists Program supplements the Visiting Scientists Program in Physics, under which visits by U.S. physicists to colleges, universities, and high schools are currently being arranged by AAPT and AIP under NSF grants.

International Computer Federation Formed by Eleven Nations

The International Federation of Information Processing Societies was established this month when 11 nations ratified the statutes for the organization. The new body provides for the first time a common meeting ground for computer experts from all over the world. Until now, many countries, including the United States, have had their own professional computer societies, but these groups have had no permanent, formal means of meeting and exchanging ideas.

The movement to form the federation was a direct result of the first International Conference on Information Processing, sponsored by UNESCO and held in Paris last June. As a result, a provisional bureau for the international federation was established, with Isaac L. Auerbach, president of Auerbach Electronics Corporation, Narberth, Pa., named provisional chairman. Auerbach