superconductivity. Numerous experiments were reported on the penetration depth of the magnetic field, on the intermediate state, on the effect of rotation, and on the heat conductivity of superconductors. We will concentrate here on the last item, because some novel features were put forward in this connection. It is known that the heat conductivity of metals drops considerably when passing from the normal to the superconducting state. Using these results, Daunt and Heer suggested an ingenious method for making a cyclic cooling engine for operation below 1°K. The gist of the matter is that the establishment or severance of the heat contact between the working substance, the heat bath, and the system to be cooled can be achieved simply by varying the magnetic field around the critical value.

Another interesting effect relating to the same subject was presented by Mendelssohn. He had concluded that under certain conditions superconductors should allow the establishment of an internal circulation of normal and super current in much the same way as is the case in He II, leading to an increase rather than decrease of heat conductivity in the superconducting state. These conclusions were borne out by his experiments. Somewhat similar results (Hulm's) were presented by Shoenberg, although the theoretical interpretation given was different.

The present status of the theory of superconductivity was summarized by London who emphasized the absence of any satisfactory molecular theory. Meissner remarked that experiments were in progress to test a consequence of Heisenberg's theory. He pointed out the importance of a small electronic volume for the existence of superconductivity.

On the supplementary program, Tisza presented the results of recent work. He claimed the development of a quantum mechanical formalism which is general enough to account for the possibility of superconductivity without ad hoc assumptions. On Friday afternoon Gorter, van Itterbeek, Shoenberg, and Simon reported on the work of their respective laboratories in Leiden, Louvain, Cambridge, and Oxford. There were several reports on the various liquefaction plants and finally a number of miscellaneous items were considered. A few random selections are: Lane, Shoenberg, Marcus on the de Haas-van Alphen effect; Estermann and P. H. Keesom on semiconductors; van Itterbeek on ultrasonics; and Laine on the resistivity of thin films, all at low temperatures. A new type of magneto resistance effect was discussed by Sondheimer.

This résumé might best be closed by the remark that a comfortable balance was achieved between the number of questions settled and the number of new questions raised.

—Laszlo Tisza

NATIONAL SCIENCE FOUNDATION

LEGISLATION FAILS

The shelving of the bill for a national science foundation by the House of Representatives went almost unnoticed amid September's flurry of turbulent and weighty problems. It had for some weeks been touch and go whether the bill could survive either or both committee and House floor debate; as matters now stand it is spared for another day and will presumably be dusted off for further consideration and action next year. In any event, this marks the third time in as many Congresses that the lower chamber has blocked passage of legislation to create a national science foundation by the simple expedient of failing to act.

A product of many compromises, and designed to eliminate reasons for the Presidential veto which killed a foundation bill last year, the present bill has received the endorsement of scientists, if not their complete enthusiasm. But some others have been opposed. At hearings earlier in the year before the House Committee on Interstate and Foreign Commerce, for instance, the whole idea of a national science foundation was bitterly attacked by the National Patent Council, with the support of others wary of further encroachment of Government power into traditionally independent areas.

In his presidential address to the American Chemical Society at Atlantic City a week or so before the bill was shelved, Linus Pauling observed that it has now been four years since the persuasive recommendations of the Bush Report were submitted to the President, two years since the writing of the perhaps even more convincing Steelman Report—and still no foundation has come into being. He asked that a strong program of public education be launched to make understood the overwhelming importance of federal support of scientific research, as advocated in these two reports.

Agreeing at the same time that there is possible danger of bureaucratic domination in having basic scientific research supported exclusively or predominately by the Federal Government, Pauling suggested that this might be met by a comparable fund provided from non-Federal sources to insure that the Government would and could not be left to dominate the field by default.

Specifically, he proposed a foundation supported by the nation's industry which would supplement the support given research under a national science foundation. Such a foundation, if assured of continuity and independence, would help provide new fields for industrial effort, Pauling said, and would provide the opportunity for industrial leaders "to help to avert the danger that they foresee by themselves providing a more significant part of the support of pure research in our universities and research institutions."

PHYSICS OF POWDER METALLURGY

SYLVANIA SYMPOSIUM IN LATE AUGUST

We may in time find industry performing a function hitherto associated entirely with scientific societies and universities, if it follows the lead of the Sylvania Electric Products, Inc. which recently sponsored a symposium on the physics of powder metallurgy at Fort Totten in Bayside, Long Island. Walter E. Kingston, manager of Sylvania's Metallurgical Research Laboratories, was the moving spirit of the meeting, which was organized and financially supported by his company independently of any technical society. Kingston assembled a program of