12. There should be an ongoing service of forecasting type for progress in heat- and mass-transfer science and technology.

The conference also welcomed the appearance of a new issue of the heat and mass transfer abstracting journal Teplomassoobmen, which corresponds to the latest requirements for publications of this type.

The conference considered the following measures as necessary.

1. More rapid utilization of research results in industry in order to create advance processes and equipment that improve labor productivity and product quality.

2. The teaching of heat and mass transfer to students in technological specialities should be extended by introducing courses on mathematical simulation.

3. The lectures and problem-oriented reports read at the conference should be published, as well as the discussion materials.

4. A conference on heat and mass transfer should be held in 1980; research organizations should also hold narrower conferences and symposia on the above scientific topics in heat and mass transfer.

The conference thanked the organizing committee for its considerable labors and also the secretaries of the sections who were responsible for its success.

THE SECOND INTERNATIONAL CONFERENCE ON HEAT PIPES

L. L. Vasil'ev

This conference was held from March 31 to April 2, 1976, in Bologna (Italy); it was organized by the Institute of Technical Physics at Bologna University jointly with the Italian National Council, and with the support of Euratom, the American Institute of Astronautics and Aeronautics, and the European Space Research Organization. The conference was attended by about 100 participants from 10 countries.

The conference was preceded by a meeting of the International Scientific Committee, at which it was suggested that the Third International Conference should be held in the fall of 1978. The papers were published as a collection before the conference opened (79 papers). There were 17 papers from the USSR.

The conference operated in 13 sections (low-temperature heat pipes, liquid-metal heat pipes, heat pipes in gravitational fields, heat-pipe dynamics, variable-resistance heat pipes, centrifugal heat pipes, problems in material compatibility, heat transfer in evaporation and boiling in porous structures, use of heat pipes on the ground and in space, etc.).

The number of papers at 79 was much larger than that at the first conference (44; conference held in October, 1973), which indicates substantial advances in the utilization of heat pipes in various branches of engineering.

There has lately been a substantial technical revolution in accelerating heat transfer by means of such heat pipes; devices of this type are comparable with lasers as regards the extent of their applications.

About one-third of the papers were concerned with the theory of energy and matter transport in such heat pipes, research on heat transfer during boiling, particularly for porous structures; liquid transport in capillaries, hydrodynamics of vapor flow, and interactions with liquids. The other two-thirds of the papers dealt with material compatibility, uses of heat pipes in technology, and space applications.

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The main areas of application are in the petroleum and gas industries (gas and vapor cooling, compensating permafrost effects, etc.), power engineering (heat exchangers for utilizing secondary energy in factories, power stations, and other industrial organizations), electrical engineering (cooling electrical machinery, switches, offsetting effects of short-circuit currents, etc.), the chemical industry (cooling and thermostatic control of reactors, heating and cooling of polymer materials), the automotive industry (engine cooling, oil heating, vehicle air conditioning, etc.), electronics and radio (tube cooling, semiconductor device cooling, temperature-distribution equalization), instrumentation, metallurgy, general engineering, and other branches of industry.

Considerable advances have been made with such heat pipes in space vehicles.

Many dozen of different designs have been utilized over the range 4-3000°K; the heat-power levels handled range from a few watts to hundreds of kilowatts.

The scope for utilizing such heat pipes is considerable, so there should be better coordination of research in this area and also routine production of the corresponding heat exchangers.