

## TECHNOLOGY

# Energy From Sun-Pools

Pools of salted water can provide underdeveloped countries with cheap energy, the first International Conference on Science in the Advancement of New States reported.

► A NETWORK of sunshine reservoirs, pools of salted water storing up the heat of the sun, can provide arid underdeveloped countries with an easily available and economic source of energy, an Israeli scientist has reported.

Dr. Henry Tabor of the National Physical Laboratory of Israel, authority on solar energy, reported on his new plan for "pooled" solar power to the scientists and statesmen meeting at the Weizmann Institute of Science, Rehovoth, Israel, for the first International Conference on Science in the Advancement of New States.

In the new scheme, salts would be dissolved in water at the bottom of a square pool, two-thirds of a mile on a side. Then the heat of the sun would concentrate and remain at the bottom because the heaviness of the salted water would prevent the heat from rising to the surface. The surface layer of the pool, however, would remain at a constant temperature since it would lose heat at the same rate it picks it up. The success of the operation would depend only on keeping the water in the pool undisturbed.

Construction costs are estimated at about \$1,000,000. The investment would yield a return in heat energy valued at \$250 per kilowatt, producing electricity at one-tenth the cost of any other solar apparatus to date.

Dr. Tabor does not believe the development and use of solar energy will be adopted by the developed areas of the world; but it may provide the economic independence so eagerly sought by the arid underdeveloped regions of the world which boast little else in the way of natural resources than the blazing energy of the sun.

He predicted that in the future this heat may be converted to energy that paradoxically will supply air-conditioning and refrigeration.

Dr. Alvin M. Weinberg, director of the Oak Ridge National Laboratory, Tennessee, and winner of the Ford Atoms for Peace Award, hailed Dr. Tabor's scheme for a solar pool built upon the principle of water density as "the most important theory so far presented" at the Conference.

An authority on nuclear energy, Dr. Weinberg warned that making the sun or any other energy source pay off will require adequate financing operations.

The underdeveloped countries of the world must look to foreign investment and capital for the financial energy needed to develop physical sources, Dr. Weinberg said. The economic self-sufficiency sought by the new states through power development will contribute to world peace and stability as well as to national stability.

Another source of energy independence for the new states is the use of breeder reactors, Dr. Weinberg said. Such reactors

can be fueled with residual uranium and thorium which exist everywhere in the earth's crust. He predicted that energy independence among the nations of the world would eliminate access through the Suez to the Middle East as "a major political issue."

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## GEOPHYSICS

## Two Baffling Problems Solved by Scientists

► TWO PROBLEMS that have baffled scientists for generations have been solved by mathematicians at the Weizmann Institute of Science, Rehovoth, Israel.

One is the theoretical determination of ocean tides; the second is the calculation of the earth's resonance frequency.

Two famous French mathematicians, Laplace and Poincare, tried in the late 18th and early 20th centuries to find a formula for the tides. Prof. Chaim Leib Pekeris, head of the Institute's department of applied mathematics, has now produced the answer.

His comprehensive solution was possible only because of recent development of elec-

tronic computers. Prof. Pekeris and an assistant found a theoretical solution for the height of the tide at any port in the world that agrees well with actual measurements.

Prof. Pekeris, with Dr. Ziporah Alterman and Hand Jarosch, also calculated theoretically the resonance frequency of the earth. Their solution was confirmed by observations made during the Chilean earthquake in May, 1960, and is expected to prove important in detecting nuclear explosions and seismic disturbances.

Resonance frequency occurs when a body is "excited" and emits a natural tone and overtones, as when a tumbler is struck by a spoon. The larger the body, the lower the pitch. The earth's resonant frequency is so low it is inaudible, but it can be detected by the seismic instruments that record earthquakes.

Prof. Pekeris and his associates found that the first frequency of the earth is 53.4 minutes and the first overtone 35.6 minutes. During the Chilean earthquake the theories of the Weizmann Institute group were checked against measurements made by United States scientists at California Institute of Technology and the University of California at Los Angeles.

All the seismic records tallied with the theories, except for very small differences.

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## SOCIOLOGY

## Better Life Is Goal of Underdeveloped States

► A BETTER LIFE on earth, not a trip to the moon or other planets, is the goal of the Asian and African delegates to the International Conference on Science in the Advancement of New States in session at the Weizmann Institute of Science, Rehovoth, Israel.

Finance Minister Dr. S. E. Imoke of Eastern Nigeria, which will become an independent nation on Oct. 1, expressed the hope that countries from the Eastern bloc, especially the Soviet Union, would join in the attempt to harness scientific and technological knowledge for the less privileged on earth before proceeding with ambitious programs in outer space and trips to the moon.

He said, "We do not ask for the moon . . . all we seek is guidance, assistance and cooperation in our efforts to extract from the resources of our countries a more abundant life."

The Afro-Asian delegates have asked that high priority be given to discussion of such basic problems as high mortality, relief from hunger, primary and secondary education, and advanced research on development of industry or commerce relating to economic requirements.

Their request was underscored by the urgent plea of Rev. Solomon Caulker, vice president of University College, Sierra Leone (scheduled for independence from Britain, April 27, 1961), who asked the Conference to take up specific problems of countries like his own "where eight out of ten babies are doomed to die within the first year of their life."

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**NUCLEAR HONEYCOMB** — This nuclear assembly holds more than 4,000 uranium-aluminum foils as fuel. Chain reactions in the assembly will provide scientists at General Dynamics Corporation, San Diego, Calif., with data for development of the maritime gas-cooled reactor.