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## MATHEMATICS

# Remedy Lag in Math

➤ **LEADING** American research mathematicians have organized to remedy the ignoring of mathematics know-how which, it is judged, is seriously damaging our defense effort in comparison with Soviet advances.

"The technical challenge of the Soviet Union is more serious than is generally realized," Dr. Harlan D. Mills, president of the newly organized American Science Complex, declared. Modern military, space, and atomic systems, in their opinions, require a theoretical emphasis more characteristic of Soviet and European engineering than the traditional cut-and-try methods used in America.

The newly formed American Science Complex includes the heads of departments of mathematics or statistics at leading universities, and officers of national mathematical organizations. It intends to identify and attack important theoretical problems in the physical, engineering and managerial sciences.

The feeling of the mathematicians is that the spectacular Soviet scientific achievements since World War II cannot be ex-

plained away as lucky or of little consequence. The Soviets have big boosters because they have the theoretical know-how. Academician L. Sedov, president of the International Astronautical Association, has credited the close cooperation between the mathematical sciences and the physical sciences as one of the great over-all factors in Soviet success.

Mathematicians are concerned over the fact that not a single mathematician is among the 20 scientists on the Space Science Board of the National Academy of Sciences or the more than 80 on its panels and committees.

The announcement of the newly formed organization states: "American industrial companies tend to be over-optimistic about their individual technical capabilities, thus hardware and system developments are often proposed without adequate theoretical foundations, or even the realization that they are missing. Systems are simulated rather than analyzed, patched together rather than designed."

• Science News Letter, 80:254 October 14, 1961

## INVENTION

# Patents of the Week

➤ **A COLLAPSIBLE** typewriter, small enough when not in use to be carried in a brief case "or even inside a coat pocket," has been patented by a Swiss inventor.

Marcel Fresard, Geneva, assigned rights to patent No. 3,001,631 to Mefina S.A., Fribourg, Switzerland.

In its compressed state, the machine is less than half of its full operative size. It forms a portable package approximately ten inches long, five and one-half inches wide, and one and one-fourth inches high.

When the typewriter is open, the keyboard is of standard size and shape. When the casing is collapsed, the cover and the key bars are moved up and over to fit into place against the type bars and connecting rocker levers.

A roofing system involving strips of metal shingles, arranged to cover a sloping roof in staircase fashion, won patent No. 3,001,331 for Donald C. Brunton, Pennington, N.J. Rights were assigned to the Pendennis Company, Toronto, Canada.

Flat, horizontal strips, left unpainted but highly polished to reflect summer sunlight, alternate with painted vertical strips that absorb heat from the sun in winter. The painted strips form the part of the roof seen from the ground, and the reflective area can operate effectively without annoying the neighbors or blinding passing motorists.

A Garden Grove, Calif., physician received patent No. 3,001,397 for a two-cylinder meter system that accurately measures the flow-volume of liquids, particularly

blood, without interrupting the flow and without coming in contact with the surrounding air.

The inventor, Dr. Joe H. Leonard, told SCIENCE SERVICE the device may be used with artificial kidneys and heart-lung machines, as well as providing increased accuracy when intravenous fluids and blood are administered to hospital patients.

In use, the two connected cylinders, made of glass or transparent plastic, form upper and lower reservoirs through which the entire flow passes. Flow rate is calculated by closing the valve between the two cylinders for a predetermined time, then measuring the rise in the liquid level in the upper cylinder. An inert gas supplies system pressure.

A method that allows a large number of pianos to be played by practicing students in the same room, won patent No. 3,001,431 for Clifford W. Andersen, De Kalb, Ill., who assigned rights to the Rudolph Wurlitzer Company, North Tonawanda, N.Y.

Each student would use a set of earphones plugged into the electronic piano being played, to listen to his own work without hearing any other playing. The teacher can "tune in" on any single student by plugging earphones into a central station, linked to the pianos by transmission lines.

Mr. Andersen, who earlier invented a small, space-saving electronic piano, said the earphone teaching device can be used with other instruments.

• Science News Letter, 80:254 October 14, 1961