their homes and knowing that these are in constant danger of destruction is a distinct danger to mental health, Dr. Olesen pointed out. This can be overcome by providing diversion and occupation.

Many mothers and home makers improved their knowledge of cooking, child-care and home hygiene while they were living in refugee camps during the Ohio-Mississippi flood. This benefit to health was a result of nutrition and similar classes organized by the Red Cross to give occupation to the women in the refugee camps.

Final health benefit seen by Dr. Olesen as following the wartime evacuation of the cities is the possibility of returning city dwellers after the emergency to homes that are much more healthful than those they formerly occupied. This has been accomplished in the flooded areas and can be done in the war-threatened cities. Many homes may be destroyed by bombs, as many were by flood waters. When they are rebuilt, provision can be made for better sanitation and more sunshine and air.

Science News Letter, October 8, 1938

GEOLOGY

Submarine Volcano Found Off California Coast

A SUBMERGED volcano, in water two miles deep off the coast of California about 150 miles southwest of Catalina, has been discovered by an expedition of the U. S. Coast and Geodetic Survey. Prof. W. F. Shepard of the University of Illinois, at present working at the University of California's Scripps Institution of Oceanography, determined the nature of the submarine mountain, which has two craters. Whether or not it is active has not yet been learned.

Science News Letter, October 8, 1938

AERONAUTICS

Millions Spent on Aviation Will Show Ghastly Results

European Laboratories Have Invested Far More In Research Than Has America; Return Not in Cash

HEAVY European expenditures for aernoautical reasearch, which far outstrip American budgets devoted to the improvement of military aircraft, will be repaid a thousandfold when war breaks out. But the payment will not be in dollars and cents. It will be made in a coin of a vastly different kind.

Behind the 20,000 military aircraft poised at European airports for the command to take off on destructive military missions are scientists who have created more efficient aerial means of destruction at a frenzied pace dictated by the totalitarian states they either serve or fear they must fight.

Many more millions are known to have been spent by European governments on research in military aeronautics than by the U. S. government, though any estimate of the exact amount would be the wildest sort of guess.

Research plants that dwarf the National Advisory Committee for Aeronautics' laboratories at Langley Field, Va., have been turning out improved planes, better bombs, more efficient armament and war-time aeronautical accessories in a bewildering flood.

Such laboratories include Guidonia, near Rome; the magnificent facilities of the Deutsche Versuchsanstalt fuer Luftfahrt (German Research Institute for Aeronautics) at Adlershof; the Royal Aircraft Establishment at Farnborough in England; the Aerodynamics Department of England's National Physical Laboratory at Teddington and others that have either sprung up or been greatly expanded since the world became acutely conscious of the war menace half a dozen years ago.

Not more than $3,000,000 is spent each year in the United States for government-supported military aeronautics research, a small sum compared to expenditures in any single major European country. The National Advisory Committee for Aeronautics' 1938 budget totaled but $1,733,850, while smaller amounts were spent by the U. S. Army Air Corps and the Navy for developing new types of craft.

The difference is shown in the fact that European research has actually progressed at a faster rate than in this country during the last few years. Once markedly behind America in important developments, European countries have in some cases actually caught up with the United States. One such country is Germany.

Material testing has occupied a prominent place on the research programs of European laboratories, for raw materials are more difficult to get on the Continent and in England. Consequently more attention has been paid abroad to development of substitutes for aluminum alloys that are preferred in the United States almost to the exclusion of other substances.

Science News Letter, October 8, 1938

Cleaning up a wishing well in a national park reservation, employees recently removed 700 objects—from bobby pins to chewing gum—placed in the well by wishful tourists.

NEW TYPE

This is how the new plastic type is set. At present it cannot be set on the linotype machine.

CHEMISTRY

Plastic Type Challenges Universal Metal Type

German Journal Is Printed From Thermoplastic Material, Composition of Which Is Kept Secret

THE FIRST revolution in type since the introduction of metal type is coming today from Germany.

It consists in the use for the first time of a synthetic plastic material for casting type.

Readers of the journal which is the official organ of the German government agency charged with making Germany self-sufficient in four years were astonished recently to read that four pages of the magazine, in no way distinguishable from the rest, had been printed from a thermoplastic material whose exact composition is still a Nazi secret.

The type, which weighs one-tenth as much as the more usual lead, tin and antimony alloy, has printing characteristics at least as good as its metal predecessor, its developers, Dr. Bekk and Ernst Strunk, declare.

It is durable, as the photomicrographs show. The top pair show (left to right) lead type before and after printing 100,000 copies. The bottom pair show thermoplastic type under similar conditions. As can be seen, the thermoplastic type, which is more resilient than type metal, has kept sharper and cleaner edges, one of the criteria by which the durability of type is measured.

Thus far only handset type has been manufactured, but machine setting methods are now being developed. The chief difficulty in the way of its use in the linotype machine, ubiquitous accompaniment of every modern printing plant, is the necessity for pressure in casting the new material.

The type can be melted and recast. Although more expensive weight for weight than metal, the larger amount of type that can be made from a given weight of plastic makes its use as economical as that of metal.

Possibility of constructing heavy flat bed presses and even of building high speed rotary presses in lighter form than that practiced today is foreseen by the inventors of the new type. Not so much force will be required to make an impression. Hence one source of the pounding vibrations of a modern press can be made much less important.

It is possible also that stereotypes will some day be made from the new material. The plastic used is said to be similar to the styrene resins used in the United States, but is not the same material.

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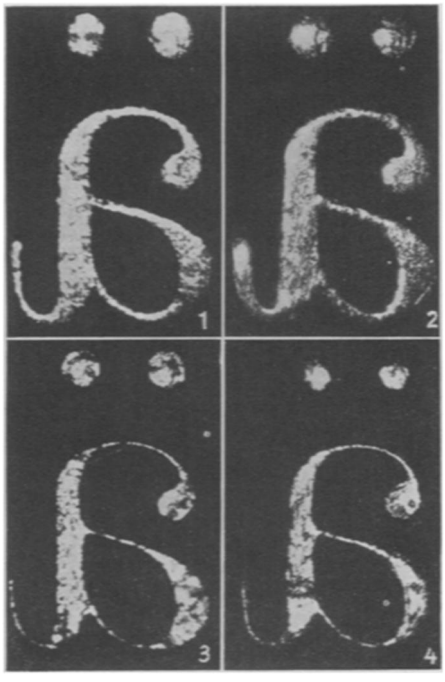

EFFECTS OF USE

At the top are photomicrographs of the same letter in lead type before and after printing 100,000 copies. The plastic type below shows the same fine edges after a similar printing job.