GEOGRAPHY

Sicily Is Mountainous

Mountains lie close to the zig-zag Sicilian coast line with its good harbors and landing beaches, forming a natural fortification within the island.

➤ ALLIES LANDING on Sicily faced an up-hill fight. The topography of Sicily is discussed in the *Field Artillery Journal* (July) by Col. Conrad H. Lanza.

The zig-zag coast line, measured around all inlets, is about 1,700 miles in length. The straight-away distance across the north side of the triangular island, from Messina to Trapani, is approximately 170 miles. From Trapani the straight-away distance along the west coast is about 30 miles; the south or southwest coast extends 170 miles, and the east coast extends 125 miles from the southeast corner of the island back to Messina.

On the north shore there is an excellent harbor at Palermo and a city of 400,000 people, a railroad center for Sicily's extensive narrow-gauge railways. The surrounding plains are not very wide. Milazzo has a good harbor, but limited surrounding plains. Any advance into the interior from these cities would encounter strong mountain positions. Control of these harbors, however, was essential, as was also seizure of the adjacent airfields. From Milazzo land forces could advance around the north and the south sides of the Peloritan mountains on Messina.

Trapani and Marsala, on the 30-mile west coast, have good harbors and good landing beaches. But the invasion of the interior from this area is made difficult by the mountains, Monte Grande, less than 20 miles back from the shoreline.

The best landing beaches for the invasion of the interior of Sicily are reported to be on the southwest and east coasts. Their number is limited and undoubtedly they have been strongly fortified. The mountains and hills along these coasts are not as close to the shore as those in the north; they are not so high and are more easily crossed.

Once in Sicily the Allies found many good hard-surfaced roads built with a local asphalt. They are too narrow for the most effective military traffic but will prove very useful. There are very few rivers to cross. The climate is generally mild so military operations can be conducted at any time. Summer days may get excessively hot. Rainfall is scanty.

For many centuries the inhabitants of Sicily have lived in towns, rather than on farms or in rural villages. This was because of the fear of attack by enemies in the frequent wars during the Middle Ages.

Houses are built of stone. They are easily converted into military obstacles and may delay advancing troops to a considerable extent. With a total population in Sicily of about 4,000,000, these towns are plentiful.

While much opposition was to be expected at the good landing beaches, one factor was very favorable to the Allies. Landing operations need not wait the turn of the tide, as the Mediterranean has no tides.

Science News Letter, July 24, 1943

PHYSICS

Cloud Chamber Is Used To Catch Germs for Count

➤ GERMS floating in air can be downed by using the Wilson cloud chamber, then counted and identified, Prof. Carl E. Nielson of the University of California told the meeting of the American Physical Society.

Here is how it's done: As a piston in the box-like chamber is suddenly moved in such a way as to increase the volume, the air expands to fill the increased space. When a gas thus expands, temperature goes down. This causes the moisture in the air to condense onto the germs—or condensation nuclei, as the scientist terms them. The dew-laden germs then sink to the bottom of the chamber where they are caught in a dish.

Suggesting the new technique as another possible use of the cloud chamber which is ordinarily used to study ions, Prof. Nielson pointed out that most methods of air sampling remove an unknown percentage of the germs; the cloud chamber downs them all.

Experiments conducted by Prof. Nielsen show that dust particles of germ size also serve as condensation nuclei when the air is slightly supersaturated with moisture.

Science News Letter, July 24, 1943

MERCURY LAMP — Scarcely bigger than a wooden match, this small mercury lamp developed by the General Electric Company is good for one million photographic exposures.

GENERAL SCIENCE

Research Problems Listed For the Young Scientist

➤ A WORLDFUL of research problems awaits youthful scientists, Dr. Colin Garfield Fink of Columbia University declares (*Science,* July 9), listing six to challenge those of vision and courage:

1. Perfection of electric lighting 10 times as efficient as any present type.
2. An improved automobile gas engine operating at three or four times the efficiency of the present one.
3. A paint for wooden structures that is rainproof and sunproof.
4. An alloy of aluminum as resistant to fatigue as steel.
5. A metal or other material to take the place of our rapidly dwindling resources of copper or of lead.
6. A material to take the place of leather for shoes with all the good, or even better, qualities of leather.

Stating that "the chances of finding new products and new processes have never been equalled in the past," Dr. Fink recommends radical research to America's youthful scientists.

To show the difference between radical or fundamental research and development research, Dr. Fink cites the production of billiard balls out of plastic in place of elephants' tusks as a discovery radically different from anything that has gone before. Development research might try to raise more elephants or try to develop longer or bigger tusks through changes in diet.

Science News Letter, July 24, 1943