SCIENCE NEWS

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SICILY

MANY Sicilian cities are centuries old; a few are on the sites of ancient colonies established by Greeks and other eastern peoples centuries before the birth of Christ. The island abounds in archeological monuments of both its ancient and its medieval civilization.

The great majority of the 4,000,000 Sicilians on the island live in cities and towns rather than on farms or in rural villages. It is an old custom dating back to colonial and medieval days when the almost constant danger of warfare required concentrated populations for self-protection. The density of population is over 400 persons per square mile. The island is about the size of New Hampshire; it is only one fifth as large as North Carolina but has nearly a half million more people than that state. Even if its farming people lived on their farms, its large population in proportion to its area would still compel it to be a country of cities.

The immediate interest in the Sicilian cities is in those in the present combat area. Of these Pachino deserves first mention as it was in the center of the invasion line. It is on Cape Passero at the extreme southeasterly tip of Sicily, and from it the coast lines extend north to the Strait of Messina, and northwesterly to form the south or southwestern coast. It is along the coast from Pachino to Messina that many early Greek colonies were established.

Pachino had a pre-war population of approximately 21,000 persons. Northward less than ten miles is the railroad junction Noto; population, 30,000. Then in order are Syracuse (53,000), Augusta (20,000), Catania (252,000), Acireale (37,000), Giarre (25,000), Taormina (8,000), and Messina (202,000) only a few miles from the Italian mainland.

Syracuse (Siracusa in Italian), on the enclosed bay called Porto Grande, has one of the best natural harbors in all Italy. It is supposed to have been established by the Corinthians about seven and a half centuries before the birth of Christ. It contains many objects of historical interest. Augusta has an excellent harbor from which much of Sicily's commercial salt was shipped in pre-war days.

Catania, 35 miles north of Augusta, and the second largest city on the island, was the second busiest shipping port before the war. Sulfur, citrus fruits and products, vegetable oils and wines were its principal commodities. Stretching to the north, west and south are extensive plains, probably the most extensive plains of Sicily. Like Syracuse, it is an ancient city, dating back to 729 B.C. when it was established by the Chalcidians.

Acireale, Giarre, Taormina and Messina lead along the narrow coastal plain between the famous volcano, Mt. Etna, the Peloritan Mountains and the Mediterranean Sea.

Along or near the south or southwest coast from Pachino are the cities of Pozzallo (10,000), Scicli (22,000), Comiso (30,000), Vittoria (38,000), Gela (33,000), Licata (30,000), and Agrigento (30,000). Ragusa (50,000) is inland some 15 miles from the coast and a few miles east of Comiso.

Agrigento is another ancient city with many historical monuments. It is but a few miles from Porto Empedocle (15,000) and is the center of much of the sulfur business of Sicily. It is close to the junction of the coastline railway and an interior railway that crosses Sicily through the sulfur mining country to Catania on the east coast.

Landing beaches used by American forces are along this coast. Enemy aviation fields at Pozzallo, Comiso, Gela, and Porto Empedocle are reported to be now in the hands of the Allies. Gela is the site of a colony founded by the Dorians from Rhodes and Crete in 689 B.C.

MARTINIQUE

MARTINIQUE, Guadeloupe and the five small islands in the French West Indies group are relatively small in area, densely populated, and produce little of value to the Allies, but they hold important strategic positions between the Atlantic and the Caribbean. It will probably be necessary to send food supplies to them to help out in their present shortage. In return America may get limited quantities of dye-woods, resins, tanning materials and medicinal plants, and possibly some sugar, coffee and rum.

The value of the French West Indies to the Allies is military. Since December, 1940, when George Robert was named the Vichy High Commissioner of the islands and of French Guiana on the South American mainland, his jurisdiction has been a menace because of the danger of the use of the islands as an Axis base for action against the Americas. With the change in government the danger is removed.

The French West Indies have a total population of nearly 600,000 persons, only five per cent. of whom are white. Their total area is about the same as that of Rhode Island. Living is obtained largely from the soil. Sugar, coffee, rum, cocoa and bananas were shipped to France in pre-war days. Small amounts of salt and sulfur were also exported.

With an average of about 650 persons per square mile, and much of the area covered with forests of little commercial value, life has been sustained at a level far below American standards. Lack of cash formerly obtained from exports, together with lack of shipping, has prevented the obtaining of needed foods. Sugar and coffee without breadstuffs, even when bolstered by rum, is a poor diet.

Martinique is on the direct air route from Natal, Brazil, to Miami, Fla. It is the half-way point. It is reported to have a good air field which can be easily improved. It has an excellent harbor at Fort de France. It is in this harbor that three French warships and 140,000 tons of merchant shipping have been lying for nearly three years. All these ships will now become available to the Allies.

The French fighting ships that have been tied up in the French West Indies will be useful additions to the fleets of the Allies, though they will require drydocking to rid their bottoms of thick growths of barnacles and tropical seaweed, and would probably profit by a general overhauling. Ships' machinery standing idle deteriorates more rapidly than it does in use.

The aircraft carrier Béarn, which carries 40 planes, is the chief prize. Her rated speed of 21.5 knots is slow, as modern carriers go, but it is great enough to fit her into a formation of older-type battleships, and more than enough for convoy duty.

The cruisers Emile Bertin and the Jeanne d'Arc are in the 6,000-ton class and carry six-inch guns in their main batteries. Both will undoubtedly require additions to their light anti-aircraft armament before they can go into action under present-day fighting conditions.

When the Béarn tied up at Martinique, she set ashore 105 American-built fighter planes which she was ferrying to France at the time of the republic's fall. These have remained at Fort de France since 1940, sheltered only by tarpaulins. It is highly improbable that they can be put in shape to fly without a good deal of reconditioning. They are now of course obsolete for first-line purposes, but might be good for patrol, observation and similar uses.

A PORTABLE MERCURY FLASH LAMP

A NEW compact high speed electronic light unit has been developed by the engineers of the General Electric Laboratory, with the assistance of S. Lawrence Bellinger, which can take photographs with an exposure of only one-millionth of a second. High speed photographs taken in recent years are only one thirty-third as fast as this new unit.

A portable box 10 inches square, weighing under 20 pounds and containing a mercury lamp about the size of a cigarette constitutes the entire device. The light source on the front of the box resembles an auto headlight and can be operated either manually by means of a push button, by electrical contacts or by a phototube and preamplifier. It will illuminate an area of twenty square feet with sufficient light intensity to photograph the fastest moving objects.

Some features of this new high speed unit are its standard replaceable electrical parts, together with one electronic tube and a 100 watt Mazda mercury lamp. It can be operated on an ordinary 115 volt alternating current household lighting circuit. The current is rectified by an electronic tube and then used to charge a capacitor which serves as a sort of electrical storage tank. There is enough power accumulated in three seconds to operate the lamp at full intensity. The energy used in each flash is so slight that it is only sufficient to light a 40 watt lamp one-tenth of a second. The small mercury lamp has a life value of one second, which makes it good for one million exposures. This would be equal to 500 years of an average newspaper photographer's work. Lamps of this type are now being used as high-intensity light for illuminating airports, television, motion picture studios and various other means.

Although complete experimental tests have not been made, due to the pressure of war work, photographs have been taken of high-speed machinery such as turbines and supercharger parts. A "still" photo of a wheel revolving at 70,000 revolutions per minute has been taken with this new device.

ITEMS

A FINE new potato variety named Mohawk is to be made available to the public under the auspices of the U. S. Department of Agriculture. Seed stock for professional growers will be obtainable by next spring, and consumers should be able to find them in the market when the 1945 new-potato crop comes in. The Mohawk is described as long and smooth, without deep eyes, and excellent for baking. From the grower's angle, it presents the advantages of having good resistance to a number of troublesome diseases, and of producing high yields of uniformly sized and shaped tubers. The new variety was originated in Maine in 1935, as a cross between two already highly valued varieties, Green Mountain and Katahdin. For the past eight years it has remained under the near-anonymity of the designation "U. S. D. A. Seedling No. 46,000," while necessary test growings were being conducted.

IF there are ants in your plants, you can rout them with a chemical attack of P.D.B., according to entomologists of the U. S. Department of Agriculture. A big colony of these persistent insects can do a great deal of mischief, and is not easy to get rid of by ordinary means. P.D.B., or paradichlorobenzene, to spell it all out, is a crystalline chemical already familiar through its use to repel clothes moths. To use against ants, you simply punch holes a few inches deep in the soil over the nest, pour in a little P.D.B., and fill up with soil again. The crystals will diffuse a gas through the soil that will either kill the ants or make them so miserable that they will make haste to move elsewhere. Carbon disulfide is also effective against ants, but is slightly more difficult to use and is decidedly more dangerous to have on the premises because its vapor is somewhat poisonous, and both vapor and liquid are highly inflammable.

GERMS floating in air can be downed by using the Wilson cloud chamber, then counted and identified, was reported by Professor Carl E. Nielsen, of the University of California, at the meeting of the American Physical Society at Stanford University. 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 on to the germs—or condensation nuclei. 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, Professor Nielsen pointed out that most methods of air sampling remove an unknown percentage of the germs; the cloud chamber downs them all. Experiments conducted by Professor Nielsen show that dust particles of germ size also serve as condensation nuclei when the air is slightly supersaturated with moisture.