but they have all diminished in numbers or have even completely disappeared. Cactoblastis is distributed in the egg stage. The eggs are laid in chains, or "egg-sticks"; these can be handled and transported without injury, having first been glued to strips of paper or placed in wax-paper quills. Field workers, traveling roads and trails through prickly-pear land, pin the paper strips or quills to cactus plants. When the insects are once established in any locality no further distribution is necessary except to isolated and non-contiguous areas.

Cactoblastis larvae devour the interior of the cactus branches, readily boring from one joint to another and even penetrating the roots; furthermore, their activities are accompanied by rotting due to bacteria and fungi. When only the above-ground parts of the cactus plant are destroyed by an onslaught of Cactoblastis a regrowth takes place from the roots, but this new growth is very succulent and is soon destroyed by a succeeding attack of the moth borer.

At the present time (1940) prickly pear infestation has been reduced from 75 to 95 per cent. of that in 1925. In the greater part of formerly infested areas the pest is under complete control; the scattered remaining plants are not a menace—indeed, they are of value for breeding of Cactoblastis. Areas of former dense prickly pear are now being used for crops, for dairying and for grazing. The great bulk of former prickly pear territory is now reclaimed; it will never revert to its previous useless state.

FRANCIS RAMALEY
UNIVERSITY OF COLORADO

THE DENS AND BEHAVIOR OF THE DESERT TORTOISE

STUDIES of the desert tortoise, *Gopherus agassizii*, have shown a definite behavior pattern in which the individuals tend to congregate together in winter dens during cold weather, spread out over nearby areas during moderate weather, and descend into short individual burrows when it is too hot. The studies have been carried out on the Beaver Dam Slope in extreme southwestern Utah since 1936. The area selected was particularly favorable for the winter den concentrations, hence it is not certain at present whether this pattern is general over all its range.

More than 200 tortoises have been marked for individual identification by burning the letter U into different plates or combinations of plates on different individuals so that each one so marked could be definitely identified. During 33 visits to the area, tortoises have been recaptured from time to time, the number of recaptures of individuals ranging from 0 to 11 times. The total captures of tortoises reaches nearly 500 up to date.

The 68 winter dens we have studied are found mostly in compact gravel banks, and usually extend from 5 to 30 feet horizontally into the bank. In cross-section, they are somewhat oval; in length they may be straight, bent, forked or have enlarged chambers. The size does not generally permit entrance by man, but several have been excavated to permit investigation.

The dens are regularly occupied from November to February inclusive, although there undoubtedly is a slight amount of movement from den to den during these months. March and October appear to be the months of transition. During March, fewer and fewer, and during October, more and more are found in the dens. From April to September inclusive, the dens are deserted except for occasional stragglers.

During this period, the tortoises are scattered over the surrounding terrain, usually as solitary individuals, occasionally as copulating pairs. As long as the temperature is comfortable, they do not appear to bother about shelter. As the days get warmer, they tend to move into the shade of a bush, but when the days get hot and the ground vegetation parched, they resort to the summer holes.

These summer holes dip sharply downward 3 or 4 feet and are usually deep enough to protect the tortoises from the torrid heat of midday. They usually emerge at night when the temperatures are more propitious.

The territory covered by individual tortoises, indicated at least in part by plotting the points of capture on a map, is not large. Some individuals with at least 10 capture records do not cover an area of more than ten acres. Others wander farther afield, but the largest territory indicated up to date is only about 40 acres. These records, while not necessarily conclusive, at least indicate that the tortoises are closely restricted to a small territory.

A more detailed report of these studies will be published elsewhere at a later time.

A. M. WOODBURY
UNIVERSITY OF UTAH
ROSS HARDY
DIXIE JUNIOR COLLEGE

ELECTRIC FENCES THAT REPEL DEER

PROTECTION of growing crops against deer by the use of electric fences has become an acute necessity in many parts of Texas. In agricultural areas which also contain suitable range for deer, the perennial question of balancing these conflicting interests has engaged alike the attention of landowner and sportsman, and with some success. For the past two years experimentation with several kinds of fences in central Texas has resulted in the selection of the most successful type. Improper installation and therefore failure of such fences to do any good has resulted in hasty

and harmful conclusions. It was learned that a single electrified wire, without any supporting fence near, was adequate to stop cattle and horses, but not deer. The deer-repellent fence, which has proved successful at two places in Kerr County where deer are abundant, was installed by State Game Warden Bill Garrett as follows: On the outside of a ten-acre farm, five feet from the regular fence, a single No. 9 telephone wire was strung on insulators 20 inches above the ground and charged with a six-volt dry cell battery.

The electrical device consists of an encased six-volt dry battery with transformer and interrupter. The battery is good for about four months; the other parts last indefinitely. (If the electric wire is to extend more than two miles it is advisable to have an electrician calculate the wattage and size of coil needed for the distance contemplated.) Other sources of power may be used, but the dry battery is preferred as being absolutely safe. The outfit can be bought at prices ranging from $12.00 to $20.00. The only maintenance cost would be the cutting of weeds or branches along the fence to prevent leakage.

The idea of placing the electric fence five feet from the regular fence might appear to be fantastic, but there is a reason. When a deer approaches a fence to jump over and finds two fences set five feet apart, he does not like the idea of so long a flat-footed jump. He pauses to pick the line of least resistance. Whether he decides to hop over the single wire or crawl under, he is apt first to make an inspection with his nose or otherwise rub against it and get a violent shock. Cattle thus shocked have avoided the fence long after the discontinuance of an electric current. All live stock, including hogs, respected the fence, and deer, which are very fond of tomatoes and potato vines, were not tempted to eat of the forbidden fruit during a three months' test.

J. G. BURR

GAME, FISH AND OYSTER COMMISSION,
AUSTIN, TEXAS

J. PETER LESLEY AND JOSEPH LESLEY

BIBLIOGRAPHERS as well as geologists should use extreme care when working with papers by either of the Lesley brothers, for the second state geologist of Pennsylvania, who was baptized Peter Lesley, at varying times throughout his life signed his name Peter Lesley, Peter Lesley, Jr., J. P. Lesley and J. Peter Lesley, the "J" standing for junior, while his brother Joseph, also a geologist, sometimes signed his name Joseph Lesley, Jr. The six variations listed above may be considered correct on the basis of actual usage by the individuals, but additional incorrect combinations have also appeared in print. Joseph P. Lesley and Joseph P. Lesley, Jr., each of which has been applied to both brothers, and Joseph Peter Lesley, John Peter Lesley and John P. Lesley which have been used for Peter Lesley, are all incorrect. Not only have wrong names been used in the past but bibliographic references have become badly mixed. Papers written by Peter Lesley have been accredited to Joseph and articles by Joseph attributed to Peter.

A more detailed paper on this problem appeared in the *Proceedings of the Pennsylvania Academy of Sciences*, 1940.

LAWRENCE WHITCOMB

LEHIGH UNIVERSITY

QUOTATIONS

THE BRITISH SCIENTIFIC ADVISORY COMMITTEE

BY means of the Scientific Advisory Committee, the appointment of which is announced this morning, the scientific workers of the country are given a more defined place in the national effort. The distinguished men, acknowledged leaders in their own branches of science, who form the new committee will bring more than their individual, or even their combined, abilities to the services of the nation. They will establish a center and rallying point and be a means of releasing and employing scientific resource and skill. They will also be a channel of communication through which the spontaneous suggestions of scientific workers may be examined and tried.

The advisory powers of the committee will be employed at the instance of the Lord President of the Council, who will indicate particular problems for investigation, or of Government Departments which may ask for assistance in selecting suitable men to undertake particular lines of research. In exercising this function the members of the committee have a knowledge of varied and wide fields of science, and of the men engaged in scientific work, which will give access to resources that, in a mechanical and scientific war, must be utilized to the fullest extent. Here, it seems, the committee is to be at the disposal of the Government.

Even more significant is the conferment on the committee of the duty of seeing that no new scientific or technical developments go neglected. The committee will therefore be a sort of examining board for original ideas, which, passing its scrutiny, will go forward hallmarked for practical experiment or certain use. A clearing house for inventive ideas is not a new provision; but the advisory committee is more than that by reason of its constitution and its powers. It has the responsibility of sifting original ideas and inven-