the eyes of the Prophets Bethlehem was specially sacred as the home of the family of David and the other celebrated members of the family, Jacob, Asahel and Abigail also once resided here (2 Sam. 2: 18). It was not, however, until the Christian period, when it began to attract pilgrims, that Bethlehem became a place of any size. Down to the fourth century it was still unimportant. Justiman, however, caused the walls to be rebuilt, and so many monasteries and churches were soon erected, that it is spoken of as a flourishing place about the year 600, its church being at that time especially famous. On the approach of the Crusaders, the Arabs destroyed Bethlehem, but the Franks soon rebuilt the little town and founded a castle near the monastery. In 1244 the place was devastated by the Kharesmians; in 1489, the fortications and the monastery were destroyed. For a time the place lost much of its importance, but within the last three centuries it has gradually recovered. Quarrels between the Christians and Muslems frequently caused bloodshed, and the inhabitants were even occasionally molested by the Beduins. The Muslems who occupied a separate quarter at Bethlehem were expelled by the Christians in 1831, and after an insurrection in 1834 their quarter was destroyed by order of Ibrahim Pasha. Since that period the town has been almost exclusively occupied by Christians.

Bethlehem of the present day has about 8,000 inhabitants, about 260 of whom are Muslems and 50 Protestants. The rest are Greekes, Romans and Armenians. The town is situated on a hill at the junction of two valleys, and 2,550 feet about the level of the sea. The Latins, the Greeks and the Armenians each have a monastery in Bethlehem and several churches; also a number of schools. The inhabitants live chiefly by agriculture and breeding cattle, besides which they have for several centuries been occupied in the manufacture of rasaries, crosses and other fancy articles in wood, mother-of-pearl, coral and stinkstow (lime mixed with bitumen) from the Dead Sea. Bethlehem is also the market town of the peasants and Beduins in the neighborhood, many of the latter coming from the region of the Dead Sea.

El Khalil, the ancient Hebron, which lies about 18 miles southwest of Bethlehem, was originally on my traveling program; but as no other travelers happened to be going there, and also being informed that the hostile, fanatical Moslems, who inhabit the place, absolutely refuse to show Christians any of the points of interest in and about the town, I changed my mind, and returned to Jerusalem from Bethlehem. A few items concerning Hebron may, however, be in place here.

Hebron is situated among the mountains of Judea, in a deep valley, 23 miles southwest of Jerusalem, and 25 northeast of Barsheba, in a country abounding in pasturage and vineyards, yielding the finest grapes in Palestine. One of the oldest inhabited cities in the world, it is, after Jerusalem, the second largest in southern Palestine, containing about 10,000 inhabitants, mostly Moslems. The merchants of Hebron carry on a brisk trade with the Beduins, and often travel about the country with their wares. The chief branches of industry are the manufacture of water skins from goats' hides and glassware.

It was at Hebron that Abraham purchased of the sons of Heth the cave of Machpelah as a burial place for his dead (Gen. 23: 17). Here lived the Patriarchs; here they communed with God and received the promises; and here they were buried, with their wives; and their sepulchre is "here to this day," enclosed in a Turkish mosque, which only a few Christians have been permitted to enter. From Hebron the spies sent out by Moses, gathered the grapes of Eshcol with pomegranates and figs, as a specimen of the exceeding good land which the Israelites were commanded to go up and possess. Soon afterwards the city was utterly destroyed by Joshua and given to Caleb in reward for his courage and trust in God (Josh. 10: 37). It was one of the cities of refuge, and a Levitical city of the sons of Aaron (Josh. 21 11; 20: 7). David was here anointed king over Israel, and made it for seven years and six months the seat of his kingdom (2 Sam. 3: 27). Absolom made it his headquarters in his rebellion against his father (2 Sam. 25). Rehoboam made it one of his fenced cities. It was resettled after the captivity, and from that period it disappears for many centuries from the pages of history.

After my return to Jerusalem from Bethlehem, I happened to meet four American residents at the office of Mr. H. Clark, an American tourist agent for Syria and Palestine, and also U. S. vice consul. He is a brother of Frank C. Clark, the well known American tourist agent, whose head office is at 111 Broadway, New York. Mr. H. Clark and his assistants showed me considerable kindness, and my visit to the Dead Sea was made under their arrangements. Though only two years in the business, the firm have acquired a fine reputation throughout the land, and those who have traveled under their manipulation seem to have nothing but words of praise for Mr. Clark and his agents and other servants. My meeting with these Americans at the office of Mr. Clark became the means of making the remainder of my sojourn in Jerusalem more pleasant than it otherwise would have been.

ANDREW JENSON.

SCIENTIFIC MISCELLANY.

Since 1887, Mr. F. Merrifield, of Brighton, England, has been engaged in an elaborate series of experiments in rearing butterflies and moths under various conditions of temperature. Three kinds of changes were especially noted in the new generations of insects —(1) general change, often striking, in the coloring, without material alteration in the form of markings, but often much increase or diminution in their intensity; (2) change caused by substitution of scales of different color, either singly and scattered or so grouped as to cause a material change in pattern; and (3) change in general appearance due to imperfection in the development of scales or of their pigments. The first kind of change appears to be a direct effect of temperature, not affecting vigorous development. The second kind includes a case of what seems a reversion to an earlier form; and in the third the wings are often much reduced in size, and the scales scanty and often misshapen.

A window shade operated automatically is a Berlin novelty. A U-tube, partly filled with mercury, is connected with a bulb containing black wool and one containing air; and when the sun shines, the absorption of the rays by the black wool causes the mercury to rise in the opposite side of the tube, closing the circuit of a motor that lets down the blind. When the sun is not out, the mercury is level in the two tubes, closing a circuit that winds up the blind.

Queen Jane's pear tree, recently blown down, was believed to be at least 600 years old, and the oldest in Central France. To discover whether a similar tree is elsewhere known, sections have been sent to all botanical societies in Europe.

Surveying by photography is gaining ground. Over 50,000 square miles have been photographically plotted and surveyed by the surveyor general of Canada.

Magic squares, in which the horizontal, vertical and diagonal rows of figures have each the same sum, have attracted many men of science. Mr. Daniel F. Savage, a Kentucky mathematician, has worked out forms of this kind up to the 100-square, which uses all the numbers from 1 to 10,000, and which may be subdivided into squares having 25, 20, 10 and 5 numbers on each side, each of such subdivisions—a total of 400 in the case of the smallest—being a perfect magic square. These combinations of figures have other curious and fascinating properties. The combinations are formed now by rule, the possible variations being too appallingly great—amounting, we are told, to 60,890,699,153,896,000,000 different orders for the numbers 1 to 25 alone—for one to hope to hit upon a large square, as the early Arabians made the first simple ones, by the crude method of trial. In this array of changes, however, it is further stated, there are 57,600 possible 5-squares, while the total possible transpositions of the numbers 1 to 10,000, each change giving a magic square, are represented by 1 with some 2,000 places of figures! The countless sands of the seashore may give some faint conception of what this means. A handful of sand of medium fineness, 100 grains to the inch, will contain 1,000,000 grains, if it measures one cubic inch; and thus philosopher or child may grasp the million. To get into trillions would require a pile of sand one mile in its length, breadth and thickness. At this we stand amazed, but to get somewhere near the possible variation in the 100-square, the magic square of 1 to 10,000, we should have to lay down such handfuls of sand, each of a million grains, from the earth to Aldebaran!

The first Botanic Garden in Jamaica, according to Mr. W. Fawcett, was established about 150 years ago by a private individual. This was soon acquired by the government, and divided into a European and a tropical garden, but these did little in determining the value to the colony of new and imported plants until about thirty years ago. There are now six gardens—large and small— with greatly varied conditions of climate. The native flora is estimated to embrace 450 ferns and 2180 species of flowering plants.

An improved match has been produced in Westphalia. It is stated to have a basis of plumbate of lime, and to be free from phosphrous, whose use is so dangerous to the health of employes in match factories.

The material now being manufactured near Berlin under the singular name of "iron felt," consists of long, strong wool fiber, which is impregnated with glue rendered insoluble by bichromate of potash or formaldehyde. The surface, in some cases, is coated with vulcanite rubber and then vulcanized. The substance is highly compressed into plates about two feet square and two-fifths of and inch to two inches thick, these plates, being elastic, capable of withstanding a pressure of nine tons to the square inch, and having a surface of great hardness. It is also claimed that that material does not rot. The plates are intended for use under the rails of railway tracks for deadening the noise, and for the same purpose under stationary engines and other machines. They may serve also for electrical insulation.

The Newtonian law of gravitation that everybody in the universe attracts every other body with a force varying