

MODERN BALL

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the club is moving at a velocity of 162 feet per second or about 110 miles per hour. It hits the ball and the club velocity is quickly reduced to 125 feet per second or about 85 miles per hour. While the ball is being hit, it is given an initial velocity of about 250 feet per second, or about 170 miles per hour.

This is another way of explaining the scientific fact that the kinetic energy of the club is transferred into potential energy and then kinetic energy in the ball. You might think that a heavy club would be better and that would be true if you could swing it fast enough. As you may know, the kinetic energy is one-half the mass times the square of the velocity ($\frac{1}{2} MV^2$). Since the velocity or speed is squared it is the most important factor and should be as large as possible to give high energy to the ball.

When the ball is hit it tends to roll up on the face of the club. This imparts a rotation of about 5,000 revolutions per minute to the ball. This is what you call a back spin and is what you get when you hit the ball correctly. If you hit the ball like many a week-end golfer does, instead of straight back spin, you will also have some spin around a vertical axis which causes the ball to slice or hook, instead of going 5,000 revolutions in one direction you will have 3,000 revolutions per minute back spin and 3,000 revolutions per minute side spin. This chases the ball right off into the rough.

We said earlier that a smooth ball would go only about 125 yards. This is to be compared with about 240 yards obtained with the same blow using the regular dimple marked ball. To explain why the marked ball goes further, let us imagine that as the ball rotates, it carries a layer of air around with it. At the bottom of the ball the rotation is such that air is piled up under the ball. The rotation of the ball carries the air away from the top of the ball. This creates a pressure under the ball and a sort of vacuum over the top of the ball in much the same way as a vacuum is created over the wings of an airplane. This vacuum holds the ball up during the flight so that

the ball is in the air longer than it would be if there were no lift effect due to the vacuum over the ball. The amount of lift is very critically dependent on the design of the cover markings. If they are changed by as much as one thousandth of an inch, the flight of the ball will be changed.

In addition to giving longer flight, you know that the back spin is what keeps the ball from running off the green on approach shots.

The game of golf has changed considerably since King James tried to outlaw it in 1457, and in this country golf has come a long way from the day in 1888 when the first game was played on the meadows that became New York City's Central Park.

In 1966, it is estimated that 8,333,250 golfers will play a minimum of 15 rounds or more; and, it is estimated that the number of golf courses will reach an all-time high of 8,781. As you can see, golf keeps increasing in both the number of participators and the number of facilities available. •

Indian Archery buys Kunkel golf cart business

Indian Archery, Evansville-based manufacturer of bows and arrows for hunting and target shooting, is expanding its operation into the field of golf, President Robert E. Griffin has announced.

They have purchased the business, patents, designs and inventory of Kunkel Industries, Inc., of Chicago. Kunkel Industries is among the top five producers in this country of golf carts.

James F. McNeely, v.p.-sales, said Indian Archery will sell the golf carts through the same retail outlets that now distribute its bows, arrows, and accessories.

Manufacturing equipment from the Kunkel Industries plant in Chicago will be moved to Evansville as soon as a location for the plant has been selected. Bill Kunkel, one of the founders of Kunkel Industries, will continue as general manager of the plant when it is established in Evansville.