In case of a tie in points and score the match is given to the one having greatest total hits.

In team contests the match is decided on gross score.

Note.—Archery is growing in favor in schools and colleges as a form of physical training. At Wellesley College it has just become an organized sport of the athletic association. [C. W.]

BALLOONING.

BY

ROY KNABENSHUE, DESIGNER AND CONSTRUCTOR OF BALLOONS, AIRSHIPS, AND FLYING-MACHINES.

NE naturally associates this term with the ordinary parachute exhibition that can be seen at the small county fairs. How little the public in general know of the joys of calmly gliding along several thousand feet, part the time below and part the time above those beautiful fleecy clouds with which the sky is lined during the month of August.

To speak of a balloon ascension is to suggest a common exhibition, but the balloon is one of the most scientific toys with which man can amuse himself. During the Paris exhibition over 400 balloons were liberated, carrying as many as 800 passengers and not one person received a scratch or a bump of sufficient importance to cause him to remember any unpleasant feature connected with his ride; and each year since the Paris Exposition, there have been liberated from different portions of France as many as 400 balloons during the summer months, and as yet the records show no accident of any kind; neither have we heard of any unpleasant feature in connection with these ascents.

For the past twenty years there has been exhibited in the various parts of the United States at county fairs and parks, what is known as the Montgolfier or Hot Air Balloon in which the aëronaut would make an ascent of an altitude of perhaps 2000 feet, and make his descent in a parachute. When these exhibitions were first given, they proved great drawing cards and were constantly in demand. This demand proved so great, and the financial part so alluring, that in a very short time they became quite common.

Each aëronaut strove to keep himself busy and in order to do so was quite willing to cut his price. This could result in but one thing, that into the business drifted a class of men that the better sort of people did not care to associate with, so at the present time very little is thought of a man who makes ballooning his profession.

The day for making balloon ascensions as an attraction has passed and there is only one thing left for the balloon and that is its use as a sport. The spherical balloon inflated with gas, equipped with all the modern appliances and in which the aëronaut and passengers ride in a wicker basket can be controlled with a greater degree of safety to its occupants than can the modern automobile when touring through the country. This statement is hard to credit, but nevertheless it is true; a comparison of the automobile and balloon accidents will prove this to be a fact.

The European countries, especially France, have always led the world in sporting events and this is especially true in automobiling and ballooning. The very best classes in France and even the nobility own their touring balloons much the same as they own their touring automobiles, and associations have been formed for the purpose of promoting this sport.

Germany and England as well as Spain have followed closely the footsteps of France, and they have given from time to time, balloon parties and international balloon races in which the best people par-

ticipate, and many thousands of miles are covered.

The longest distance travelled, as a matter of record, was from Paris to Korostichev, Russia, a distance of 1153 miles; the balloon was liberated at 5.30 o'clock P. M., and after travelling 35¾ hours, a landing was made.

On this trip every kind of weather conditions that one could imagine was met with, part of the time in sunshine, then above the clouds, now absolute calm and quiet, then again carried along just above a terrific thunder storm out of reach of danger of the lightning which flashed in a zigzag fashion across the black cloud beneath, and finally when the landing was made there was hardly a breath of air to disturb the leaves on the trees.

This country has two Aëro Clubs, one located in New York, the Aëro Club of America, and the other the Aëro Club of Philadelphia. Very little public interest so far has been taken in these clubs. A number of balloon ascensions have been made during which our American brothers have enjoyed the sensations of a ride thousands of feet in the air, but the fact that we have read of so many deaths through the use of the parachute keeps most of our people from entertaining any thoughts of ever taking a balloon ride; and yet the sensation of drifting along through unlimited space, free from the cares of the world below, simply beggars description.

The beauty and grandeur of the scenery spread out beneath will forever live in the minds of those who are fortunate enough to be able

to take a trip of this nature.

Imagine, if you can, an ascent from Central Park in New York City. At an elevation of 8000 feet, we are directly over the park. Long Island is laid out much the same as we would see it in a picture map; the ocean extends for miles and miles and finally rises and meets the sky on a level with the eye and as we view the horizon on all sides, we find this condition is the same; then we allow our glance to follow down directly underneath us, and the impression we gain is that the earth is not round or flat, but is shaped somewhat

like the hollow of a bowl. Somewhat startled at this condition we look again; we appreciate the fact that the earth is round, but at the same time this is a condition that seems to exist when viewed from a balloon.

Fifty miles at sea there appears a dot with a cloud of smoke hanging over it; on looking through powerful glasses we are able to see that this is one of our large ocean liners. Off on Long Island we see a pair of steel rails glistening in the sunlight; we hear the roar of the train and we see the steam appear in short puffs, and we wait for the sound of the whistle.

Slowly we drift across the Hudson River, a stream which seems to run as straight as a line drawn on a piece of paper, until it disappears from view at the horizon, and as we slowly pass over the marshes in Jersey, they have the appearance of a well-kept lawn and look very beautiful; one hardly gets the same impression in passing through the marshes on the train!

We now turn our attention to the balloon, and we feel that we would like to explore the higher regions, and therefore throw overboard two or three handfuls of sand which we carry for ballast.

No movement is perceptible, yet our balloon gradually rises higher and higher until we gain an altitude of 12,000 feet. Here we meet a current which changes our direction and in place of going west we turn northwest. Apparently we are hardly moving, but New York has faded away in the distance and we are over green fields with waving corn, which we see through the glasses. Apparently the wind is blowing far below, yet we feel no breeze and the sun is burning us.

At the time we started from the grounds, the temperature was 78 degrees; we look at the thermometer, we are surprised to find it is 72, yet it seems very much warmer up here than it did on the ground

below, and we are perspiring.

The balloon has begun to descend, and as we approach the earth we encounter another breeze and are carried along for some distance. Apparently, without our being able to comprehend how it happens, we notice that we are enveloped in a cloud. There are so many things to keep in one's mind and take the attention that these little things sometimes cause surprise, yet we have nothing to do but to observe, but as we get into this cloud we are unable to see anything.

We look up and can see the bottom of the balloon which appears through the mist, and on looking down, we see nothing but a fog. We are descending, and of a sudden the earth appears through the mist and in another instant we are beneath the cloud. The first time one passes through a cloud it creates a weird feeling, but immediately when out, either under it or above it, this feeling dies away, and the beauty of the scenery beneath you fills your soul.

We find now, that we have drifted into a hilly country; small patches here and there are cultivated fields while the dark green spots

are forests. We cannot notice the hills except for the shadow they cast over the ground.

Apparently we are approaching the ground very rapidly. In order to avoid coming down in that large clump of trees, we dispose of a half sack of our sand; this checks the descent of the balloon. At the same time we are travelling very rapidly in a westerly direction, and we pass over many beautiful farms which appear to be ideal homes situated in a beautiful green country with hills on every side, and apparently asphalt pavements which extend for miles; these are the macadam roads. A river, which we fail to recognize, runs almost within a stone's throw from one of these houses. Our balloon for some unaccountable reason has taken a fancy to this river and it follows it for a number of miles, even though the river takes a turn a little to the right; then suddenly, apparently without any cause, the balloon seem to rise again, and we leave the river and this beautiful territory and ascend again into cloud land. We are in the clouds but a moment; first the peak of the balloon rises above them, then the car, and after rubbing our eyes for a moment, we observe that the sun has cast a shadow of the balloon and car upon the clouds, and for a moment even the cordage is plainly seen, this whole picture is surrounded by an immense halo resembling our rainbow in colors, but as we rise higher the balloon seems to get out of focus and this picture is lost to view.

We sail along apparently at no speed at all, just merely lazily hanging above the clouds, going neither here nor there. Then we speculate as to where we are, we are unable to see the ground, as blankets of clouds seem to have folded in beneath us and nowhere is the earth visible. How beautiful are the clouds! they appear like immense bunches of white cotton.

As the eye sweeps over this view, one would gain the impression that it is so much water except for the blinding whiteness.

After a period of what seems to be hours, we notice that the clouds appear to be ascending; and as they approach, envelop, and pass above us we realize that they are standing still and we are descending. When a balloon is in motion the occupants of the car have no feeling, the start is so gradual. So it was in this case, the clouds apparently came up and met us and we passed through and left them above us without having felt any motion, yet if one were to lean over the edge of the car and hold one's face towards the ground, one would be able to feel the faint breeze, but the mind is so occupied with other things that one does not think of this, unless he has made several ascensions. We notice now that it is beginning to get dark, and the gas in our balloon has condensed to such an extent that it has lost the beauty of its round form, and we also notice that our ballast is very nearly exhausted. There are no landmarks beneath us to indicate where we are, yet we are approaching a town of considerable size. We decide that we have travelled far enough and we

had better think of landing. The balloon steadily descends, and when within 1000 feet of the ground we are almost over the city: in order to avoid coming down in the streets we throw out our last remaining handful of sand. The balloon steadily drifts along until we have passed the outskirts of this town and we note that our trail line, which hangs 350 feet below our balloon, is touching the tops of the trees of a forest of about 40 acres.

We have no fear of coming down into these trees as we know the balloon will cease descending as soon as a certain amount of the weight of this rope is taken up on the tops of the trees, and as we reach the edge of the forest, we are within 50 feet of the top of the trees. A green meadow lies just beneath us, a beautiful place in which to land.

We therefore open the valve in the top of our balloon and allow a quantity of the gas to escape and we settle gently down into this meadow.

We thought we were alone, but apparently from out of the ground appear several hundred boys, and inside of five minutes are several thousand persons around our car, eager to grasp our hands and lend any assistance necessary. Our trip is over, and we find that we have travelled a distance of 300 miles and have landed at Binghamton, N. Y.

By holding the valve open, we allow the gas in the balloon to escape and it gradually loses its form, until it lies in a heap on the ground. Then carefully disengaging the net and ropes, we fold the balloon into as small a bundle as possible and wrap it in a cloth we carry for the purpose, and carefully place it in the basket in which we have made this trip.

The entire balloon, net, ropes, anchors, all, can be snugly packed

in this basket, making but the one bundle.

A farmer's wagon is at hand, and we lift the basket with its contents into the wagon and cart it to the railroad station and check it through

to New York, the point from which we started.

Of course, the usual reporter is at hand and he must know all the details; we are not even allowed to wash our hands until he gets his story, and there are thousands of persons eager to hear every detail of the trip and they all express a desire to ride in the balloon, but that is where it ends: they see the balloon fly through the air, they shake the hands of the people who were in it, they admire their nerve, and they want to take a ride, yet the average American is too busy to give his time to any such sport and the matter is forgotten; but there is absolutely no sport on the face of the earth to-day that is so full of keen pleasure and thorough enjoyment as ballooning.

The chief charm in a balloon ascension is the uncertainty as to where you are going, or where you are coming down. The dangers of ballooning can be confined to two things: the use of poor judgment

and the landing.

Of course, it is necessary in making a balloon ascension, to thoroughly understand what to do under all conditions, and if one were to use poor judgment a beautiful trip might end disastrously, and there really need be no danger in landing if one is careful to select the proper place in which to come down.

This may be done by the use of the valve line and the ballast.

If the balloon is steadily descending and will come down in a body of water, two or three handfuls of sand will generally check the descent and the balloon will stay at the same altitude until you see a more suitable place in which to bring it down.

This is done by a pull on the valve line which runs through the

centre of the balloon.

BALLOONING AS A SPORT.

BY

A. W. ROLKER.

HIS is the latest sport wherein the American of wealth and daring now gratifies his craving for new sensations. However dangerous or otherwise, not since the automobile took hold in this country has a sport spread so rapidly as ballooning. In 1905 the Aëro Club of America was organized, and in February, 1906, at West Point, the club had its first ascension; vet during that brief time many men prominent in finance, in science and invention, and in sport have joined the club, whose purpose it is to advance the developments of aëronautics, to encourage aërial navigation and to organize excursions, races, and expositions, and to maintain club headquarters and aërodromes provided with gas generators and other equipments necessary to ballooning and air-ship navigation. Among those who were the first to own balloons, who have placed orders for balloons with American or foreign makers, or who are otherwise interested in the new sport are such men as William K. Vanderbilt, Jr.; Col. John Jacob Astor, Cortlandt F. Bishop, Harry Payne Whitney, O. H. P. Belmont, Professor M. I. Pupin, Dr. Alexander Graham Bell, Colgate Hoyt, Hiram S. Maxim, Pierre Lorillard Ronalds, Augustus Post, Charles J. Glidden, Edward C. Boyce, Professor David Todd, Joseph Hoadley, Captain Homer W. Hedge, Joseph Leiter, A. N. Chanler, Major C. S. Miller, Leo Stevens, Dr. Julian P. Thomas, J. C. McCoy, and many others. In all, about 300 members, men of wealth and position, men scattered throughout the States as far west as Portland, Ore., have joined this club, which owns its own portable hydrogen gas generators, which is keeping accurate record of all flights made, and which at this writing is making preparations for the first balloon race, to be held at a suitable location.

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