

WATCHING AND FIGHTING FROM THE AIR USES OF THE BALLOONSHIP--SOME NEW FORMS OF AERIAL PROJECTILES

That energetic pioneer in things war-like Emperor William of Germany has directed that aeroplanes participate in the forthcoming army manoeuvres, to be held under the imperial eye near Altona. The performances of the aeroplanes at Altona will be watched by every military Power with keen interest and we shall thus obtain a fair idea of the present value of this type of aircraft as a scout and a bearer of messages. Only the other day much was made of the fact that the French aviator Aubrun during some aeroplane flights in the neighborhood of Cherbourg at heights varying from 400 to 1,200 feet was able to discern submarines running submerged at depths of from eighteen to thirty feet. Here it was thought a real discovery had been made and it was promptly predicted that the submarine could no longer approach its quarry undetected even if it did keep entirely under the water's surface. Mr. Aubrun's exploits, in fact, have given merely added value to the work of the Russians some years ago and brought its application down to latter day conditions of naval warfare.

In 1883 the Russian monitor *Rusalka* foundered in the Gulf of Finland during a heavy storm, carrying down all hands with her. The ship struck a ledge and then slid off into water thirty fathoms deep, leaving no trace of her whereabouts on the surface. She was known to have been in the general neighborhood of Helsingfors a short time before her disappearance. In June of 1894 the transport *Samoyede* was put at the disposal of Col. Nikolai d'Orloff of the Russian Aeronautic corps and that officer fitted her up as the mobile base from which to operate a captive balloon. On June 16 Col. d'Orloff arrived at Helsingfors with his unique outfit to search for the sunken *Rusalka*.

For three weeks the *Samoyede* went out at 6 o'clock in the morning on its submarine hunting expeditions, returning to port at the close of each long day. The mode of operation was as follows: After getting clear of the port and when approaching the area chosen for observation the balloon was sent aloft, ascending to heights ranging from 600 to nearly 1,500 feet. In the basket or car attached to the balloon were two observers, and these were relieved every three hours in order to lessen the strain upon their eyes. Contrary to preconceived belief, it was found that the unaided eye was better able to discern objects at the sea bottom than when field glasses were employed. Col. d'Orloff found that the *Samoyede*, depending upon the direction and force of the wind, could tow the balloon at speeds varying from 2.25 knots to nearly 7 knots an hour. Efforts to go faster only made the balloon rock violently and swing through considerable arcs like a kite without a tail.

Backward and forward over the waters adjacent to Helsingfors the *Samoyede* towed the captive balloon, and while Col. d'Orloff and his assistants were unable to locate the *Rusalka*, still the work was fruitful of significant results. It was found that with the balloon at a height of little over 1,300 feet it was not possible to see the bottom of the gulf at a great depth because of the impediment to vision offered by the color of the water and the nature of the bottom. With a favorable light, rocks and sandbanks were clearly defined at depths up to 23 feet. Large sandbanks could be seen more or less distinctly, according to the color of the water, at a depth of quite 40 feet, but at that depth it was not quite possible to distinguish the details of objects lying on the waterbed. The view from the balloon basket extended to a distance of about 4 miles, and when it was sent up at Helsingfors its pilots could see Revel on the other side of the Gulf of Finland and were able to discern and to hear guns fired near the latter place, which could not have been done at any similar distance on terra firma.

Col. d'Orloff learned that observations are more easily and successfully made from a balloon at sea than from one over the land, because the air currents over the water are more uniform. He also found that objects could be seen better against the surface of the water than with the land as a background. It was easy for him to distinguish the character of vessels sighted. With the balloon inflated but hauled down on deck and screened by a sail, the *Samoyede* was able to steam at a speed of eight knots with a head or side wind blowing at a

velocity of about sixteen knots an hour. Col. d'Orloff very properly concluded that captive balloons could be of great utility as an adjunct to a fleet, not only for guiding the defence and the attack but for investigating the hydrographic conditions of strange or imperfectly charted waters.

In consequence of Col. d'Orloff's pioneer work the Russians have led the world in the use of captive balloons at sea. During the Russo-Japanese war a balloon-ship was equipped for service in the Far East, but was not ready in time to be of service. This vessel was a converted merchantman, the *Russ*, and was supplied with five balloons which could be sent aloft from the afterdeck. These were properly called kite balloons, because they carried tails to which were attached four small parachutes which served as a drag and a steadying medium, making it possible to tow these balloons at a far greater speed than had been the



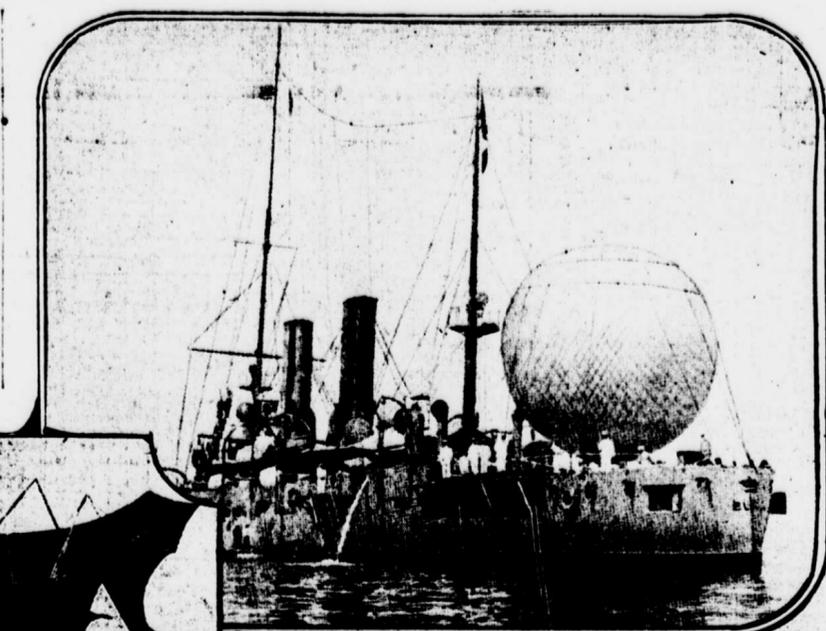
TESTING THE MAN-LIFTING CODY KITES.

case with the experiments carried on from the *Samoyede* in 1894. The *Russ* had a complete gas generating plant, pressure pumps, and fully 200 steel flasks for the storage of hydrogen gas. It was possible completely to fill a balloon ready for ascension inside of ten minutes.

Other nations have not been slow to appreciate the significance of Col. d'Orloff's investigations, but the United States has shown no disposition to profit by those lessons and the later work of other European Powers. In Italy the armored cruiser *Elba* was fitted up some years ago as a balloon ship and participated with marked success in the naval manoeuvres. She was able to observe the movements of the enemy with a precision and scope utterly impossible from the fighting tops of the rest of the fleet. Sweden has a balloon ship and uses the so-called kite balloons, and the authorities have found this method of observation of particular value in keeping watch over some of her outlying rocky islands.

France has tried the captive balloon attached to torpedo boats, but the French naval authorities were not satisfied with the results obtained and abandoned the work about seven years ago. In England, however, the naval authorities have worked along a rather novel line. Knowing the difficulties of handling a balloon, also its possible target to an enemy, they have used the *Cody* kites, which when towed by torpedo boats have given very promising results. These kites are capable of lifting a single observer, and have been raised successfully to heights of more than 3,000 feet.

During our recent naval manoeuvres our marksmen tried their skill in attacking kites with the quick firing gun of small calibre. It is reported that the



ITALIAN CRUISER ELBA, FITTED UP AS A BALLOONSHIP.



RUSSIAN TORPEDO BOAT DESTROYER TOWING KITE BALLOON.

kites were speedily demolished, but he thought that the conditions were not quite parallel with the circumstances under which the man carrying *Cody* kites could be used, and certainly in no sense akin to the conditions of attack in repelling other dirigible balloons or aeroplanes.

In England the War Office has undertaken the aeroplane branch of aeronautics, while the Admiralty is experimenting with dirigibles. The British technical journals do not believe in aeroplanes, neither did the Admiralty believe in submarines ten years ago, but we know how frankly that nation can reverse its judgment when its good thick veneer of conservatism is once penetrated. The British Naval Airship No. 1, now nearly finished, represents an outlay of something like \$250,000. This dirigible is really the outcome of the experimental *Nulli Secundus* and much other research work done since that aircraft was wrecked in

the latter part of 1907. Naval Airship No. 1 is 312 feet long and has a maximum diameter of nearly fifty feet.

In order to make it easier to drive through the air it is shaped like a fish, and for propulsion it carries two 120 horsepower motors. The framework of the craft is made of a special magnesium alloy of aluminum, called "duralumin," which is as strong as mild steel, but only weighs one-third as much as the latter metal. Inside of this metallic skeleton are eight separate hydrogen balloons, each in its own compartment, and over this framework is a specially treated covering of silk, the upper half of which is sprinkled with aluminum dust to reduce radiation, while the lower half is yellow, which blends easily with the tone of atmospheric haze.

No small part of the money spent in the work preliminary to the construction of Naval Airship No. 1 has been devoted to the testing of various forms of pro-

pellors. This has been and will be for some years to come one of the most vexing problems in aerial navigation, and applies with equal force to both the airship and the aeroplane. Apropos of this propeller puzzle, a few years ago *La Patrie*, one of the French airship fleet, broke loose from her moorings while inflated and was blown westward over the British Isles, vanishing finally somewhere in the Atlantic Ocean. While crossing England one of her propellers fell to the ground and soon became the prized possession of the British military authorities. This propeller was one of the vaunted French secrets, but despite the entente cordiale the British officials did not feel under obligation to return this treasure trove.

The military airship, or dirigible, is an accomplished fact in continental Europe, and even though the Germans are guarding their progress jealously still the well nigh daily trips of the Zeppelin balloon passenger service are pretty

good proof of what the Prussians are doing. A metallurgical discovery has undoubtedly done much toward making the British Naval Airship No. 1 what she promises to be, and in thus obtaining sufficient structural stiffness combined with lightness one of the most serious objections to the dirigible has been answered. Again, metallurgy has made it possible to develop driving engines upon a unit of horse-power weight which was not considered practicable a few years ago. Whether the airship will eventually be supplanted by the aeroplane is yet an open question; each has a valuable field of service and each has its peculiar inherent advantages and disadvantages. Hydrogen gas is necessary to obtain the required lifting power for the airship, and this is very inflammable. This makes the airship peculiarly vulnerable to the attack of explosive shells or even burning rockets. It has been suggested that aerial fireworks

for a plunging fire, and gravity will increase its velocity. This gun, including its mounting, weighs complete 450 pounds, and this gives us a hint of the lifting power of the British Naval Airship No. 1.

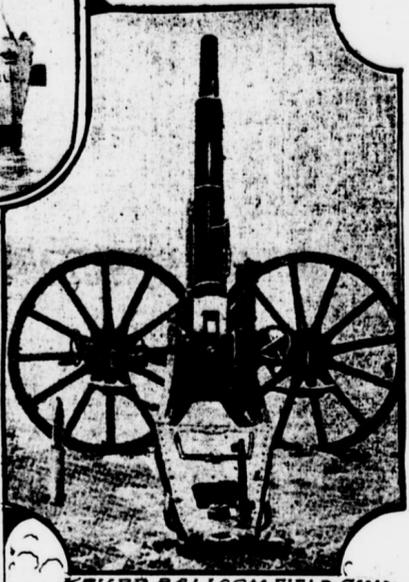
Early in the month of May of the present year submarine A1 of the British navy was submerged at the eastern entrance to Spithead, England, for the purpose of ascertaining the effect of lyddite shells fired against a craft of this sort from a surface torpedo unboat. The A1 lay below the surface from 8 to 10 feet, but the high explosive projectiles succeeded in causing the boat to leak and sink. The submarine was subsequently raised and docked at Portsmouth, but the English authorities have shown a disinclination to divulge the details of the damage done to the boat. However, it is plain that a submarine must lie more than 10 feet below the surface to be safe from the glancing attack of projectiles fired from on a shipboard, and we can readily gather how much more effective would be the fire dropping clearly perpendicularly from an aircraft carrying guns like those developed by Vickers Sons & Maxim.

The menace of aeronautical craft is fully recognized abroad and guns have been designed to meet these new-born enemies of the air. The Krupp balloon gun in its most recent development is generally recognized as the likeliest of these latter day weapons, and three different types have been developed by that well known firm. One is a field gun of 2.6 inch calibre, throwing a projectile weighing a trifle less than nine pounds. This gun can be elevated 70 degrees and has a vertical range of a little more than 3.5 miles. The next larger rifle is of 3 inch calibre, the shell weighing 12 pounds and the projectile elevated 70 degrees. At this angle the weapon has a vertical range of nearly four miles. This gun is mounted on a motor car capable of making about thirty miles an hour, and the vehicle carries a reserve supply of 162 rounds of ammunition. This rifle can be trained laterally to any point on the horizontal plane. The largest of the Krupp balloon guns, intended for installation on shipboard, has a calibre of 4.18 inches and fires a projectile weighing 40 pounds. This gun too can be elevated to 70 degrees and has a complete circumferential field of fire. Its maximum vertical range is seven miles. All of these balloon guns can of course throw their projectiles several thousand yards further horizontally than trained at a lesser elevation.

The projectiles for these weapons have called for a good deal of careful study and because of the peculiar service for which they are intended are quite unlike any other form of shell. The projectile fired from the balloon gun leaves a trail of smoke or flame behind it in order that the gunner may trace its flight and observe how close it comes to the flying target. The Krupp shell is very cunningly fashioned and has a fuse of such sensitiveness that it will explode upon contact with the silk bag of an airship or the cloth covering of the wings of an aeroplane.

Another German firm has devised a shell which is a combination of shrapnel and explosive projectile. The shrapnel part, which scatters a large number of small shot, is exploded by means of a time fuse which can be set to go off so many seconds after leaving the gun. At the head of the projectile, containing an explosive charge, continues on its flight and bursts only upon hitting the target. One of these compound projectiles was fired and burst into 158 splinters of various sizes besides scattering violently the 300 shot in the shrapnel flask, each weighing about one-third of an ounce. Apart from being likely to tear many holes in the gas bag of an airship or to rend into ribbons the surfaces of an aeroplane the odor from these projectiles is extremely nauseating and likely to sicken any one exposed to it. In addition this unique shell has cutting blades and hooks attached to it which are designed to produce still greater injury to the plane's structure. Experiments conducted abroad have shown that it is quite futile to attack balloons by means of infantry fire, and the German Government has directed that its soldiers shall not waste their ammunition upon air craft unless they are near enough for the infantry to have a good chance of hitting their pilots. Beyond this range the artillery will be relied upon for effective work.

The British authorities have recognized this and the well known firm of Vickers Sons & Maxim have already produced a special gun for the armament of dirigible airships. This weapon is a modified 6 pounder capable of throwing an explosive shell with an initial velocity of something over 1,100 feet a second. This is not a high velocity compared with the performances of a similar gun on shipboard, but we must not forget that the airship's shot is intended



KRUPP BALLOON FIELD GUN.

or bombs scattering masses of burning stars would probably be the best way to attack the dirigible. Certainly this would produce more damage than mere bullet punctures, because the ignition of one gas bag, followed by explosion of course, would be sufficient to destroy the entire aircraft.

Apart from reconnoitering an enemy's position the receiving and sending of information by wireless telegraphy, an accomplished fact, the detection of under water boats or submarines mines, the aircraft is expected to have powers of attack of its own. To this end demoralizing, attacking fighting ships, as they would, upon their practically unarmed parts; but the difficulty lies in hitting a vessel from a reasonably great height in order to give the aircraft some chance to make good. In the case of the aeronaut both his gun platform and his target were moving and every hundred feet of altitude would make the task harder.

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Two Runs of Luck at Poker

Spending Money for Tom Leigh of the Bowery--Player Who Couldn't Lose.

"If a man should go to Monte Carlo and play against the bank there on a system," said the gray haired, young looking man in the club smoking room, "it would be no proof of the correctness of his system if he should break the bank. Even if he should do the same thing three or four nights in succession it would not demonstrate the soundness of his figuring. What it would prove is that he had happened to hit it right three or four times in succession."

"Then you would hardly admit the possibility of an infallible system?" asked the man with the calabash pipe.

"I don't deny it," was the answer, "but actual play won't prove the infallibility. That would have to be demonstrated mathematically, and the greatest mathematicians have thus far failed to find any way of eliminating chance from such games as depend on the turn of a card or the rolling of a ball. I don't say it can't be done, but so far as I know it never has been done."

"There is one phase of the game of draw poker that comes naturally to the mind in discussing that question. I take it that nobody will deny that draw poker is a game of skill, with a large element of chance in it. That seems to be a conservative and satisfactory description."

"Now there is no poker player of any considerable experience who is not familiar with what are called runs of luck, good or bad. There will come from time to time occasions on which a player in the game cannot seem to win, no matter how expert he may be or how cautiously he may play. And, similarly, it may happen to the same player that on some other occasion he will win steadily through the whole of a sitting or for a long succession of deals, even though he may play recklessly, taking chance after chance that he would not think of taking if the luck were not running in his way."

"Probably no part of the game has

been more discussed than this has. Some writers and many players predicate a line of play that should be adopted in case a run of luck good or bad sets in and continues long enough to be clearly recognized, and other writers and players reason differently.

"One of the most astute players I ever knew ridicules the idea of a man backing his luck in the sense of playing more liberally when in luck than he would if he were losing steadily. He argues that the fact of a man having won nine out of ten consecutive pots is not a reason why he should expect to win the eleventh. His luck is going to change some time, and he should always play as if he expected it to change in the deal that is being played."

"This may be correct reasoning. In fact as a matter of theory it would be difficult to say anything against it, but practically I believe that most players hold the opposite view. There are too many well authenticated stories of such runs having continued for the average man to rid himself of the hope at least that his own luck will hold."

"As a matter of fact it does hold most surprisingly at times. I remember an amusing instance which Tom Leigh, the old time Bowery Theatre actor, used to tell with great glee.

"Tom was an inveterate poker player and also a practical joker. He went into the Occidental Hotel one day when that resort was a favorite among the sports of the East Side, and as he stood in the barroom he heard the rattle of poker chips in the next room. So he went in to see what was going on.

"There was a group of his friends in there playing a tolerably stiff game. He had only half a dollar in his pocket, but resolving on a joke he sat down at the table and called for a hand on the next deal."

"It was dealt to him, everybody supposing as a matter of course that he was about to buy chips, but instead of doing

that he left his cards lying face down on the table, and throwing his half dollar in the pot called for a show for his pile.

"There was a shower of protest, but it was good natured enough, and Leigh insisted that they could not bar him out, as they had given him cards and he had paid for a show. So rather than delay the game the others played along.

"It happened that there were some good hands out and all the other six players came in. After the draw there was considerable betting, in which of course Leigh had no interest, but he carefully separated \$3.50 from the rest of the pot and refusing to draw any waited for the showdown before looking at his hand.

"As it proved, he had a flush and took in the \$3.50. Then when some of the others proposed to leave him out he put up such a noisy, insistent argument that for the sake of peace they gave him another hand.

"This he played exactly as he had the first, betting all the money he had and not drawing or looking at his cards till the showdown, when, as he had the winning hand again and five of the other players had stayed against him, he had \$21 to play along with.

"Even this did not satisfy Leigh, and to the mingled amusement and chagrin of his friends he repeated his senseless play, again with extraordinary results. No one at the table thought he could possibly win again, and with one accord the whole six covered his money, but his luck held, and holding a ten full pat he raked in \$147.

"Then he refused to play longer, saying that he had only come in to get a little spending money.

"This story has been told many times and is well authenticated, but curious as the happening was it does not seem so remarkable to me as an experience of my own some years ago.

"I had been invited repeatedly by a friend of mine and by his wife to spend an evening at their home away uptown, and after considerable delay I called at their house at an hour when I was sure that dinner was over.

"I was met at the door by my friend's brother, who was known to me by reputation only as a man of sporting proclivities equal to those of my friend, and who knew me not even by name.

"He was very courteous, and when I

asked for Harry he said Harry was indisposed and had gone to bed. From his smile as he spoke I fancied I understood the nature of the ailment, so I smiled also and asked for Mrs. Harry.

"She," I was told, was with her husband, but would be downstairs presently, and being invited in I entered. The brother was hospitable indeed and asking my name proceeded to introduce me to half a dozen ladies in the front parlor.

"When I looked around in surprise, seeing no gentlemen in the party, the brother said: 'We men are having a little game in the back parlor. Do you care to join us?' And not caring to play the lone fisherman, I assented.

"All that is unimportant excepting for the fact that it explains the situation I found myself in. I was a perfect stranger to everybody in the room and was not even expected to call that particular evening. And I was sitting in at a social game of poker. It had possibilities that I did not think of till afterward.

"I took the seventh seat at the table and a stack of chips was pushed toward me by the banker. I did not even know my pocketbook to pay the price, when the banker said with a smile, 'Never mind that now. We settle at the end of the game.' So I began playing without even knowing what the limit was.

"Of course I learned that very quickly. It was the all jack game they play so much in Harlem, and the limit was \$2, not big enough to frighten me, for I happened to have a considerable sum in my pocket. And I was soon interested enough to find considerable enjoyment and to forget for the time that Mrs. Harry did not appear. In fact I did not see either her or Harry at all that night.

"For half an hour or so there was nothing particularly notable about the game. No great winnings or losses were made, and the luck ran rather evenly, all around the table. It was a pleasant though not an exciting game.

"Then I began to win. At first it was nothing remarkable, though I certainly took the pots much more frequently than anybody else, but after perhaps twenty minutes more I had won enough to make every additional winning a fair subject for comment.

"And there was enough comment, all of it good natured, to attract the attention of the ladies in the front room. Presently they came out and looked on while we played along.

"I made no effort to press my luck, and played in fact rather an open game. Certainly I had no desire to make any very heavy winning under the circumstances, but as certainly I preferred winning to losing, and I was enjoying myself hugely till something--I can't say whether it was a curious look or a chance word--suddenly reminded me that I was a total stranger, as I said, and that I might very possibly be taken for a card sharp.

"Naturally when I got that notion in my head things happened that seemed to confirm it. Even the comments of the ladies, who watched my hands even more closely than I did, were evidence to me that I was suspected, and when one of them said it was too bad Mrs. Harry could not come down and see me I grew extremely nervous. Still, my remarkably luck continued. I think I won nearly half the pots.

"Then I did what I never did before or since. I played with the deliberate purpose of losing. I was something like \$50 ahead of the game and I felt that I could not endure the thought of keeping the money. So I played to lose, and my utter amazement I found it difficult to do so.

"Hand after hand I threw down when I was morally certain that I could have taken the pot and bet after bet I put up when I felt sure I was beaten. But even at that I could not get rid of my money as fast as I had won it. I don't know what the ladies thought of my style of play, but the players were puzzled, and by not calling me a good many times when I bet wildly they lost a heap of money.

"But the luck held right up to the hour of quitting, and in spite of my honest effort to get rid of my velvet I was almost \$50 ahead of the game, and to my great distress I had not got rid of the notion that I was regarded with suspicion, though not a hint of anything of the sort was dropped.

"As we were getting into our topcoats in the hall when we all started for home one of the players whispered to me gleefully: 'I was almighty glad you won that money.'

"Then I began to wonder if I had lost my wits and I whispered back: 'I'm surely glad you're glad, but I wasn't able to win it.'

"No," he said, 'I saw you weren't, but didn't you notice the fellow across the table from you that lost so heavily?'

"Yes," I said, 'I noticed that, but what had that to do with it?'

"Why," he replied, 'that's the man we've been trying to catch all winter. I wish you'd got more out of him.'

"So I was comforted for having made the only winning at poker that I ever regretted making. But I have never ceased to regret that the most extraordinary run of luck I ever had should have come so inopportunistically."

FLOWERS OF THE SAINTS.

Names Given by the Old Monks, Some of Which Still Survive.

"A beautiful name in medieval days for the forget-me-nots was the *Eyes of Christ*," says a writer in the *Rosary Magazine*. "As we should expect, many plants were named after Our Lady, as 'Our Lady's bedstraw,' 'Our Lady's slipper,' 'Our Lady's seal' for the black briony, 'Our Lady's tresses' for the pretty little orchid known by that name.

"Our Lady's mantle" and 'Our Lady's smock' still survive, but the common peony used to be known as 'the rose of St. Mary,' the polypody fern also as 'Our Lady's seal,' the humble little daisy as 'the flower of St. Mary' and the milk thistle was formerly called 'Our Lady's thistle,' its Latin name, now *carduus marianus*, being then *carduus Marie*."

"There is in Spain a beautiful tradition that the yew and the fir tree became evergreen because they gave shelter to Our Lady. It is not easy to see why certain flowers were associated more with one saint than another; for instance, why should the wintercress be called the herb of St. Barbara, the yellow toothfall the herb of St. Catherine, the wood anemone the herb of St. Margaret, the cowslip the herb of St. Paul, the common valerian the herb of St. Clare, hemp agrimony the herb of St. Cunigunde, the baneberry the herb of St. Christopher and the common avena herb of St. Bonnet?"

"Sometimes the names are obvious enough. For instance the great carline thistle was dedicated to and named after Charlemagne, because when the plague was raging among his soldiers, tradition says, an angel showed this thistle to him and told him that it was a sovereign remedy for that disease. Charlemagne tried it and cured his men with it, and ever after it has borne his name and in the Middle Ages was considered an antidote to the black death.

"The tall, umbelliferous plant with the beautiful Latin name of *Angelica archangelica*, whose aromatic stems when called make a favorite sweetmeat, was named in the Middle Ages 'the root of the Holy Spirit' and also 'the angelic herb' because it possesses so many medicinal qualities. The common adder's tongue fern from the spearlike shape of its seed bearing spike was named 'the lance of Christ,' a much prettier name

than its botanical one of *ophioglossum vulgatum*.

"A few of our wildflowers still retain their old names after some saint. All the St. John's words, of which there are about fourteen different species in England, were dedicated to St. John the Baptist. The perforated St. John's wort was believed to expel demons, and was planted in the garden of the sick, and sometimes known as the flight of demons.

"The shady saxifrage, always called St. Patrick's cabbage in medieval times, is still sometimes known by that name, but it is now more frequently called London pride in England. There is an Irish species of ling or heather still known by its old name of St. Daboc's heath.

"The common blue cornflower, formerly dedicated to St. Robert or Rupert, is still called after him, herb Robert. The common thistle was dedicated to St. Anthony, the beautiful blue cornflower to St. Zacharias, the common ragwort to St. James, whose name it still bears (*Senecio Jacobus*), the common goutweed to St. Gerard and the tobacco plant to the Holy Cross. The pretty little Star of Bethlehem will, we hope, never lose its name.

"The monks attached importance to the symbolical meanings of plants. For instance, the olive signified mercy, of course because the dove Noah sent from the ark returned with an olive branch in its mouth; the plum signified angel because of its direction, the big feet, perhaps because our Lord cursed the barren figtree; the laurel crowned the date heightitude, the citron chastity, the bay tree immortality because of its durability, the cypress the secret of God, the juniper asperity, the box and also the spindle tree generosity, the pine fertility because it bears its fruit in cold northern climates, the yew tree its fragility.

"They had a bad opinion of the oak, which typified viciousness and licentiousness, the symbolical meanings of plants. For instance, the olive signified mercy, of course because the dove Noah sent from the ark returned with an olive branch in its mouth; the plum signified angel because of its direction, the big feet, perhaps because our Lord cursed the barren figtree; the laurel crowned the date heightitude, the citron chastity, the bay tree immortality because of its durability, the cypress the secret of God, the juniper asperity, the box and also the spindle tree generosity, the pine fertility because it bears its fruit in cold northern climates, the yew tree its fragility.

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"The High and Low Louis.