POISONING PLANTS.

Professor McMurtrie on the Use of Poisons by Farmers.

Interesting Experiments with Cereals Commonly Used as Food.

THE POTATO BEETLE.

How Much Paris Green May be Used Without Injury.

Timely Warnings and Suggestions.

WASHINGTON, June 19, 1875.

TO THE EDITOR OF THE HERALD:—

The constant increase of insects noxious or injurious to vegetation and the methods employed in practical agriculture and horticulture for their destruction have elicited considerable discussion throughout the country, and though it will not be possible within the present limit to discuss all the methods employed, yet it is possible that a few points concerning the use of arsenical compounds for this purpose may not be devoid of interest to those concerned in the removal of these pests, which have been so troublesome in some sections during the past few years. In the use of Paris green (a mixture of arsenite and acetate of copper), one of the compounds most extensively employed, many sad accidents have occurred which have proved fatal to human and animal life, and from these facts arose the question of the possibility of the absorption and assimilation of arsenic by plants and through such a medium its communication to the animal system. From the fact of the very extensive use of the arsenical compounds arose the question of the possibility of the accumulation of sufficient arsenic in the soil to become, after a series of applications extending through a number of years, deleterious or injurious to subsequent crops. During the past year I, therefore, instituted an investigation with a view to the

SOLUTION OF THE FOLLOWING QUESTIONS.

First—Can arsenic, when applied to the soil in combination with the metallic oxides or the alkalies, be absorbed and assimilated in the economy of plant growth?

Second—If thus absorbed and assimilated, can a sufficient quantity be taken up to become injurious to the health of consumers?

Third—If not absorbed by the plant, can its presence in the soil exert an injurious influence upon the plant itself?

Fourth—If such an influence be exerted, what quantity may exist in the soil before any injury takes place?

In the study of these questions we find the evidence bearing upon it and depending upon the results of the experiments of previous investigators decidedly conflicting. Mulder states ("Chemistry of Animal and Vegetable Physiology," English translation, 1849, p. 629) that plants may be poisoned by many principles which are poisonous to the animal organism, but holds that they do not attack what is called the vital principle, but affect only the organic principles, changing the conditions under which they exist, thus preventing free transmission of liquids from the roots, and in support of this idea cites the coagulation of the albumen of the plant by metallic oxides such as those of lead, copper, &c. He does not, however, state what may be the influence of the oxides of arsenic, whose action upon albumen is neutral.

ACCORDING TO MARCET

("Lindley's Theory and Practice of Horticulture," London: 1855, p. 8), "When plants are exposed to the action of such poisons as destroy animal life, they will not only perish under the influence, but in a manner analogous to what occurs among animals." "If animals," he says, "be dosed with arsenic or corrosive sublimate they perish by inflammation or corrosion; plants die in a similar way, no art sufficing for their recovery." The results of the investigations of Professor E. W. Davy (Phil. Mag., vol. xviii., p. 108) lead to a different conclusion. Being aware of the fact that nearly all of the sulphuric acid employed in Dublin in the manufacture of superphosphates was made from pyrites, which almost invariably contained arsenic, he considered it of some importance to determine whether the arsenic which thus passed into the superphosphates, and must, therefore, be communicated to the soil in the most favorable condition for assimilation by plants, could enter into the vegetable organism. As a preliminary experiment, he tells us he watered peas, which had been transplanted into a pot containing rich garden soil, with a concentrated aqueous solution of arsenious acid. This treatment was repeated every second or third day for more than a week and then discontinued. At the end of some months, the plants having grown to full size, flowered and fruited, it was found, by application of both Marsh's and Reinsch's tests, that the arsenic had permeated every part of the plants. Being thus satisfied that plants were capable of taking up arsenic during their development, he made some experiments with the use of phosphates containing arsenic. The sulphuric acid employed in their manufacture contained about 2.8 pounds arsenic per ton, and the proportions employed were one ton of acid per two tons of bone. The amount of arsenic in the superphosphate was, therefore, relatively very small.

In his next experiment he grew a small cabbage plant in a soil containing the superphosphate in question, and in three weeks he examined so small a quantity of the plant as 110 grains for arsenic, and obtained the "most distinct indications of that substance." He further examined Swedish turnips which had grown upon soil to which superphosphate had been applied, and obtained similar results.

Mr. E. H. Ogston doubted that a saturated solution of arsenious acid could be applied to plants without injury to them, and repeated the experiments of Davy, obtaining results of a totally different character from those of his predecessor. In the description of his experiments (*Gardeners' Chronicle*, 1856, 216) he states that when the solutions of arsenious acid were sufficiently diluted to prevent injury to the plants no arsenic could be detected in any portion above ground.

Like results were obtained by Daubeny (Jour. Chem. Soc., xiv, 225) by similar experiments upon young barley and turnips to which solutions of arsenious acid had been applied.

MY OWN INVESTIGATIONS

have given results which corroborate those obtained by Ogston and Daubeny. My first experiments bearing upon this subject were begun in August of 1874, the main object being to determine the possibility of the substitution of substances belonging to the same chemical classification in the economy of plant growth. For this purpose I prepared soils with clean washed sand, containing sulphate of potassa, sulphate of ammonia, gypsum and other materials necessary to the support of plants, and in each of the boxes respectively phosphates and arseniates of calcium, magnesium, barium and strontium. Peas were then sown in each of the boxes and allowed to germinate. Without discussing the possibilities of substitution here, it is sufficient to say that while the peas in the boxes containing the phosphates germinated and grew very nicely, those in the boxes containing the arseniates nearly all failed to germinate, and those which sprung up were very weak and sickly and failed in any case to reach complete development. Other seeds were sown in the same boxes; but, while some of them germinated, the plants failed to develop fully and remained small and weak during the entire period of growth of the plants in the other boxes. It was found necessary to collect the plants before they reached complete maturity, and it was therefore considered that the experiment was somewhat unsatisfactory on account of the possibility of the plant taking up arsenic during the period of ripening. The plants thus collected were, however, carefully washed, to remove any of the arsenical compounds which might be mechanically attached and carefully tested for arsenic. We failed in every case to detect the slightest trace. When the plants were taken up it was found that the tap roots were entirely destroyed, and that sufficient small fibrous lateral roots had been thrown out to form a thickly matted mass. The end of the tap root, or what remained of it, was covered with a thick, fleshy knob, not very large, but apparently an extension of the bark of the root.

EXPERIMENTS WITH PARIS GREEN.

About the same time we sprinkled Paris green upon some plants of "cow pea" (a Southern leguminous plant), which were at the time growing in the department grounds. The first application was too heavy and the plants were entirely killed. A second application was made and this time the leaves and terminal buds were killed, but in a short time lateral buds made their appearance, leaves developed and the plants continued to grow very thriftily. The frost threatened the destruction of the plants, and these were also collected previous to maturity. The poisonous compound, although thoroughly washed into the ground by subsequent rains, did not seem to have affected the plant in its growth, and careful examination of the plants themselves failed to reveal the slightest trace of arsenic.

From the experiments described we would infer that arsenic is not taken up by plants, and that arsenical compounds, when present in the soil, exert an injurious influence upon vegetation. In order to test this thoroughly, allow an opportunity for the plants to mature and determine the quantity that may exist in the soil without having a notably injurious influence, I instituted the following experiment:—

A NUMBER OF COMMON FLOWER POTS

(what are called seven-inch pots) of the same size were selected and nearly filled with a measured quantity of soil. With the soil of each pot was thoroughly intermixed a given quantity of Paris green. The first pot of the series contained 100 milligrammes of the poison, the second 200, the third 300. The quantity in each pot respectively was thus greater by 100 milligrammes than that in the pot immediately preceding it. When the quantity reached one gramme the increase was more rapid and the succeeding pots contained respectively two, three, four and five grammes of the poisonous compound. When the series was complete, peas which had been so selected as to secure those of as nearly as possible the same size and appearance were planted in each of the pots. This experiment proved unsatisfactory on account of the fact that on one night that portion of the greenhouse in which the pots were placed became too cold and some of the seeds failed to germinate. They were not disturbed, however, further than to remove them to a warmer portion of the greenhouse and another series of pots were prepared in a manner similar to that already described. At this time it was considered of some value to determine the influence of arsenite of potassa and arseniate of potassa in the same way, and two other series of pots, containing these two compounds respectively, were prepared and placed alongside the others. The growth of the plants in these series was very satisfactory, though not by any means similar in all cases. Beyond certain limits the plants were affected in proportion to the increased quantity of poison in the pots. Thus, in case of Paris green, no decided action seemed to take place until the amount present was 500 milligrammes, and in the other pots of this series the plants became smaller according to the increased quantity of the poison in the pots. In these three series I employed six-inch pots, and the quantity of soil in each was 91.6 cubic inches. The seeds germinated and grew until the quantity of the arsenical compound present amounted to two grams in this quantity of soil, when the seeds decayed in the ground. With the arsenite and arseniate of potassa the effect was very similar. The influence of these compounds seems, however, to be more active, and in case of arsenite the effect is quite marked when the soil contained 300 milligrammes.

The arseniate seems, however, to affect the plant when present in very small quantity, as was shown by comparison with a plant grown in a pot containing perfectly normal soil, which, by the way, was a standard of comparison for the other series also. For practical purposes, however, the effect being so slight need not be taken into account until the quantity producing it amounts to 200 or 300 milligrammes. Calculating upon this basis we find that the limit of the quantity of Paris green that may exist in the soil without injury to vegetation is about 145.5 grains per cubic foot, which is equivalent to about 906 pounds per acre, calculating for a depth of one foot. In the same way we find that the limit for arsenite of potassa is about 560 pounds per acre, and though the effect of arseniate of potassa may be noticed when only a small quantity is present in the soil, I am, nevertheless, of the opinion that this compound may be applied at the rate of 150 to 200 pounds per acre without any great injury to crops. For practical purposes, however, it will never be found necessary to apply so large an amount.

THESE RESULTS HAVE BEEN CONFIRMED

by those of Professor Freytag, ("Jahrbuch für Berg und Hüttenwesen," 1873), in his investigations upon the influence of the sulphurous and metallic fumes of the Freiberg metallurgical works upon surrounding vegetation. Among other things he determined by experiment that plants were killed when placed in solutions containing 1-30 per cent. of arsenious acid, and M. E. Heckel, ("Comptes Rendus," t. lxxx, 1,112), states that 25 milligrammes of arsenious acid, or the soluble arseniates in 90 grammes of water destroy the embryos and prevent the germination of the seeds. Professor Freytag further states that arsenious acid and the oxides of zinc and lead cannot be injurious to the roots of vegetation on account of their forming insoluble compounds with the usual constituents of the soil. I cannot, however, agree with him in this, from the fact that in the first of my experiments such difficulty soluble compounds as the arseniates of barium, strontium and magnesium were sufficiently active to prevent germination. Again, in reports upon the composition of certain mineral waters in Germany we find statements of the presence of such insoluble compounds as arsenite of iron in solution, and until we are fully satisfied as to the character and power of the natural solvents in the soil it will be impossible to say what substances will be without action upon vegetation on account of their insolubility.

A PRACTICAL REVIEW OF THE MATTER.

These facts also argue against the possibility of any considerable accumulation of arsenic in the soil by successive applications of Paris green in the quantities usually recommended for the destruction of the Colorado potato beetle. Where rotation of crops is observed, and application of the poison cannot, therefore, take place more than once in three or four years, it is probable that, each application being acted upon by the natural solvents of the soil, will be removed by drainage before another is made. And even where annual applications are made so much time must elapse before the limit could be attained that no injury need be feared from this cause. In order to determine whether any of the plants in the four series experimented upon had absorbed and assimilated any arsenic during the period of growth, the plants, after reaching complete maturity, were collected and carefully washed to remove any arsenic adhering to them mechanically, and tested by careful application of Marsh's test as described by Wormley. ("Micro-Chemistry of Poisons," page 278.) By this means I failed in any case to detect arsenic in the plants. I also examined in the same way potatoes from crops to which heavy applications of Paris green had been made and obtained similar negative results. With these facts before us and without considering what may be the result of a series of experiments continued through a series of years, we must conclude that plants have no power to absorb and assimilate compounds of arsenic, and that though the latter may, by its presence in the soil, exert an injurious influence upon vegetation, yet they are practically without effect until the quantity present reaches—

For Paris green about 900 pounds per acre.

For arsenite of potassa about 400 pounds per acre.

For arseniate of potassa about 150 pounds per acre.

The fears of many of our agriculturists need, therefore, be no longer entertained; yet, though they will suffer no injury from poisoning by arsenic in chemical combination with vegetable products, great care should be exercised in the matter of removing any particles adhering mechanically to them.

We must also offer the warning, which cannot be too frequently repeated, that every one using such compounds should be particularly careful about storing them, since nearly all the accidents that have occurred from poisoning by Paris green and other things of like character have resulted from carelessness in this particular. A more complete description of my experiments, with illustrations, will be published in the coming "Monthly Report of Department of Agriculture." Very respectfully, WILLIAM McMURTRIE.

THE HAYDEN SURVEY.

STILL ON THE CONFINES OF CIVILIZATION—THE MEDICINAL SPRINGS OF MANITOU—ASCENT OF PIKE'S PEAK—A VISIT TO THE GARDEN OF THE GODS.

CANYON CITY, June 12, 1875.

One morning previous to arriving at Colorado Springs we arose at five o'clock and found the wind blowing a hurricane. We were encamped on the divide between Cherry Creek and Plum Creek, at an elevation of some 7,500 feet, and as we sat down to breakfast each man was obliged to grasp his tin plate in one hand to prevail upon it to remain at the table, and with the other be ready to rescue any stray culinary article as it arose in the air. This was, in reality, eating a meal under great difficulties. The ordeal of breakfasting being passed through safely, however, gave place to one of still greater difficulty. To pack in such a wind was almost an impossibility. As we took our tents down the wind caught up every loose object which was exposed to its mercy, and hats, towels, papers and blankets danced across the country indiscriminately. To saddle the mules it required two men—one to hold the blanket while the other adjusted the saddle.

Our route lay to the south, across the plateau, and, getting an unusually early start, we travelled steadily until late in the afternoon. Three miles an hour is the average rate of a loaded mule train and twenty miles a day a fair average distance, but, everything being favorable, we accomplished a journey of twenty-seven miles, making our camp in the vicinity of a sawmill. Meeting a man who lived in the neighborhood we asked him the distance to this mill, and were informed that it was just two miles. After travelling on for nearly an hour we stopped at a log hut which we passed, and, inquiring of a woman the distance, were informed it was just four miles. This intelligence was truly disheartening, for we were all weary and hungry, and the sun beat down and was reflected up from the hot sand until we could scarcely see to guide our animals. Four miles, however, was not far, and we beguiled the time by picturing to our hungry stomachs the savory viands which would soon be steaming on our supper table, and as we rode hopefully forward another Coloradoan crossed our path. To our casual inquiry regarding our destination the man told us it was scarcely six miles, after which he barely escaped with his life. Here we were steadily approaching a designated point at the rate of three miles an hour, and as we advanced the distance increased in an arithmetical progression. But disappointments cannot continue forever, and late in the afternoon we erected our tents by the side of the mill. We were still in the confines of civilization, although the latter was gradually thinning out. In going to bed we witnessed a very strange phenomenon. The sides of the tent were charged with electricity, and in accidentally striking the canvas with the knuckles a severe shock was communicated to the system. This was repeated several times, and at each repetition an electric spark and accompanying snap were obtained.

PIKE'S PEAK.

Pike's Peak rose grandly in the distance to our right, and for three days, as we approached it, we could distinguish no perceptible diminution in its distance from us, although it never seemed more than a mile away. On the 10th day of June we passed through the town of Colorado Springs, and were surprised to discover that there were no springs in its near vicinity, as its name had led us to suppose. Five miles from here, however, at the foot of Pike's Peak, is situated the village of Manitou, at which place numerous medicinal springs bubble up from the rocks. These contain in solution soda and iron, with smaller quantities of other minerals, and are rapidly becoming popular and fashionable resorts. The town of Colorado Springs is situated on the Denver and Rio Grande Railroad, seventy-six miles south of Denver and forty-two north of Pueblo. The first stake was driven about July, 1871, on the site of the springs, and since that time a beautiful and rapidly increasing town has sprung up, whose population to-day is in the neighborhood of 3,500. Pike's Peak, one of the grandest mountains of the range, is estimated at 14,216 feet above sea level, and on its very summit there is a United States signal station and observatory, which was established in the first part of November, 1873. Here is a stone building, which is occupied during the whole year, being the highest habitation on the continent. A trail runs from the bottom to the summit of the peak, and tourists can make the entire ascent on horseback. At the foot of the peak lies Monument Park, which abounds in gigantic monuments, towers and statue-like formations of white sandstone. Near this Park is the Garden of the Gods, which abounds in immense rocks of red sandstone. The so-called gateway is formed of lofty walls of this rock, through which the road passes into the Garden.

Leaving Colorado Spring, our road took us through and over the "hog-backs," which form the foot-hills at the base of the range. The way lay through a canyon in the red sandstone, which, on either side, assumed fantastic shapes and constantly surprised us by their resemblance to animate objects. In gazing up the sides of the ravine, which rose for hundreds of feet, one could scarcely realize that he was standing at an elevation of over 6,000 feet, but rather that it was a low, depressed valley through which he was passing. As we penetrated farther and farther into the heart of the hills the way became narrower and more intricate. In some places the road coursed the dry bed of a mountain torrent, and the perpendicular rocks rose scarcely eight feet apart. Strange animals and new plants (to us) greeted us on every side. The horned toad and prairie lizzard glided across our path. The large crimson flowers of the globe cactus bloomed among the rocks, and at every step unknown trees and plants came into view. It was a wild, picturesque country, made barren in many places by the sediment and sand formed by the wearing away of the rocks, and for miles the red dust lay six inches deep in the trail.

BEAVER CREEK.

We camped on Beaver Creek, a northern tributary of the Arkansas. While rambling among the rocks one of the party picked up a fragment of Indian pottery, which bore the appearance of great age. It was about four by three inches in dimensions, made, of coarse, sandy clay, red on the outside and burnt black inside. There is reason to suppose that, had we had time to make a more thorough search farther up among the crevices, we might have made some interesting discoveries; but from this single piece we could determine nothing satisfactorily.

A CHARMING SPOT FOR A TOWN.

On leaving Beaver Creek our road led us due west for nearly eighteen miles. It took us through a beautiful, level park, which extended for about eight miles, being two miles in width, and this struck us as being a charming spot for a town, were it not for the great scarcity of water which prevails through this section. The end of the eighteen miles brought us to Canyon City, the terminus of the Denver and Rio Grande Railroad, and situated on the north bank and at the mouth of the grand canyon of the Arkansas. This canyon presents some of the finest natural scenery in this part of the Territory. The town has a population of nearly a thousand, and contains the noted iron, soda and warm springs which by analysis have been said to be the best in the country. The warm springs reach a temperature of from 98 degrees to 102 degrees in the reservoirs. Selecting a pleasant spot across the river, the party encamped there for the night and in the morning received farther supplies to last us until we should arrive at one of the survey's supply camps, on the Mancos River.

YACHTING.

THE SECOND CAPE MAY REGATTA—PROGRAMME FOR THE RACES.

It is announced that the second annual regatta at Cape May will take place on Monday and Tuesday, July 12 and 13. The committee having the arrangements in charge consists of John C. Bullitt, General W. J. Sewell, Albert W. Markley, Edward A. Warne, L. P. Ashmead, Dexter S. Stone and General E. Burd Grubb. The Regatta Committee invite entries of all yachts belonging to any organized yacht club, and to yachts that may enter the committee offer for competition the following prizes:—

FIRST DAY.

Start ten o'clock A. M., Monday, July, 12, 1875. Time allowance race. Allowance of time for difference in size of yachts will be based upon the measurement of mean length and the greatest breadth. Entrance free. One prize for each class—For schooners, a silver prize, value $1,000; for sloops, a silver prize, value, $1,000.

SECOND DAY.

Start ten o'clock A. M., Tuesday, July 13, 1875. Sweepstakes race. To be sailed without time allowance. Entrance fee, $25. Two prizes for each class—For schooners, a silver prize, value $500; for sloops, a silver prize, value $500. The second boat in, of each class, to take the entrance money of that class.

COURSES.

MONDAY—FIRST DAY—TIME ALLOWANCE.—From a stakeboat fronting the hotels, off the eastern end of Eph Shoal, to the lightship on Five Fathom Bank, leaving it on the port hand; thence to and around a stakeboat, distant about three miles northeast, leaving it on the port hand; thence to the home stakeboat, passing between it and the shore. Distance, forty miles.

TUESDAY—SECOND DAY—SWEEPSTAKES.—From a stakeboat off Eph Shoal, to and around a stakeboat placed to windward (or leeward), leaving it on port hand and return to home stakeboat, passing between it and the shore. Distance to be fixed by the committee on the day of the race.

DIRECTIONS.

A flagboat will be anchored off the shore fronting the hotels. The yachts will make a flying start, passing between the flagboat and committee's steamer, and the time of each yacht will be taken as she passes. The signal for preparing to start will be one gun from the committee's steamer, and ten minutes after the first signal a second gun will be fired from the same steamer, as the signal for starting. Yachts must cross the line within fifteen minutes after the second gun. A competent person will be placed by the Regatta Committee on board of each stationary vessel to make observations. Any violation of the regulations shall be reported to the judges immediately after the regatta, and, if required by the judges, reduced to writing. Any alterations made in the directions will be announced on the morning of the regatta. A pier has been built in front of Congress Hall by Colonel Cake, at which small boats from the yachts can safely land in any ordinary weather. The committee reserve to themselves the right to rule out any yachts disobeying the rules for the regatta.

On account of the greater convenience in measuring, allowance of time will be made according to the "length and breadth system." All yacuts intending to enter for the time allowance race should be measured according to the rules governing the race before proceeding to Cape May, and to bring their certificates with them. Yacht owners are requested to send in their entries as early as possible to L. P. Ashmead, 1,520 Chestnut street, Philadelphia. After July 9, any communication or information desired should be addressed to Cape May, N. J.

SAILING REGULATIONS.

Yachts are required to carry their club flags and private signals during the race. None but foresail sails allowed, and nothing but hand-lead and line may be used in sounding. All yacuts, during a regatta, to keep their floors down and bulkheads standing. Trimming by dead weight shall be allowed up to time of starting, but not during the race; no ballast or water shall, however, be permitted to be taken or discharged within twenty-four hours of the time named for the regatta. A yacht touching any boat, buoy or flag used to mark out the course shall forfeit all claim to the prize, except as specified below. Anchoring will be allowed during the race, but no means allowed to propel a yacht, except sails.

Yachts on the port tack must invariably give way to those on the starboard tack, and in all cases where a doubt of the possibility of the yacht on the port tack weathering the one on the starboard tack shall exist the yacht on the port tack shall give way. If the other yacht keep her course and run into her the owner of the yacht on the port tack shall be compelled to pay all damages and forfeit all claim to the prize.

Any yacht bearing away or altering her course to leeward, and thereby compelling another yacht to bear away to avoid collision, shall forfeit all claim to the prize, except when two yachts are approaching a windward shore, buoy or stakeboat together, with a free wind and so close to each other that the weathermost cannot bear away clear of the leewardmost, and by standing on further would be in danger of running ashore or touching said buoy or stakeboat, such leewardmost yacht, on being requested to bear away, is immediately to comply, and will forfeit all claim to the prize by not so doing. The weathermost yacht must, however, in this case bear away at the same time as the one she hails, if she can do so without coming in contact.

When two yachts by the wind are approaching shore, a buoy or stakeboat together, and so close that the leewardmost cannot tack clear of the windwardmost, and by standing on further would be in danger of running ashore or touching said buoy or stakeboat, such weathermost yacht, on being requested to put about, is immediately to comply, and will forfeit all claim to the prize by not so doing. The leewardmost yacht must in this case, however, tack at the same moment as the one she hails, if she can do so without coming in contact.

When rounding a mark, boat or buoy the yacht nearest thereto shall be considered the headmost boat; and should any other yacht that is in the regatta or race compel a yacht nearer any mark, boat or buoy to touch the said mark, boat or buoy the yacht so compelling her shall forfeit all claim to the prize, and her owner shall pay for all damage that may occur thereby. The yacht so compelled to touch a mark, boat or buoy, shall not suffer any penalty therefor. Yachts going free must invariably give way to those by the wind on either tack. All yachts must carry at least one service boat.

The tables for time allowances adopted by the committee for the Cape May Regatta, July 12 and 13, based upon measurement of mean length and greatest breadth of the yachts, will be printed and distributed the day previous to the regatta.

THE CENTRAL HUDSON YACHT CLUB REGATTA.

The summer regatta of the Central Hudson Yacht Club, headquarters at New Hamburg, N. Y., will take place on Thursday, July 1. There have already been fourteen entries for this regatta, and others are expected. The Newburg Bay yachtsmen will hold their summer regatta on August 4. It will be open, without entrance fee, to all vessels not exceeding thirty-five feet in length on the water line. The yachts entered will be divided into two classes, the first class including all vessels over twenty-five feet in length, and the second smaller craft. The time allowance given the smaller yachts will be at the rate of one minute and a half for each foot of difference in length.

Two valuable prizes, yet to be announced, will be awarded to the victors in each class on the basis of time allowance, and as additional prizes, a set of colors to the first yacht in each class, without respect to that allowance. No restriction as to sails or crew will be made. So far as the same are applicable, the regulations of the New York Yacht Club will be followed in this regatta. Entries must be made at the office of Commodore Thomas P. Ramsdell, Newburg, on or before August 2. Captains of yachts entering must report to the committee at the United States Hotel, Newburg, before ten o'clock on the morning of the race.

YACHTING NOTES.

The Cape May Regatta, on the 12th and 13th of July, promises to be one of the most interesting aquatic events of the season. The N.Y.Y.C. have accepted the invitation of the Cape May Regatta Committee, and will sail down in squadron, leaving the Horseshoe on the afternoon of Saturday, July 10. As there is to be two days' racing, with handsome prizes for schooners and sloops, open to yachts belonging to recognized yacht clubs, a large fleet will probably compete. The N.Y.Y.C. will probably be represented by the schooner Alarm, Commodore Kingsland, N.Y.Y.C.; schooner Mohawk, Vice Commodore Garner, N.Y.Y.C.; schooner Restless, Rear Commodore Kane, N.Y.Y.C.; schooner Palmer, Mr. Rutherfurd Stuyvesant, N.Y.Y.C.; schooner Madeleine, Commodore Dickerson, B.Y.C.; schooner Triton, Commodore Thayer, A.Y.C.; schooner Idler, Mr. S. J. Colgate, N.Y.Y.C.; schooner Ariel, Commodore Swan, S.Y.C.; schooner Comet, Mr. W. H. Langley, N.Y. and B.Y.C.; schooner Peerless, ex-Commodore Maxwell, A.Y.C.; schooner Eva, General E. Burd Grubb, N.Y.Y.C.; sloop Vision, Mr. Alexandre, N.Y.Y.C; sloop Addie Voorhis, Mr. G. Roosevelt, S.Y.C.; sloop Vindex, Mr. Robert Centre, N.Y.Y.C.; sloop Active, Mr. Hurst N.Y.Y.C., and many others. The presence of such a fleet of fast yachts will afford the residents of Cape May and the visitors from Philadelphia a view of one of the finest regattas ever sailed in these waters.

The enterprise exhibited by the members of the Seawanhaka Yacht Club calls for the most liberal support from yacht owners. On Thursday next prizes are offered by the Commodore and Vice Commodore of the club for an ocean schooner race to be sailed over a course twenty miles to windward and return, starting from buoy 5 off Sandy Hook. The schooners will be divided into two classes, those measuring more than ninety feet over all and those measuring ninety feet and under. There will be a prize in each class. The race is open to all schooners belonging to the New York, Eastern, Brooklyn, Boston, Atlantic and Seawanhaka Yacht Clubs, and will be sailed under the supervision of the following Regatta Committee:—Frederic G. Foster, M. Roosevelt Schuyler, William Krebs, James H. Elliott and L. De Forest Woodruff. The judges' steamer will leave the Barge office at seven o'clock on Thursday morning.

It must have been encouraging to gentlemen proposing to build new yachts to find the Madcap and Active placed first and second in the second class sloop race of the New York Yacht Club Regatta. It proves the fact that yacht builders have not yet arrived at the acme of perfection, and that there is still room for improvement in yacht models.

The tenth annual regatta of the Atlantic Yacht Club will be sailed on Tuesday, June 22, over their regular course. This event will bring out quite a nice fleet of schooners and sloops, all pretty closely matched. Among the starters will probably be the Triton, Peerless, Agnes, Vision, Idler and Ariel. The steamer Magenta has been chartered by the club for the use of the members and their guests, and the steamer William Fletcher will carry the judges and members of the press.

The last sailing recently exhibited by Mr. Langley's schooner yacht Comet has revived the courage of her Brooklyn admirers, and innumerable offers are being made to back her against the Magic. Vice Commodore Garner's attention is at present mainly devoted to his new schooner Mohawk, but should any body desire to make a match twenty miles to windward and return, starting from Sandy Hook Lightship, they would probably be accommodated for any amount up to $20,000, that they might choose to name. The Comet sailed magnificently on Saturday last, and beating home from the Lightship gained over five minutes on the Madeleine.

The eighth annual regatta of the Columbia Yacht Club will be sailed on Wednesday, June 23. Quite a large fleet of sloop yacuts are enrolled in the fleet of this club, and their regattas are generally very successful. The steamer Matamora has been chartered by the club for the day and will accompany the yacuts over the course.

The break down of Mr. Lorillard's steam yacht Lookout during last Wednesday's race was quite unfortunate, as her owner anticipated a different result. Mr. Havemeyer's steam yacht Ideal and the Lookout are matched to steam a race round Long Island on July 4, and the race will be watched very closely by all interested or experimenting in like vessels.

A regatta on a very large scale will be held off the Isle of Shoals on July 23, and as it is open to yachts of all yacht clubs quite a large attendance is anticipated. Prizes are offered for schooners and sloops of all classes.

The Seawanhaka Yacht Club hold their annual regatta on July 4 from on their club house at Oyster Bay, Long Island. This club is now the third largest in these waters and have a magnificent fleet of schooners and sloops enrolled on their books.

The annual regatta of the New Jersey Yacht Club will be sailed on Tuesday, June 22. The course will be from a stakeboat anchored off the club house, foot of Fourth street, Hoboken, to and around the stakeboat anchored off Spuyten Duyvil, turning the same from east to west and thence home. Some seventeen sloop yachts are entered to compete for the different prizes. The Regatta Committee are Messrs. Joseph Nobles, James Bell and B. N. Crane. The steamer Fort Lee will accompany the yachts over the course.

Mr. Stillman, the owner of the schooner yacht Wanderer, although the winner of the Subscription Cup for keel schooners at the New York Yacht Club Regatta, last Wednesday, is not quite satisfied with his boat and intends giving her about a foot more keel.

Yacht Scud (no club), Mr. Lindsley, from New York, bound eastward on a cruise, was at anchor yesterday off the HERALD telegraph station at Whitestone.

A MEDICAL PHENOMENON.

A CASE UNPARALLELED WITHIN SURGICAL KNOWLEDGE—A MAN LIVES HAVING A RUPTURED CARDIAC ARTERY.

A case of aneurism of the arch of the aorta, which is creating a great deal of interest among the medical profession, is now being treated at the Roosevelt Hospital, in East Fifty-ninth street, between Ninth and Tenth avenues. It is claimed by prominent physicians in this city that this case has no parallel in medical history. The usual result of bursting of an artery of the heart is almost instantaneous death. About a month ago a case occurred in Bellevue Hospital, and the patient lived twelve hours afterward. This was considered extraordinary; but the case, of which a brief statement, copied from the hospital's minutes, is given below, is, as stated before, without precedent.

William Begge, aged forty years, a native of Germany, married, and by occupation a stevedore, was admitted to the hospital August 6, 1874. Seven months before his admission he fell through a ship's hatchway, a distance of about twelve feet, on his back, and received internal injuries. He complained of severe pains in the chest, but there was no symptom of injuries to the spine. At the end of four days he returned to work again and continued at his occupation about two months, suffering occasionally in the meantime; but in February he was compelled to stop work. From February until the time of his admission to the hospital he was incapacitated for continuous labor, but worked occasionally a day or two, all of the time complaining of severe pains in the chest and between the shoulder blades. On the 7th of August he was examined for the first time by the visiting physician, and a tumor discovered in the upper part of his chest. The general course of treatment adopted was the administration of morphine, first internally, then hyperdermically, to relieve the patient of pain. One of the peculiar features of the case was the request of the patient to discontinue the use of the drug, as he was afraid that the habit would become fixed upon him. On the 1st of October he was examined again by the visiting physician and the tumor was found to have increased greatly in size and to be located to the right of the sternum. For about four weeks Begge was able to be about his ward in the hospital and to do ordinary hospital service, but on November 4 he was again taken to his bed. On November 7 he appeared to be much better and was able to be up again. On the 9th of that month he left the hospital uncured, at his own request. He was absent from the hospital for about three months, when he desired to be and was readmitted, on February 13, 1875. During his absence from the hospital he suffered from

SEVERE SHOOTING PAINS

in the region of the sternum and a dull, burning pain in the spinal column. He was able to be out of his bed, off and on, up to the 25th of May, when a tumor became visible at the junction of his first rib and the xiphoid cartilage. It was small, the tissues covering it perfectly colorless, and the pain produced by it similar to that caused by an ordinary boil. From the 1st of June the tumor increased in size and gave distinct signs of pulsation. Soon after the tumor became red and shining, and it continued to increase in size until June 13, when a rupture occurred and a discharge of black blood and pus was noticed. A second rupture occurred on June 14, with the same features. On Saturday last the house physician was called by one of the nurses, who told him that the discharge of pus was excessive. The physician went in and found the pus flowing in an immense volume, and, after doing what he could to regulate or restrain it, he returned to his room. About twenty minutes later, however, he heard a yell in the ward, and hastening in found that the aneurism had burst and that blood was flowing into the abscess. A compress was at once applied, but as it did not check the hemorrhage the visiting surgeon, who was in the house, was sent for and applied a compress of oakum soaked with per sulphate of iron, which in fifteen minutes checked the hemorrhage. The patient was in an extremely feverish condition, his pulse being 144. The wallis of the abscess were distended with blood and a distinct diffuse pulsation was felt throughout it. At midnight the pulsation had subsided and the patient was stronger. His pulse at this time was 100, full and strong. Since then there has been an oozing of serum, but as Begge is unable to take any nourishment but little hopes are entertained for his recovery. He has retained his senses perfectly, and yesterday morning requested his wife to come and see him at five P. M. if he was alive.

EMIGRATION STATISTICS.

In the course of his address, on the occasion of the annual visit of inspection by the Irish Emigrant Society of the departments at Ward's Island, on Saturday, Commissioner James Lynch, its president, gave some interesting statistics. He said that since the establishment of the commission by the Legislature, in 1847, nearly 5,500,000 of alien emigrants have entered the port of New York. The amount of money brought by them was estimated at $68 per head, and the capital value of each person to the nation was set down by statistics at $1,125; so that the emigrants who had arrived here had contributed to the wealth of the country, in actual money, $374,000,000, and in money value, the enormous sum of $6,561,500,000. He also pointed out the great benefits which the society had conferred upon emigrants arriving here, and the successful results of its operations.

GOSSIP OF THE TRIAL.

Speculations About the Verdict.

TALK OF DISAGREEMENT.

The Brooklyn Support of Beecher.

ZEAL OF THE WOMEN.

To-day will make the one hundred and ninth day of the trial and the eighth of the summing up on the part of Mr. Beach. The plaintiff's eloquent advocate is not likely to finish before to-morrow at adjournment, and his closing remarks may lead to a reopening of the entire case. If there is to be no new evidence introduced Mr. Beach will be apt to imitate the example of Mr. Evarts and prolong the sitting of the court until six o'clock to-morrow afternoon. The Judge will hardly occupy more than three hours in his charge to the jury, which is said to be about four full columns in length. A hundred copies of it will be printed before delivery and distributed to the representatives of the press, whose convenience Judge Neilson has invariably studied. Different opinions prevail as to the time the jury will occupy in deliberating over the verdict. It is thought by some they will take several days to reach a conclusion. Others hold that every man of the twelve has made up his mind already about the case and that a few hours will suffice for deliberation. An impression is very prevalent that the result will be a disagreement. It is alleged that two or three of the jurymen are pronounced for Beecher through thick and thin. The strange remarks made by Beach in commenting on a part of Mr. Evarts' speech, in which he spoke as if in possession of occult information as to the purpose of the jury, gave rise to very general talk in the press and outside of it. A common remark is heard that the Plymouth brethren would willingly spend half a million to secure Mr. Beecher's acquittal. It is obvious enough what is meant by such an expenditure. The action of the Brooklyn Board of Supervisors in refusing to increase

THE JURYMEN'S FEES

is another matter that still furnishes food for criticism. It is not supposed the jurymen are likely to have their consciences influenced by this action of the Supervisors. It would only be a matter of a few hundred dollars at best, and it is fair to assume each juryman holds his oath higher than any consideration of such small pecuniary limits.

Should the jury remain out any time Judge Neilson, while waiting for their verdict, will proceed to dispose of such business as may be in arrears on the calendar of his court. Mr. Evarts declared a few days ago that if a verdict of guilty be brought in against his client they will appeal the case the very next day; so that we are not to hear the end of the scandal with the end of the trial.

THE PARTISAN SPIRIT.

Perhaps the most remarkable feature of this case is the partisanship that has been developed during its progress. This, of course, is confined in a great measure to Brooklyn. Away from the City of Churches people look at the whole matter with impartial eyes, and have no bitter prejudices one way or the other; but in Brooklyn the advocates of the defendant tolerate no suggestion of his guilt and exercise a despotism of opinion that nowhere else prevails. This is not confined to the members of Plymouth church. Quite a large number of people outside that ark of holiness and salvation hold that Beecher must be championed at all hazards, whether he be guilty or not. This curious feeling springs from an odd idea of local pride. Beecher is as much the attraction of Brooklyn to strangers as Greenwood Cemetery or Prospect Park. The latter costs something to keep in repair, but Beecher costs nothing, while he brings a princely income to his church. He is more to Brooklyn than President Grant is to Long Branch, and if he were to "step down and out" to-morrow, Brooklyn would feel as if one of the chief lights of her existence was extinguished. It is this sentiment which draws forth that sympathy for Beecher which is intolerant of all accusation against him