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The editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are sharp, the articles short, and the facts authentic, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

DAM FAILURES NOT THE ACT OF GOD.

If the proper person is intrusted with its design, and the proper materials and methods are used in its construction, a reservoir or dam can be made just as secure as any other of the important works that minister to the daily wants of the public. Nevertheless, if the normal processes of nature (well known and easily provided for at the time of construction) should wreck a poorly-built dam, and a few score of the community be wiped out of existence, we write it down as the "act of God," give the unfortunates decent burial, and proceed to build other structures which only require like conditions ("cloudbursts," as they are popularly called) to produce a like calamity.

Now, as a matter of fact, a cloudburst is simply a heavy and sudden rainfall of the kind that has been occurring intermittently for untold ages in the past, and that is liable to occur on any spring or summer's day for ages to come. This being so, when we set about building our dams, we ought to build them strong enough to withstand not merely the ordinary rainfall, but the excessive one. If the dam be thus built, the so-called cloudburst will fill the reservoir with surplus water which will flow harmlessly over its crest, or through the adjacent spillway; and cloudbursts will no longer be commemorated by anywhere from a dozen to one hundred gravestones in the neighboring churchyard.

Considering the awful possibilities of loss of human life that depend upon dam construction, it is astonishing what crude methods are adopted in building many of the reservoirs, big and little, that are scattered throughout the watersheds of the country. Indeed, the wonder is not that there are so many failures, but rather that there are so few; for the question of failure of many of them is merely a question of the occurrence of one of those unusually heavy precipitations, such as recently occurred with shocking loss of life at Oakford Park, Pa. There is no possible excuse for faulty dam construction. Of the more important engineering works it is the one above all others that demands the services of a qualified expert both for drawing up the original design and superintending the construction. It is little short of a crime to allow excessive regard for economy to determine either the form of a dam or the nature of the materials that are built into it, and where a shadow of a doubt exists as to the security of one system of construction over another, it is the bounden duty of the authorities to choose the obviously safer type, even if such choice involves a considerable increase in the cost. A commendable instance of this course of action may now be witnessed at the Croton Dam, where over half a million dollars is being spent in making a change in the structure which will render it secure beyond all peradventure of a doubt. As a rule, the weakest feature in the smaller dams (among which most of the disasters occur) is the spillway, upon which falls the important duty of carrying away the surplus waters of a heavy precipitation—cloudburst, if you will. Although these spillways are able to carry away the flood waters of one hundred ordinary rainstorms, they cannot deal with the one hundred and first; and the surplus waters, seeking an outlet, flow over the crest of the dam itself, washing away the toe of the embankment and bringing about the inevitable collapse. It was in this way that the Johnstown disaster occurred; and an investigation of existing dams throughout the country, particularly of the smaller dams that were not constructed under expert supervision, would probably show that the area of the spillways in numerous cases is insufficient.

"SHAMROCK" AND "RELIANCE."

For the first time in the history of the struggle for the "America" cup the challenging yacht will have the benefit of a series of tuning-up trials against a reliable competitor, carried out in American waters; moreover, the tuning up is taking place over the identical courses off Sandy Hook on which the international contests are sailed. To this extent the challenger is placed to better advantage than any that have preceded

her. Moreover, the seven or eight weeks spent by the captain of "Shamrock III." off Sandy Hook, prior to the races, should go far to remove that serious handicap under which previous English skippers have labored of being unfamiliar with the many tricks of the tides and weather during the summer months, such, for instance, as that combination of a southerly wind and a suddenly-falling barometer, which is a sure indication of an early shift of the wind to westward. Those who have followed closely the history of these races in the past will call to mind how frequently the attempted windward and leeward races have developed into close and broad reaches due to this westerling of the Sandy Hook breezes. By the way, just here we would suggest, that with a view of making sure of a continuous 15-mile stretch of windward work, the race committee would do well to send off the tugboat that logs off the course a couple of points to westward of the prevailing wind at the start.

But we are digressing; and to return to the question of the respective merits of "Shamrock III." and "Reliance," we have to confess that for want of a common basis of comparison it is extremely difficult to say just how the two yachts stand at the present writing. It is true that "Reliance" and "Shamrock III." have sailed a number of races against two boats, "Columbia" and "Shamrock I.," which themselves fought it out a few years ago in every kind of weather off Sandy Hook; but, unfortunately, since 1899, changes have been made in the handling or the rig of the two trial boats that entirely vitiate any comparison of "Reliance" and "Shamrock III." based upon the performance of "Shamrock I." and "Columbia." First, it must be remembered that whereas in 1899 and 1901 "Columbia" was handled by the best professional skipper in America, who had achieved a high reputation in British waters before he came to this country, this year she is being sailed by an amateur who, in spite of his high reputation as such, is not supposed to be able to get "Columbia" over a 30-mile course within several minutes of the time she would take with the present skipper of "Reliance" at the wheel. The difference might easily amount to from three to five minutes according to the conditions under which the race was sailed. On the other hand, while "Columbia" has deteriorated somewhat, it is confidently believed by the present captain of "Shamrock III." that "Shamrock I." is fully five minutes faster to-day than she was when she met "Columbia" in 1901; and he ought to know, since he was the joint skipper of "Shamrock I." when she raced here. The grounds for thinking that she is faster are, first, that in 1899 her spars were altogether too light for her big sail plan, and buckled so badly that her sails were "all out of shape" and quite unequal to the supreme test of a thrash to windward. Moreover, her designer lay sick in bed during the races; and in his absence, "Shamrock's" weights and the set of her mast were rather clumsily tampered with; indeed, it is pretty generally admitted by our yachtsmen that "Shamrock I." never had a chance to show her best work at that time. When she was used as a trial horse for "Shamrock II.," her rig had been improved, the spars that had shown weakness had been replaced by spars that were stiffer; her trim had been adjusted, and the vessel proved that she had "found herself" by beating "Shamrock II." easily during her trial races. That she was a greatly improved boat received further confirmation in the fact that the yacht she had beaten came over here two years ago and proved, in the opinion of most yachtsmen, to be practically equal to "Columbia," and if sailed as well as that boat, especially in light weather, slightly better. On the other hand, there is little doubt that "Shamrock II." was faster in American waters than she had been in the English Channel. Just how much, no one can tell, but the difference is, we take it, sufficient to vitiate any comparison of "Shamrock III." and "Reliance" on the "Shamrock I."-"Shamrock II."-"Columbia" basis. The writer is inclined to think that "Columbia" is to-day two or three minutes better than her old antagonist of 1899.

Now as to the two new boats themselves, it must be admitted that they represent a remarkable advance in yacht designing; remarkable in the considerable margins by which they have beaten their trial boats, and particularly remarkable in view of the high point of theoretical and constructional development which has been reached in the production of the 90-foot racing yacht. "Reliance" and "Columbia" have met about a dozen times, and in every case "Reliance" has shown an easy superiority to "Columbia," and under certain conditions has proved that the older boat is scarcely in her class. Exactly the same thing may be said of "Shamrock III.," which has shown the same ability to sail completely around her older namesake, beating her under any conditions of weather, and completely running away from her in the lighter breezes. "Reliance" has sailed 34 miles over a triangular 30-mile course in 2 hours, 59 minutes and 20 seconds. "Shamrock III." has sailed over a 30-mile, reaching course in 2 hours, 58 minutes and 37 seconds. The "Reliance" however, made her record time in a 20 to 25-knot

breeze, whereas the fast time of "Shamrock" was made in a breeze of between 6 to 12 knots. In the case of "Reliance," 10 miles was to windward and 20 miles of the 30 was reaching; whereas in the case of "Shamrock," owing to a shift of the wind, of the kind to which we have referred earlier in this article, the whole 30 miles consisted of reaching. So with these facts before him, the reader will be able to draw his own conclusions.

The present will be a great year in the history of the "America" cup. America is represented by the three great 90-footers, "Reliance," "Constitution" and "Columbia." Great Britain by "Shamrock I.," II., and III. There is a growing feeling among yachtsmen that after the international cup races are decided, a magnificent marine spectacle and a yachting event of supreme interest could be secured by having a race between these six magnificent boats. It is true, one of them, "Shamrock II.," is not in commission, but we have seen enough of the temper of her owner to feel assured that he would be only too willing to launch her and bend on a suit of canvas to help out an event which, we do not hesitate to say, would provoke more widespread attention and excite more enthusiasm than any event in the long history of the "America" cup. The cup races will be finished early this year, and a series of races between the six 90-footers in September would be well within the limits of the yachting season.

THE BOOK PAPER OF THE FUTURE.

Time was when the composition of a letter was a task far more arduous than we who live in a stenographic and typewriting age suspect. Before your old-time letter-writer could even begin to set down his thoughts, he was compelled to cut and fold his paper (for note-paper of the proper form could not be purchased in those days); to stir up his slimy ink, so that it would flow as readily as his thoughts; and to cut a goose-quill or two with a skill which many of us would find it probably hard to emulate. And when the letter was finally written and carefully folded and sealed, the scribe had to look about him for some trusty carrier.

These difficulties were not without their literary influence. A letter was then a work of art; for it had been long pondered before quill was ever dipped into inkwell. And because the writing of a message, however trivial, was considered no light task, the letter of a century ago has still a certain literary value.

Now in those halcyon days of long, elegant letters, the postal departments of the various governments, which in the course of time sprang up, sought to curb the epistolary ardor of ladies and gentlemen by charging postage, which varied in amount with the weight of a letter. But the old letter-writer would not be curbed, and frustrated the efforts of the postal officials by inventing a very light, thin paper, which materially reduced the postal revenues. To this very day, this fine paper is still used. In Europe it rejoices in the high-sounding name of "foreign note-paper." Although it is no longer extensively used, "foreign note-paper" may become of far more importance than we may dream.

It has been said that letters in the higher sense of the word are no longer written. Nowadays we only "correspond"; we "beg to state," or "have the honor of informing." The most weighty affairs are dismissed in a short sentence. Thus it is possible to dispose of a mass of correspondence before which the heart of the old-time letter-writer would have quailed. It still remains for our children to discard the forms of polite address which have come down to us, and thus to rob the letter of the only element of picturesqueness which it can still call its own. The letter of the future will be a colorless communication of telegraphic brevity.

Although our modern strenuous life is not conducive to the cultivation of the fine art of letter-writing, some of us still find time to think. And what we have thought finally appears in print for the benefit of posterity—since our contemporaries have even less time to read than to write. Much is printed which no one but the author and the typesetter ever reads. But although we are indifferent to books, we take infinite pains to preserve them. Libraries innumerable are built. There are national libraries, city libraries, county libraries, village libraries, university libraries, memorial libraries, and a host of others. Their name is legion.

Many a hopeful youth who looks into the future with optimistic eyes and who is filled with the laudable desire to do something for himself and for his fellow creatures, in a moment of weakness is persuaded to join a literary or scientific society, trusting that his mind will thereby be improved. Forthwith the society's monthly or weekly magazine is sent to the hopeful youth, gratis. At the end of a year, two portly volumes have appeared. When the hopeful youth has reached the age of forty, he finds himself so far buried in the printed thoughts of his colleagues that he is no longer able to think for himself. And when another decade or two has passed, a material difficulty is encountered in disposing of the