

Analyses show an extremely rapid increase of the solid contents of the water between June, 1888, and February, 1889, as compared with the effect produced during the previous seven and a half years. The latter was about two and a half times or 150 per cent on the whole, or an average of 13 per cent a year; while in the eight months preceding the last examination the increase was nearly 45 per cent. It should be noted that these eight months were remarkable for very great evaporation elsewhere on the coast, also, and that they formed the end of three years of rather deficient rainfall in the State. The more abundant moisture of the season just passed may have stopped or perhaps even reversed the process.

It is hoped that all persons who may, from their own observation, be able to throw light upon the history of the recession of these lakes, will communicate the facts, so as to place them on record.

THE CAMERA ABROAD.

IN a recent article in *The Swiss Cross*, when speaking of photographing in foreign countries, I advised every one to become familiar, to some extent at least, with the French language, and particularly with the technical terms used in photography; the different portions of the apparatus; the chemicals; short phrases to be used in the custom-house, to the police, to hotel servants, etc.

I need hardly say that those who intend to visit the German fatherland ought to pursue the same course with the German language. As a general rule, the traveller will find that English is spoken tolerably well almost everywhere; but it is when he goes out, and rambles about in the country or in the older and more picturesque portions of cities and towns, that he comes in contact with a class of persons who rarely speak any other tongue than their own. The mere presence of a stranger in such places will attract notice. Any thing like sketching, drawing, or photographing will be sure to draw a crowd of idlers, who will sometimes render work in these places very unpleasant, or even at times quite impracticable. A little knowledge of the native tongue is invaluable under such circumstances.

I have frequently been asked the question whether the lower orders of the people in different European countries acted differently toward the out-door photographer. On the whole, I think I can say that there is less annoyance in Germany than in most other countries. I must, however, make this reservation: that if a public school is dismissed while the photographer is anywhere near, there is sure to be trouble. The children crowd around the camera, and spoil every thing. On one occasion I was fairly driven from the field from this cause; for, even knowing the language, I found it impossible to keep them from encroaching. There is no ill nature, however, in this sort of interference with photographic work; but in some parts of the Netherlands I have had very disagreeable encounters with drunken roughs, who persisted in standing directly in front of the instrument, even when they saw plainly that they were hindering the work.

Supposing that the amateur travels for Germany on one of the comfortable Bremen or Hamburg steamers from New York: he will find himself pretty well in the fatherland from the moment when he sets foot on the vessel. The officers and crew are German to a man. The food is German, and so are the customs observed on the vessel. A very pretty one is the music which is generally furnished by the stewards during the dinner-hour every day, and early on Sunday mornings. At these times some piece of a solemn or religious character is always selected, and the effect made upon the mind by being thus awakened on a steamer in mid-ocean by religious music is not soon forgotten. The music at dinner, however, even on Sundays, is any thing but solemn in character; and the choruses to the well-known German convivial songs are joined in by all the passengers who can sing, and roared out right lustily, to the great satisfaction of those who, not being able to sing, contribute their part in screams of laughter and ringing applause. The good cheer at the table does not suffer neglect during all this babel of sounds, and, let me say in parenthesis, it is of unsurpassed quality. Americans are too apt to associate ideas of German cookery with sauerkraut and beer; but on these vessels such ar-

ticles are rather conspicuous by absence, and the table is furnished with every luxury that a pampered appetite could demand.

If the photographic apparatus is of small and convenient size, there will be numerous scenes and incidents on board a large ocean-steamer worthy of being recorded. The same apparatus could hardly be expected to answer for groups on the deck and for effective views of vessels passing. While steaming in the harbors of cities like New York, Hamburg, or Bremerhaven, capital instantaneous shots may be made at the water-craft of all kinds, but a lens of long enough focus to reach them nicely would probably be found unmanageable for groups of people on deck. If photography be attempted at sea while the vessel is rolling, take care to keep the camera level with the horizon, no matter what position the ship may assume. This, of course, is easier to say than to do; but, if neglected entirely, the pictures will make the level surface of the ocean appear like a steeply inclined plane. Remember that the forward part of the vessel is the most desirable standpoint for the camera, because the jarring motion of the screw is less felt here than in the after part. If the instantaneous shutter was a rather slow-working one, the outlines of the picture might be doubled by the vibration of the screw.

Those who are fond of making studies of clouds will here have an excellent opportunity. As a general rule, the best time to work is in the afternoon; and in selecting a position for the camera, take care that none of the ship's braces or shrouds cut across the field of the lens. This may happen at times when work has to be attempted in a hurry; as, for instance, when the pilot is taken on, when the tug comes for the mail, etc.

Great care must be taken not to expose the outfit, and particularly the sensitive plates or paper, to the damp sea-air for a longer time than is absolutely necessary. The sliding doors in the plate-holders should be constantly looked to, and special examinations made by red light at night to see that the spring cut-off in the slot of the holder closes properly when the door is withdrawn. A little time and trouble bestowed in this manner will be well rewarded by clean results, free from light-streaks and fog; for it will often happen that the cut-off swells just enough to leave a crack open when the door is pulled out, and the consequence is that every exposure is "light-struck." It is a good plan to take a sheet of fine sandpaper, a small screw-driver, and a sharp pocket-knife on all photographic excursions, so as to be prepared for accidents of the kind. The practice of throwing the focusing-cloth over the holder when the door is drawn out is a great protection to the film, and should always be done.

The port of Bremerhaven, where the amateur will probably land in Germany, offers little of interest; but just the reverse is true of Bremen, seventeen miles away. Of this I will speak in my next.

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PREPARATION AND PROPERTIES OF MANGANESE.¹

THE properties of manganese, like those of iron, appear to differ according to the method used in the reduction of the metal. When obtained from the oxide by heating with carbon, most authorities agree in the statement that the metal oxidizes so readily in the air that it can be preserved only under "rock oil" or in well-sealed vessels. In water it is said to "oxidize rapidly, with evolution of hydrogen, and crumbles into a dark gray powder." Cast manganese containing eight per cent of iron is said to be unalterable in the air.

In the year 1869, some manganese prepared after the process of Brunner (the reduction of the chloride mixed with fluorspar, by means of sodium) was found to have as little tendency to oxidation as iron. Repeating recently this process, pure chloride of manganese was fused in a clay crucible, and poured on a stone slab. When cold, it was pulverized, and mixed with an equal weight of powdered fluorspar. This mixture, divided into portions of one ounce, was introduced into a French clay crucible, previously heated to redness. Eighty grains of sodium, cut into small pieces and freed from naphtha, being added to each portion, the crucible was covered, and re-action allowed to take place before adding an-

¹ Paper read at the meeting of the chemical section of the Franklin Institute, Philadelphia, May 21, by Charles Bullock.