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TWO YEARS AGO the Connecticut Legislature very commendably appropriated five thousand dollars for the investigation of the pollution of streams, intrusting the work to the State Board of Health. The results of the investigations, carried on by Dr. S. W. Williston, have shown the rapid and alarming increase of river-contamination, a half-dozen of the rivers already being very greatly or excessively polluted. The Naugatuck, for instance, — a stream upon which are situated many of the large metal-manufactories of the State, and with a summer-weather flow of about ten million cubic feet at its mouth, — receives not less than twenty-five hundred tons of manufactory refuse annually, in addition to the sewage of about seventeen thousand people. At the last session of the Legislature a like appropriation was intrusted to the Board of Health for the investigation of the potable waters of the State, which investigation will be carried on, under the direction of the secretary, Dr. C. A. Lindsley, by Drs. H. E. Smith, T. G. Lee, and S. W. Williston, of the Medical Department of Yale University, and will include the monthly examination of potable waters, chemically, bacteriologically, and microscopically, on essentially the same plan as that so extensively and thoroughly pursued by Professors Drown and Sedgwick for the Massachusetts Board of Health. The results of the investigations cannot help but be valuable, as hitherto scarcely any attention has been given to the subject in the State, and many of the waters used for domestic purposes are at times confessedly bad.

DR. H. MEYER ON STANLEY'S EXPEDITION.

DR. H. MEYER, at a recent meeting of the Berlin Geographical Society, delivered an interesting lecture on Stanley's expedition. We learn from this experienced traveller that the region traversed by Stanley was, up to this date, totally unknown. From his letter the general outlines of its topography have become known. The upper course of the Aruvimi is not the Nepoko, as Junker was inclined to think, but its source is in the Speke Mountains, northwest of Lake Albert Nyanza, in which the source of the Welle-Obangi is also situated. The length of the river is approximately 1,000 miles. Whether the Muta Nzige belongs to its system or not, is doubtful. Stanley assumes that the latter belongs to the Kongo basin, as the southern affluent of the Albert Nyanza, the Semliki or Kakibi, is said not to come from the Muta Nzige, but to rise in the mountains of Ruwenzori, which were discovered by Stanley, and are described as a high snow-covered mountain about fifty miles south of Lake Albert. It may be that it is the same as the Gambaragara Mountains. If Stanley's observations, according to which the level of the Muta Nzige is lower than that of the Victoria Nyanza, be correct, it cannot belong to the system of that lake.

From the Kongo to the Albert Nyanza the country rises gradually, and attains an altitude of 5,200 feet close to the lake. There is a sudden fall to the lake, which is 2,900 feet high; and the high range of mountains which is seen on the west side of the lake is nothing else than the eastern slope of this plateau. Stanley found the level of the Albert Nyanza considerably lower than at his first visit, and expresses his opinion that this fact is a consequence of the rapid erosion of the Nile at Wadelai, and the deepening of the outlet of the lake. It is more probable that this lowering of the lake-level is due to a change of climate, as all the lakes of Central Africa show the same phenomenon.

Stanley describes the whole region between the Kongo and the Albert Nyanza as covered with an enormous forest 250,000 square miles in extent. This does not appear probable, as Stanley travelled most of the time close to a great river, and met with open country as soon as he left its course. On his former journeys he has also concluded erroneously, from the appearance of the banks of the Kongo, that the whole region is covered with dense forests, while it is to a great extent open land.

A description of the vegetation of this country from so excellent an observer as Dr. Junker, who reached the Nepoko coming from the north in 1882, is of interest. He says, "Close to the river, on the walls of its deep valley, and frequently beyond the upper edge of the latter, dense forests are found. Scarcely a ray of the sun penetrates these dark masses of trees. The woods are sometimes as wide as one or two miles. As every small river has a rim of such forests, and the land is drained by a great number of brooks and rivers, these forests, notwithstanding their narrowness, resemble the extensive tropical woods of South America."

If we compare this description with Livingstone's, Grenfell's, Delcommune's, Wissmann's, and other reports on the forests of Central Africa, we will be safe in assuming, instead of Stanley's 250,000 square miles of forest, about 25,000 square miles.

The tribes inhabiting the region between the Kongo and Nepoko construct conical huts. East of the Nepoko, Stanley found the Mabode, who build square houses, and who were first described by Junker. Farther east he met one hundred and fifty villages of dwarfs, who are called Wambutti. He compares them to the Tikki Tikki or Akka, who live a little farther north. Junker met them among the Mabode on the Nepoko. They were called Achooa.

Stanley's reports regarding the state of affairs in Emin's province are very meagre. He confirms Emin's former report, that there are fourteen stations which are garrisoned by two battalions of regulars, who have 1,390 guns. Besides the regulars, Emin has irregular soldiers, sailors, tradesmen, merchants, and servants, — about 8,000 all told. Besides these, there are 10,000 women and children.

Evidently it is not the object of Stanley to take Emin home from his province; but, on the contrary, he intends to enable him to hold his own, and to enlarge his influence, by supplying him with

ammunition and provisions. Emin Pacha is an Egyptian officer, and Stanley travels as well for the Egyptian Government (which is almost an English government) as for the English Relief Committee, the president and secretary of which are Mackinnon and Mackenzie, who are also directors of the English East African Company. This fact is very significant.

Undoubtedly Stanley's silence regarding his interview with Emin Pacha is due to the fact that this interview was of a political character, and that its subject is not yet to be made public. It is very remarkable that Stanley did not carry a single line from Emin. His object was to save Emin's province for Egypt, that is to gain it for England, and to forestall any other power which might contemplate occupying that territory. We believe that Stanley has succeeded in doing so. Emin continues to consider himself an Egyptian officer. As the Sudan continues to be closed, his next object will be to open communication with the east coast through English territory, and thus his further course becomes self-evident. Stanley states in his letter that he does not contemplate returning on the Kongo route. Mr. Stokes, agent of the missions at the Victoria Nyanza, informed Dr. Meyer that he had long ago sent hundreds of loads of goods and provisions for Stanley to Kavirondo, on the east side of the Victoria Nyanza. The second English relief expedition, which started from Mombas in November of last year through English territory, and which was greatly helped by the discoveries of Count Teleki, who returned at that time to Mombas from the interior, will probably have advanced sufficiently far to help Stanley in reaching the coast and protecting the expedition from any attacks of the Wagonda. The latest rumors of Stanley's march eastward are quite probable, and presumably he will reach the coast at Mombas. But it is improbable that Emin Pacha will accompany him. He will stay at his post for Egypt — and for England.

THE LAKES OF THE SAN JOAQUIN VALLEY.

THE rapid contraction by evaporation of the three lakes of the upper San Joaquin valley, the consequent concentration of their waters into alkaline lyes too strong for animal life, and the nature of the soils laid bare on their margins, have formed the subjects of investigation and discussion in several reports of the Agricultural Experiment Station of the University of California, especially in connection with the reclamation and cultivation of alkali soils. It is a matter of regret that it has not been possible to pursue the subject by personal visits as systematically as its practical importance and theoretical interest might have warranted; for we are here in presence of a group of phenomena that have been repeated many times in past geological epochs, and for the study of which, in their physical, chemical, and biological aspects, opportunity is not often afforded. Hence, while the information and data given in a bulletin issued by the experiment station June 15, are of necessity incomplete and fragmentary, they are of interest as affording an insight into processes regarding which but little is thus far on record.

A personal examination of Kern Lake, and of the region lying between it and Buena Vista Lake, as well as of the Mussel Slough country, made under the auspices of the United States census in March, 1880, satisfied Professor E. W. Hilgard that in none of these rich agricultural sections could the slightest increase of alkali be safely risked; and analyses subsequently made of the waters of both Kern and Tulare Lakes prove that a very few years' use of the water then filling either of these reservoirs would be promptly fatal to the productiveness of the lands irrigated. As regards Kern Lake, this was obvious enough from a casual examination and tasting of the water. Having been shut off from the natural influx of Kern River for a number of years, it has been rapidly evaporating and receding from its former shores, so that at the time of Professor Hilgard's visit a difference in level of over four feet had been produced in fifteen months, leaving high and dry a boat wharf built at that distance of time. About eighteen months before, all the fish and turtles in the lake had suddenly died, creating a pestilential atmosphere by their decay; and even the mussels were mostly dead, a few maintaining a feeble existence. A strong alkaline taste and soapy feeling of the water fully justified their choice of evils. The tule marsh, laid dry by the recession of the lake, was thickly crusted with alkali; and the tules were dead, except where still moistened by the water of the lake, showing that the latter was not yet too strong for such hardy vegetable growth, albeit fatal to animal life.

Buena Vista Lake was stated to be in a similar condition, but not yet quite so far advanced in evaporation, and still maintaining some animal life in its waters, having lost its connection with the river more recently. Tulare Lake is well known to be full of fish, and, as it annually receives the overflow of Kern and the regular inflow of King's River, its evaporation and recession have been much slower; yet its water's edge is now distant several miles from the former shore-line, and, as the water of the river is more and more absorbed by irrigation, it will doubtless continue to recede until a point is reached at which the regular seepage from the irrigated lands will balance the evaporation.

A comparison of an analysis in 1888 with those made in 1880 shows that the solid contents of the water of Lake Tulare had increased very nearly two and a half times in eight years, and that its concentration approximated closely to that of Kern Lake in 1880. Yet it appears that an abundance of fish survived, at least of certain kinds, although the mussels had already succumbed.

Having been informed in November, 1888, that "the fish in Tulare Lake were dying by shoals," Mr. J. G. Woodbury of the State Fish Commission visited the north-eastern part of the lake, near the mouth of Cross Creek, during the first week in February.

On inquiry about the reported dying of the fish, the fishermen said that it occurred last summer and autumn, and that it was mostly catfish, "greasers," and some of the so-called trout, also some carp, but very few perch. Now, it is the perch that is so much valued by the fishermen; in fact, the perch is what they fish for, as the catfish do not sell so well, and the greasers are of no account. The "trout," they say, are very soft, and do not keep well, also are very insipid.

The perch are certainly very fine fish, large, bright, and clean-looking; they are also very good eating, as Mr. Woodbury had occasion to verify. These perch have enormous mouths, and in that of every one in the pound can be seen a "shiner" (or "slick," as they call the fish) with the tail sticking out of the great mouth, being drawn farther in as the process of digestion proceeds. One perch which he took along to have cooked, he took by the gills, and, looking down his big mouth, saw the tail of a fish, which he readily got hold of with his fingers and pulled out. It was six inches long, and only had its head partly digested. The fishermen say that all these perch, when caught, have fish in their mouths, in proof of which he pulled out one at random with a dip-net, and showed the perch with a shiner's tail still out of the mouth.

The fishermen state that no catfish are now caught, while two and three years ago they would get a wagon-load at each haul; also that trout are now seldom caught, although they used to be very abundant. The men expressed no opinion as to the cause of the death of the fish, but stated that the catfish especially were drifted upon the shore, dead, by thousands. Catfish, however, are found by millions at present in the creeks and sloughs that run into the lake.

All the shore of the lake for miles was strewn with mussel or clam shells. The surface of the ground was white with them, and the wheels of the carriage crushed through them, as though more than half the substance of the ground was actually made up of shells. These shells extend here as thickly as on top, down to the depth of a hundred feet. Not a live clam can be found in the lake now. Ten years ago there were large numbers of live mussels in Tulare Lake, and the hogs used to live on them. They would wade out into the lake, and plunge their heads under water, get hold of a mussel, and hold their noses up in the air and chew it up.

For the whole distance of twenty miles from Tulare City the country is of remarkable fertility, almost level; and, where put into wheat, the growth was strong even to within two miles of the shore of the lake. The lake must have been at some time a good deal lower than it is now, for near the mouth of Cross Creek there are many stumps which were under water only last year, and among which the fishermen used to get their nets entangled. These stumps are now just at the water's edge.