

FABLED CITIES SUBMERGED.

BY ARTHUR H. J. KEANE.

Many of those persons who have been fortunate enough, due to ample means or lucky circumstances of a business or other nature, to spend a holiday at many of the charming resorts dotting the coast line of the German Ocean, will have been amused (and perchance interested) by the many tales and legends related as to submerged cities—all supramundane trace of which has now disappeared. Of such cities which once were famous for their wealth, beauty, and power, it is whispered that their love of luxury, their greed, and cruelty led to the offended and unseen Powers Above causing the waves to rise in the night and engulf them for ever. Not only are such legends rife on the coast, but even in inland German towns many a lake is invested with a halo of similar mystery.

Of these latter cases, two of the most interesting relate to an old-time city named Buckow, which is said to rest upon the bottom of Lake Schermützel in Brandenburg, while Lake Werbellin (a most mysterious sheet of water, according to folk-lore) conceals in its bosom a town of the same name; all that remains of this latter is the name given to a small village, in memory of its predecessor, which now stands not far from the point where the former town stood.

Although most of the stories rife in Germany as to vanished towns in the interior have no actual historical basis, or at best a slight one (the Werbellin story being based upon the disappearance of a castle called Werbellin, one of the Ascanian castles built in 1150-1170 by Albert the Bear, Margrave of Brandenburg, and a contemporary of Frederick Barbarossa), this is not so on the coast; here the legends are all well founded on fact, and, in most cases, the salient features have lost but little of their original truth in the telling.

The most striking of all the legends current in the coast towns of the German Ocean is that dealing with the lost Dutch town of Stavoren at the entrance to the Zuyder Zee. Here there lived a rich and powerful lady, whose pride, cruelty, and selfishness aroused the anger of Heaven, and caused the wicked and misguided city to sink beneath the waves. A small portion of the city (where the good people lived) was saved, and its name still cleaves to the small town of Stavoren, which is well known to every traveler going by water from Amsterdam to Leeuwarden and Groningen. It is an undisputable fact that, in the thirteenth century, Stavoren was a wealthy and powerful commercial city; however, due partly to the port becoming choked with sand, and partly to the irruption of the Zuyder Zee in 1277, it rapidly lost its importance, and at the present time what is left of it only affords shelter to about eight hundred souls. The roofs and spires of the now submarine buildings can, it is said, be often seen far down in the depths when the sea is still and the weather is clear, while silent listeners on Christmas Eve will hear the distant and muffled tone of church bells arising from the depths, only to break in bubbles and ripples on the surface of the Zuyder Zee.

Visitors to Sylt, the well-known seaside resort and island in the North Sea, will doubtless remember the small village of Wenningstedt. Although its present population is only fifty persons, it is none the less commemorative of the large commercial town of Wenningstedt, which went to the bottom of the sea during a great flood and storm which took place on the 16th of January, 1362.

Wenningstedt is by no means the only town which once stood on the shores of Friesland and Holland, only to meet with destruction at the hands (or rather billows) of "Old Hans," as the Frisian familiarly terms the North Sea. As a matter of fact, of all the seas in the world, it is the German Ocean alone which can establish a record for the number of towns, villages, and hamlets which it has either destroyed or engulfed. Since the eleventh century "Old Hans" has devastated no less than one hundred and forty-four towns and villages, either by swallowing them up entirely or else by burying them under heaps of sand. The fate of the Dutch town of Rungholt, which disappeared during a great storm in the year 1337, is still sung and told in story by the present day fisherfolk of Holland.

The Baltic Sea has not such a bad record in catastrophes as "Old Hans." Yet a halo of romance is thrown around the legends told about this sea, by the story of the wonderful town of Vineta, chimes from whose church steeples may, at the fall of eventide, be heard pealing faintly from the depths of the ocean. In the seventies of the last century articles were still published in support of the sometime existence of a large, fabulously wealthy Wendish city named Vineta, which, in the middle ages, nestled at the foot of the Stakelberg at Usedom, nearly at the same altitude at which the hamlet of Damerow now stands. The legend states that it was totally destroyed by a flood and earthquake which occurred in the year 1183. At one time the city of Vineta was marked on the Prussian maps, but geological and historical investigations

made locally by Prof. Virchow and others have proved beyond doubt that a town never could have stood upon the site indicated. Researches into the origin of the legend led to the remarkable discovery that the name of Vineta was nothing more than a corruption of Jumneta and Jumne—the old Wendish name of the modern town of Wollin, or Julin as it was called by the Danes. The reported fabulous wealth owned by Vineta was to a certain extent true, as Julin or Jumne was—according to the old historian Adam of Bremen—a very large and remarkably wealthy town in the tenth century, doing even then a trade with Arabia, Asia, and the coast towns of northern Africa. To use the historian's own words, this old Wendish town was "certainly the greatest of all the towns now existing in Europe." When the Danish King Waldemar the Great crushed out the power wielded by the Wends, he also destroyed Jumne by burning it to the ground in 1172; hence in this case the earthquake and flood business is a mere fabrication. The Baltic Sea can boast of no sunken cities, although it has caused considerable destruction to life and property by floods. A few of the more important instances are: (1) The great flood of November 1, 1304, which submerged the whole of the strip of land which connected the present island of Ruden with Rügen; (2) the flood of November 13, 1872, which rent the islands of Usedom and Hiddensee into two parts; while (3) the flood which took place on April 13, 1903, destroyed the well-known and beautiful Adlerhorst resort on Arkona.

But to turn to other parts of the world. Here there are not many known instances of sunken cities; still there are a few. The latest known case is that of Galveston, which, as will be remembered, was destroyed and partly engulfed on September 8, 1901.

Modern engineering science has now, however, done much to protect us from the vagaries of "Old Hans" and others of that ilk, so that coast towns often smile now at the thought of any danger. Yet in view of the San Francisco catastrophe, are they safe? Unexpected earthquakes ere this have worked terrible havoc in Europe. On August 24, 358, the Black Sea was lashed into fury by a terrible earthquake and did fearful damage. Again on July 21, 365, Europe was visited by the most terrible earthquake ever known; all the coasts of the eastern Mediterranean with its adjacent seas rose in their might (due to seismic influences) and destroyed many towns, while several islands in the Aegean Sea disappeared forever with all their population. As later examples of what the sea can do, when disturbed by earthquake shocks, we may mention the destruction of Lisbon on November 1, 1755, and the utter annihilation of the towns of Anjer, Merak, and several other villages and hamlets in Java and Sumatra by the great tidal wave which accompanied the eruption of Krakatoa on August 27, 1883.

Many towns have also disappeared, due to land slides, avalanches, etc., which have hurled them into lakes, and inland seas. Local legends say that huge devil-fish live in these lakes, and it is their movements which cause the towns to slip down and hurl their contents into the depths, where the monster can then glut his maw on mangled flesh and blood. Of course most of these reports are mere tales, but there are two recorded cases of inland towns being engulfed beneath the waters of adjacent lakes. The first of these is afforded by the disaster to the town of Zug, Switzerland (population 4,400) which was swallowed up in the lake of the same name on July 5, 1887.

To conclude, we will mention the disaster which befell the small hamlet of Tiefengruben about thirty years ago. This was a pretty little village, situated near Kranichfeld in Thuringia, Germany; in the center there was a small innocent-looking pond, upon which the good people used to keep their ducks and other water-loving fowl. One stormy day, why and wherefore Heaven only knows, the village went down, and its place was taken by a large lake, which still marks the site of the ill-fated village. The benighted peasant returning home after a hard day's work felling timber in the forest surrounding Kranichfeld, often sees uncanny-looking lights fitting about over the marshy ground, and mutters a prayer for the rest of the troubled spirits who—he thinks—are hunting for their lost home. Friends of the writer have often seen these lights, which owe their origin to decaying vegetation. In fact, they are merely ignited marsh gases or, as they are popularly termed, "will o' the wisps."

Advices of recent date contain some very interesting data as to what, it may be said, is nothing more nor less than a submerged city in the making. About six months ago, following upon a sudden and unexpected shock, a considerable portion of the pretty little town of Tavernola fell into Lake Isco (formed by the waters of the Oglio, between Brescia and Bergamo) upon the shores of which it stands. In the night of the 15th of November a further shock ensued, and a whole square and several of the remaining streets of Tavernola slid into the lake. The

wretched inhabitants had hardly time to flee to the mountain at the foot of which the town nestles, or rather nestled. The government is now busy inquiring into the causes of the extraordinary phenomenon. Doubtless in time to come the ruined houses visible beneath the waters of the lake will form the object of legends similar to those enumerated in the foregoing article.

SCIENCE NOTES.

Dr. Hugo Miede, who has studied the spontaneous heating of newly-made hay ricks, considers the heating as entirely the result of physiological action and not, as is generally supposed, due to the action of bacteria. Several thermophilous species of bacteria and fungi, some of them new, have been obtained from heated hay. Dr. Miede thinks that injurious kinds of bacteria and fungi are probably fostered by sweating manure, and that the common occurrence of the tubercle bacillus may be due to this cause.

The name of Luther Burbank has long been known as that of the wizard of botany. At a recent lecture at Stanford University, seventy-three different species of apples were shown, all gathered from a single tree in Mr. Burbank's garden. While fond of the botanical pranks which appeal to the public mind, Mr. Burbank fortunately does not neglect the more serious part of his profession, and devotes much time and thought to the cultivation of improved plants likely to be of economic value.

A fish which feeds on mosquito larvæ is reported from Australia. This fish, known to science as *pseudomugil signifer*, and popularly known as "blue-eye," owing to the brilliant blue color of its iris, belongs to the family of *athorinides*, a small carnivorous fish found in both ocean and rivers. The blue-eye is a very small fish, about two inches long, and is generally found in shallow water. It is said that the Italian government is much interested in this matter and is importing a number of the fish to test their efficiency as larva destroyers in swamps and marshes.

Archæological interest is at present centered on Pæstum in Italy, where three very beautiful Greek temples stand. Owing to unhealthy malarial conditions, little exploring work has in the past been done on this site, but recent excavations have shown that the temples were merely part of a city. Prof. Spinazzola, who is superintending the operations, has uncovered, a few yards beneath the surface, a perfect street, thirty feet wide, well paved but showing the ruts of heavy traffic. Great numbers of objects of iron, bronze or stone have been unearthed and it is proposed to turn an ancient Greek tower on the banks of the river Salto, near the site of the buried city, into a museum.

In spite of the appliances of modern science and invention, Arctic exploration remains a pursuit attended with great risk and hardship. It is feared that William Bruce, a Scotch explorer, has been lost, together with two experienced companions. Mr. Bruce left his base of supplies in Spitzbergen early in August, accompanied by Capts. Johansen and Bracsen, and a search party has found traces of one of their camps, and their sleds. It is thought they were lost in attempting to cross Prince Charles Bay, Spitzbergen. Bruce went with the Antarctic expedition which left Dundee in 1892, with the Jackson-Harmsworth polar expedition, and the Prince of Monaco's expedition to Spitzbergen. He was also a member of the Scotia Antarctic expedition of 1902. Capt. Bracsen accompanied the Prince of Monaco in his expedition to Spitzbergen, and Capt. Johansen was a companion of Dr. Nansen in the latter's Arctic explorations.

In a recent paper Dr. J. W. Spencer has given some interesting data in respect of the "Age of the Niagara Falls." Soundings at all the points of great changes in the Gorge have been successfully undertaken, borings were put down for the exploration of buried valleys, and instrumental surveys made of the original river banks and the physics of the stream. The mean recession of the crest line of the Falls is found to be 4.2 feet a year under existing conditions, and this rate has approximately obtained for 227 years. But this rate will not give the age of the Falls, on account of other great variations in the volume of the river and the height of the Falls themselves. The chief change in volume of water depends on the fact that originally Lake Erie alone was discharged over the Falls when the supply of water was only one-fifteenth of the present discharge. Above Foster's Flat the sudden widening indicates the inflow of the other lakes into Erie, greater water discharge, and greatly increased rapidity of recession. The Whirlpool is on the site where the recession broke down the partition separating the head of the Whirlpool-St. David's buried gorge, and began to empty out the contents of this valley. The cutting with the full power of the water of the four lakes varies at times according to the height of the fall, and is calculated to have occupied 3,500 years. The entire age of the Falls is given as 39,000 years.—*Knowledge and Scientific News.*