Original Articles.

THE AZORES AS A WINTER RESORT.

BY EMERSON WARNER, M.D., WORCESTER, MASS.

THE Azores, or the Western Islands, as they are frequently called, are located in the North Atlantic, about two thousand miles from Boston, and from eight hundred to one thousand miles from Portugal, to which kingdom they belong. They lie between $36^{\circ} 59'$ and $39^{\circ} 44'$ N. latitude, and $25^{\circ} 10'$ and $31^{\circ} 7'$ W. longitude from Greenwich. The average latitude is about that of Philadelphia. Their authentic history begins in the first part of the fifteenth century. All previous accounts of them are apocryphal. Originally discovered and settled by the Portuguese — Moors, Flemings, and remnants from other countries are represented.

Thus they are a mixed people and have a mongrel language, based largely upon the Latin, so that their language is spoken of as the youngest daughter of the Latin.

Nine islands form the archipelago, somewhat irregularly situated, running W. N. W. to E. S. E., covering a linear distance of some three hundred miles. Much speculation exists in regard to their origin. Some assert they are the remnants of the lost Atlantis; but the evidences of igneous action are so abundant, they are generally regarded as volcanic.

Geologically they belong to the Miocene period, as identified by the stratified rock, and signs of the Glacial epoch are abundant on several of the islands. They are characterized by bold precipitous coast lines, rising rapidly towards the interior, the highest peaks averaging about thirty-five hundred feet, though one island, Pico, supports a peak seven thousand six hundred and thirteen feet above the sea-level. The same peak below sea-level extends downwards rather more than sixteen thousand feet.

They have no natural harbors, the business being mainly carried on through two islands, where artificial harbors are being constructed.

They contain a population, according to the census of 1878, of about 260,000, distributed approximately as follows: St. Michael's, 120,000; Terceira, 45,000; Pico, 26,000; Fayal, 25,000; St. George, 18,000; Flores, 9,000; Gracioso, 8,000; Santa Maria, 6,000; Corvo, a little less than 1,000.

That wonder of the ocean, the Gulf Stream, flows well to the north, and is crossed in going from Boston. The southern branch of the stream flows to the eastward between the islands and the continent, thus enclosing them in its embrace.

This gives them an equable climate. The changes of temperature are extremely slight — that between mid-night and mid-day in the shade not ordinarily over four degrees, and between the summer and the winter mean not more than ten or fifteen degrees. The average for the winter months is about 62° , and in summer about 72° . No frosts, no snows, except Pico's head is snow-capped a short time in what they call their winter. The view of this peak, five miles distant, has a peculiar charm for the visitor at Horta, the chief city of Fayal. In summer or winter its alluring, fascinating power is never lost.

The houses are built of basaltic lava. Doors and windows are wide open during the day, and the natives use fires only for cooking purposes.

Stoves are seldom seen, and many of the peasants' houses have no chimneys.

The dress of the peasants is coarse island linen, or wool, spun on distaff and woven on hand-loom.

They go barefooted the year through. Small children, sometimes with only one scanty garment, may be seen on the street every day, with head, arms, legs and feet bare.

St. Michael's, the largest of the Azorean group, is about forty miles in length and nine to twelve in width. It is a most picturesque island, and abounds in beautiful scenery. Here is located Ponta Delgada, the chief city, and third in importance in the kingdom of Portugal. It is a business centre, with considerable wealth, and contains about 25,000 inhabitants. It is situated on the south-west point of the island, extends two miles along the shore, and is backed by well-cultivated hills. The breakwater, begun in 1861, which will cost well nigh a million pounds when finished, will accommodate one hundred vessels of all dimensions and draught, and constitutes this the chief commercial port of all the islands. Its chief export is alcohol made from sweet potatoes, and all the product is sent to Portugal. They export also beans, maize, oranges, pine-apples, and pozzolana, a good cement. Ships in need call here for supplies and repairs. There is mail communication with Europe by mail steamers to Lisbon twice a month and by fruit steamers to England.

Some of the finest and most extensive gardens are here to be seen, filled with trees, shrubs, and flowers from every clime. As frosts are never known, verdant fields and vegetation exist throughout the year. The rich and titled have capacious residences in the midst of extensive grounds beautifully adorned, to visit which strangers and foreigners are ever welcome.

The roads are well-nigh perfect. In the leading cities are fairly comfortable carriages drawn mostly by mules, though there are some horses, but in the rural districts the donkey is the chief beast of burden.

Hotel accommodations are limited and are mostly under Portuguese management. In Ponta Delgada is a small hotel kept by an English family, which is homelike and comfortable. At Fayal, Terceira, and St. Michael's are Portuguese hotels of some pretension, but they have little in common with the commodious and luxurious American hotel.

In the winter months it is sometimes a little chilly and damp, showers are frequent, and one seldom leaves the house without taking an umbrella, as in England and Scotland, but the sun reappears quickly and the ground is soon dry, partly from evaporation and partly from the porous soil which conducts the surface-water quickly away.

Strong winds at times prevail, and high walls and hedges of incense and figa trees are required to protect orange trees and other fruit. In summer the prevailing winds are said to be north-east and easterly. In winter they are from the south, south-west and more rarely from north-west and south-east, occasionally accompanied by severe gales, when the temperature falls to its lowest.

With the Azoreans winter begins about Christmas. The three coldest months are usually January, February and March. During the winter of '87 and '88 the following is a digest of the daily record of the temperature and weather for the three months of December, January, and February. In December the thermometer was never seen below 60°. Warm, pleasant weather with only light, local showers till the 22nd. This was a wet day, followed by cloudy, showery days, till the 25th, when the showers come in squalls with heavy winds, and the 26th and 27th gave gales of wind and rain with low barometer (28.3). No such low barometer or heavy gales and high seas since 1839.

It was a regular blizzard, doing great damage to trees, shipping, harbor, and breakwater. Not more than once in a lifetime will one see such a Niagara sweeping over the breakwater, a structure thirty-three feet in height, and lifting boulders of tons in weight and depositing them on its promenade. During January the thermometer only once stood below 60°—that was January 4th: morning, 58°; mid-day, 62°—a lovely day. The rest of the month the thermometer registered from 60° to 66°. The extreme of variation was never more than four degrees in any given twenty-four hours. Only six days gave this variation. Nineteen days gave only two degrees of variation; the remaining days gave only a degree or less. Twenty-two days were without rain unless it might be a slight local shower. Three days only were cloudy and rainy the whole day,—the other days were a mixture of sunshine and rain. Of the twenty-nine days of February, eighteen were pleasant and without rain unless a very light local shower. Six days were cloudy and rainy most of the time—the other five days were more or less cloudy, windy, and squally.

Fourteen days of this month were spent at the Furnas, a crater containing valuable mineral waters, bath-houses, etc. Here the thermometer usually registers about four degrees lower than at any other place in the islands. The lowest was 57°. Here as elsewhere, the variation for the same twenty-four hours follows the same uniform rule.

The winter of 1886-87 was milder and more pleasant. May and June with us are seldom more agreeable—the changes there less sudden and great.

Mineral waters are found in several of the islands, but mostly in St. Michael's. In Ponta Delgada is found bottled and on sale one of the most healthful and agreeable of table waters. It issues from a high rock difficult of access—is collected and bottled as it comes from the rock, and its value has only been recognized within a recent date.

It has been analyzed in Paris, by Riche, professor of Chemistry in the School of Pharmacy, with the following results. In a litre of water was found: 1 gr., 748 of free carbonic acid,

0.0132 of carbonate of lime,
0.0405 of carbonate of soda,
0.0047 of chlorate of potassium,
0.0189 of chlorate of sodium,
0.0037 of peroxide of ferrum,
0.0030 of peroxide of manganese,
0.0890 of silica.

It being less saline than most of the waters ex-

tensively advertised, it can be used by a much larger number with advantage. Other mineral waters, found mostly in the crater called the Furnas, are longer and better known.

These were analyzed by a French chemist, M. Fouquet. As samples, the analyses of three or four only will be given. "Coldeira Grande, a boiling well of about eight or ten feet in diameter, settling furiously in a bed of loose stones, and protected by a circular wall some six feet high, wells up at the rate of nineteen gallons per minute, and its temperature is estimated at 212° Fahrenheit. The rush of gases is considerable, and they probably increase the violence of its agitation, which makes it impossible to take the temperature at the source."

Carbonic acid	988.90
Sulphydric acid.....	9.50
Azote	1.46
Oxygen	0.14
	1000.00

An evaporated litre of this water left a dry residue weighing 1.818 grammes. After the super-oxidation of the sulphate of soda, the weight of the dry residue was equal to 1.767 grammes, which, when dissolved, gave:—

Carbonate of soda.....	0.707
Sulphate of soda.....	0.025
Sulphate of potash.....	0.016
Chloride of sodium.....	0.046
Sulphuret of sodium.....	0.064
Silica	0.285
Silicate of soda.....	0.024
	1.767

Caldeira de Pedro Botelho, or, as the natives call it, Boca do Inferno, a name suggestive and very appropriate, shoots what little water it contains with even, recurrent spurts and emits large quantities of gases at each pulsation. The water is intensely acid, and the sides of the pit are covered by a fine, gray, siliceous mud, much sought after by the peasantry for topical use in cases of stiffened joints and skin diseases. A sample of this mud, from which all trace of sulphate of lime has been eliminated, presented these results on analysis:—

Silica	61.23
Alumina	25.41
Peroxide of iron	0.92
Lime	0.51
Manganese	8.47
Potash	1.33
Soda	0.41
	98.28

The thermometer, quickly plunged into a bucket of this muddy water taken from the mouth of this Caldeira, indicated 98.5° C. (208.40° Fahr.), but the temperature is probably higher. A litre of evaporated water gave a dry residue weighing 1.003 grammes, which on analysis showed—

Sulphate of soda.....	.651	Silica.....	.300
Sodic alum.....	.087	Chlorohydric acid.....	.012
Sulphate of lime.....	.034	Sulphuric acid	.003
Sulphate of iron.....	traces		
			1.087

Aguia Azeda. This water is of the ferro-saline type, delicious to the taste and tonic in its effect. Its temperature is 60.80° Fahr., and it flows at the rate of 11 2-5 gallons per minute. A litre submitted to ebullition lost 930 cubic centimetres of gas, composed of—

Carbonic acid.....	890	Carbonic acid.....	95.7
Azote	35	Azote.....	3.7
Oxygen.....	5	Oxygen.....	0.6
	930		100.0

A litre of this water evaporated left a residue weighing 0.334 gramme, which gave—

Bicarbonate of soda.....	.170	Sulphate of potash.....	.004
Bicarbonate of lime.....	.010	Chloride of sodium.....	.067
Bicarbonate of iron.....	.008	Silica.....	.091
Sulphate of soda.....	.040		
			0.390

Padre José, temperature 123.80° Fahr. A litre of this water submitted to ebullition lost 102 centimetres of gas, made up as follows:—

Carbonic acid	86.3
Azote	12.0
Oxygen	1.7
	100.0

and a detailed analysis gave—

Bicarbonate of soda.....	.214	Chloride of sodium.....	.113
Bicarbonate of lime.....	.031	Silica.....	.201
Bicarbonate of iron.....	.020	Sulphydic acid.....	traces
Sulphate of soda.....	.114		
			0.693

One of the largest of the Quenturas baths wells up at the rate of 38 gallons per minute, temperature 118.40° Fahr., and is drawn off into reservoirs for use as required. A litre submitted to ebullition lost 200 cubic centimetres of gas, composed of—

Carbonic acid	192.5
Azote	6.0
Oxygen	1.5
	200.0

An evaporated litre left a dry residue, weighing 1.014 grammes, which on analysis, showed—

Bicarbonate of soda.....	.956
Bicarbonate of lime.....	.008
Bicarbonate of iron.....	.008
Sulphate of soda.....	.026
Silica.....	.192
Chloride of sodium.....	.111
	1.301

A public bath-house has been built in the valley of the Furnas—a nice, large, commodious and somewhat expensive building. It contains some sixty bathrooms with dressing-room attached to each; a marble bath-tub cut from a solid block set in the floor, and supplied with hot and cold water of iron and sulphur, so that a bath of any temperature desired, of either sulphur or iron water can be had, or a mixture of each. Each room has tiled floor, electric bell, suitable chairs, table, etc. The services of a janitor can always be had—a female attendant when necessary—and for all this there is no charge. A tip to the janitor or attendant is all that is expected. As yet there is no physician in attendance, save in the months from June to September, when two from Ponta Delgada serve a month each in turn for the time specified. They are taken from the hospital at Ponta Delgada, and a small hospital under the same management is located near this bath-house, which they use for such patients as they choose and think may receive benefit from such treatment.

An official report to the government is expected from these physicians each year.

It is easy to see that this imperfect service can not be productive of very valuable results.

This locality, so abounding in nature's products of sanative qualities, needs cultivating. This wealth of material running to waste night and day, if rightly appropriated, might be a boon to many who are afflicted and whose ailments might here find relief.

From the imperfect and unsatisfactory reports that have thus far been given, some idea can be

had of the classes of cases which have received most attention, and the result. Cases of rheumatism are most numerous treated with the largest percentage of improvement. Next come nervous and skin diseases. Of seven cases of sciatica five were improved. Two cases of dorso-intercostal neuralgia were improved. Of ten cases of paraplegia in rheumatic patients, eight were improved. Five cases of hemiplegia following upon cerebral hæmorrhage, three were improved. Cases of psoriasis, impetigo, lichen were treated successfully. Many forms of dyspepsia are relieved and cured. Cases of anæmia are often greatly benefited. But the use of these waters is still largely empirical, and the great gift which nature has here bestowed on mankind is by no means properly appreciated.

The valley itself in which is found this wealth of mineral water is one of the loveliest spots on earth—rich in extensive and beautiful gardens, summer houses capacious and comfortable, and surrounded by peaks from which the view is entrancing. An old resident of the Sierras said of it in contrast, "While not so grand, it is far more beautiful."

Here Wm. Hickling Prescott spent a part of the year 1816, and wrote his sister, "In this delightful spot I have enjoyed some of the happiest hours that I have spent since I quitted my native shores."

Well may a man in such a retreat as this throw off the cares and burdens which threaten to crush mind and body both, and recover his elasticity, and find peace and health in the surrounding beauties and in the pure atmosphere which here he breathes.

The diseases most prevalent among the natives, as is generally the case, are born of their climatic conditions and sanitary surroundings.

The peasant is poor, poorly nourished, poorly clad, has the ground for his cottage floor, a damp climate, a damp house; these conditions bring their train of ills—general debility, dyspepsia, anæmia, rheumatism, and pulmonary troubles.

Epidemics of severe types of diphtheria, typhoid fever, or other fevers seldom visit the islands.

Malaria is unknown. The middle and higher classes are comparatively free from sickness, and many attain a great age. The natives are nearly all Catholics. A single small English chapel at St. Michael's, supplied by a Church of England clergyman from Christmas to Easter, is the only other public service in the islands. A few English-speaking people are found in the chief cities. At Horta, Fayal, is the home of our American consul. This office has been in the family over eighty years, minus two years only. Educated largely in our highest institutions—the family is intelligent, cultivated, refined, and keep thoroughly posted in matters that most engage the attention of American scholars and statesmen, and they are tireless in their efforts to entertain and make pleasant the stay among them of American visitors and others.

Many have had occasion repeatedly to return thanks for flowers—souvenirs of their delicate attention and kind regards, from their capacious and well-kept garden of several acres in extent, and containing specimens of nature's varieties of trees, shrubs, fruits, and flowers from nearly every clime.

Nor must the genial Mr. and Mrs. Edwards, of Fayal Hotel, be omitted. They are large-hearted and generous quite beyond what is usually seen in those who manage hotels. In Ponta Delgada, St. Michael's, are also to be found pleasant and cultivated English-speaking families, mostly natives of England.

The Portuguese are a polite and courteous people, even to the children. Saint's days and other holidays are frequently observed. Religious processions headed by bands of music, and conveying images of worship, often fill the streets with a gaily dressed throng.

On the whole they seem fairly prosperous and happy. Their increase is much in excess of their ability to maintain, so emigration, mostly of the young of both sexes, constitutes yearly a large export product. It will be seen by this somewhat discursive description that the Azores furnish the tourist or invalid who seeks to escape the rigors of a New England winter with an equable climate and beautiful scenery, among a profusion of flowers and luxurious vegetation.

Springs of fresh and medicinal water are ample in supply, and healthful. A winter residence here should never be sought by the consumptive; but for those suffering from asthma, rheumatism, neuralgia, anæmia, nervous exhaustion, malaria, general debility, the Azores are justly celebrated. The great and sudden changes which belong to our climate even in summer never surprises and shocks the invalid who seeks rest and quiet in these island retreats.

Expenses of living here are very moderate. Barks for Boston are sent out from E. A. Adams & Co., each making the round trip on an average once in ten or twelve weeks. The vessels are not large, but seaworthy—each in command of experienced and skilful officers.

THE MODERN PRACTICE OF SURGERY.¹

BY OTIS K. NEWELL, M.D.,

*Assistant Demonstrator of Anatomy at the Harvard Medical School,
Surgeon to Out-Patients at the Massachusetts General Hospital.*

THE briefest possible consideration of the subject to which I wish to call attention will be necessary in order to consume no more than the space allotted to this paper. Bearing in mind, moreover, the present abundance of medical literature, I realize the great importance of putting, at all times, whatever we have to offer in the fewest possible words, and I shall endeavor to do so. I wish to present to you the practice of surgery as it is to-day, and to consider in what way it may be pursued in order to give the most possible impetus to the progress of the Art, and the greatest and most effective value to our professional opinions. I fully realize the difficulty of considering, from every standpoint, what the practice of surgery in this community is and should be, and I shall endeavor to confine myself as much as possible to its scientific aspects. I believe it is quite well known how inclined men are to live so much within their own day as to be led to feel that improvement in particular directions can no more be possible, and to thus retard, in a measure, the inevitable advent of change and improvement in all human contrivances.

¹ Abstract of a paper read before the Massachusetts Medical Society, June 12, 1888.

This may possibly result in a wise conservatism, which makes us loth to give up the old and tried thing until what would replace it has doubly proved its value. In 1833 Du Boyer, a well-known French surgeon, began his lectures on surgical diseases with the following sentence: "The art of surgery, pursued in all times with more or less diligence, has made, in our day, extraordinary progress, and appears to have reached almost the highest possible degree of development." In the light of a great discovery, which has changed the surgical treatment of disease from what was before almost empiricism to quite an exact science, how strange this statement seems and how much it ought to warn us against similar misconceptions.

Aside from the great advance in surgery which has brought us to the time when the peritoneum, which but to touch in the old day was considered fatal, may be operated upon with that degree of success which has made the mortality of exploratory abdominal operations practically nil, there is, as I believe we are all aware, a corresponding progress in almost every branch of the arts and sciences, a progress so great that a close consideration of its developments is almost appalling. Scarcely appreciating it we live under advantages, many of which would, to our ancestors, have been only as possible as miracles, and whose combined effect we, living also, perhaps, much within our time, cannot possibly estimate or understand completely. It is very gratifying to know that the present wonderful degree of intercommunication and interdependence of the civilized world has become only possible through the application of scientific discoveries to the more material advancement of mankind's condition. How abundant and familiar are the proofs of this! We only need to desire it and we can readily keep informed of all that occurs of importance throughout the civilized world. If the ordinary channels of circulation between this city and New York be occluded by the severe storm of a few hours we can rapidly develop a collateral circulation *via* London, which will keep up the necessary supply of information until the main current is re-established. In a few days, and indeed hours, we can travel from one clime to another by what but a short period ago would have been a long and tedious journey. We can speak, hear, write, and even walk with machinery. All these and many other possibilities, providing our lives are still averaging their forty odd years, crowd so much into them that it becomes a question how much is possible and advisable to do.

Is it likely that among other things the practice of medicine should not be greatly modified and improved by all these changes? I say the practice of medicine, because in trying to indicate what that of surgery should be, I must consider with it general medicine, to which it is now more closely than ever related. Probably nothing affects the advance of medicine so much to-day as the means of intercommunication above referred to, through which all knowledge and ideas in regard to it can be so rapidly disseminated that practically the whole medical world is set to thinking and to work upon them simultaneously. If necessary we can know the Crown Prince's pulse in every hour, and any important medical discovery can be read through-