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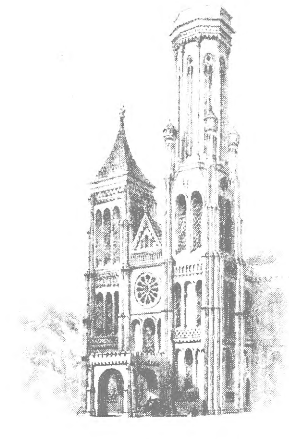

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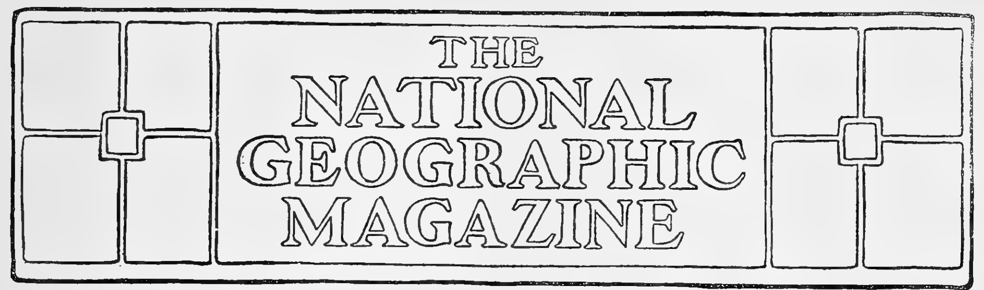


GLIMPSES OF HOLLAND

By William Wisner Chapin

PEOPLE living in other countries, through intercourse or association with the natives of Holland, have often pictured in their minds the fatherland of this honest, industrious people; but only by seeing the country can one appreciate its peculiar charm.

Here is a section of the globe which was almost entirely overlooked by nature in the original distribution of iron and other metals, of coal, stone, and wood. In fact, to a great extent even the land itself was wrong side up at the start. With this discouraging beginning in mind, a visit to Holland for the sole purpose of observing the results accomplished by patient, persevering labor and sacrifice would in itself amply repay a great amount of effort. The existence of Petrograd and Venice is regarded with wonderment, although they are cities covering small areas. What, then, can be said of Holland, where the land, made and reclaimed from the sea, spreads out in great fertile meadows and plains thousands of square miles in extent!

As nature is charged with discrimination against Holland in the distribution of her gifts, so nature is entitled to credit for important assistance; for she has worked hand in hand with the builders of the main. The wind, ever an ally, has furnished the power in the battle through which the land was wrested from the sea; while even the water, against which Dutch ingenuity so long and successfully plotted, has repeatedly obeyed their summons and come to the rescue of besieged cities, overwhelming their enemies and preserving the nation.

One-quarter of the whole kingdom lies below the normal level of the sea, while 30 per cent of all the territory of the country would be submerged but for the dikes.

Holland's chief defenses against the encroachment of the sea are its sand dunes, in which there have been but two real breaches in the course of centuries of erosion. These dunes are covered with bent grass and protected as carefully from the ravages of the sea as a nation can protect them. The two breaches are filled now by the Westkapelle dike and the Hondsbossche sea defense, the former over two miles long and the latter nearly three miles long. In many places the sand dunes are gradually being eroded away, and what are known as "sleeping dikes" or Holland's reserves in her war with the waves.

For a time Holland was one of the three ruling powers of Europe, and its political history is even more marvelous than its physical. Warfare has marked the existence of this sturdy people from the first; for when not fighting with swords as weapons, shovels and picks were the implements.

Once so successful in her ascendancy as a world power, she has exchanged ancient grandeur for modern prosperity. She has beaten her swords into plowshares and settled down to the enjoyment of the fruits of her labors, inviting to her shores the nations of the world to

pluck the olive branch of peace from her plant of arbitration.

In opposition to Napoleon's pretext for annexing Holland to the Empire, which was that what land existed was the alluvium of French rivers—the Rhine, the Scheldt, and the Meuse—an old proverb runs, "God made the sea, but the Dutch made the shore."

Such were some of the thoughts which filled our minds when the train bearing us from Hamburg entered the capital of the Netherlands, The Hague. He who has formed impressions of the country from the attractive posters advertising steamship and chocolate companies must be quite disappointed in finding that the buildings of the city are ordinary in appearance, and that the people do not all wear awkward-fitting clothes of wonderful colors and clumsy wooden shoes; nor do they stand on the dike watching the yellow-funneled steamship as it passes, while sipping their cocoa. However, the disappointment will be short-lived.

Having been deprived of fresh milk and cream during the several months of our sojourn in Japan and China, the many beautiful cows seen from our car window as we approached The Hague had prompted the craving for a glass of genuine half and half, cream and milk. So we set out to obtain it and devoted a full hour hunting over the town to gratify the desire. Had our quest been for a high mountain in this low-lying land, the search would have been quite as successful. Cream and milk are a commodity altogether too valuable in the manufacture of cheese to be sold for use as beverages.

THE OLD DUTCH PRISON

Our first visit was to the old city gate, used centuries ago as a prison. It marks the scenes of the most bloody events in the history of Holland. Its dismal dungeons and array of accessories are indisputable evidence that the early Dutch, like all other Europeans of that time, were past masters in ingenious methods of torture, and the rough crudeness of the instruments exhibited prove that little time was wasted in their construction and finish.

THE WINTER PALACE

The Winter Palace, built four hundred years ago, and now occupied by Queen Wilhelmina, contains furniture and bric-a-brac of almost priceless value. The exterior is ordinary in appearance and does not in the least resemble the popular idea of the home of royalty. It was the square in front of this building on which the people gathered and anxiously awaited the announcement, from the balcony just above the main entrance, of the birth of their beloved Queen's presumptive successor, Princess Juliana, which event occurred April 30, 1909.

The forest of The Hague forms one of the most magnificent parks in the world. The dearth of trees in other parts of the kingdom has been more than made up by this grand collection, which includes elms, oaks, alders, and the largest beech trees to be found in Europe. The value of this wood is so great and the bond of affection between the people and these monarchs of the forest so strong that on occasions when the government exchequer has run low and the sale of the trees been under serious consideration, the people by repeated sacrifices and voluntary offerings have averted this catastrophe.

From The Hague a drive of a few miles through the forest proved a delightful route by which to reach Scheveningen, once a little fishing village, now Holland's most popular watering place and resort of fashion. On this wide expanse of clean sand beach crowds of spectators gathered daily at the bathing time. Many of them reclined in the comfortable willow chairs with peculiar bath-tub-shaped backs, which entirely enveloped the occupants and furnished protection from sun and wind while they enjoyed the frolic of the great rolling surf as it tossed the bathers in its final tumble on the smooth sand. The hotel buildings here are commodious and handsome, and a substantial iron pier connects the steamboat wharf with the cement promenade above the beach (see page 8).

AMSTERDAM AND ITS BRIDGES

An hour on the train brought us to Amsterdam, Holland's greatest city and

The dikes of Holland serve not only to shut out the water, but in many places form the favorite strolling places of the people. The costumes seen in this picture and the situation of the houses behind the dike are characteristic of nearly all of the fishing towns of Holland.

Photos by W. L. Gifford

LIVING BELOW SEA-LEVEL IN HOLLAND: SCENES AT VOLLENDAM

The level of much of the land in Holland is shown by the houses in this picture. Dikes which keep the water from overflowing the country were built at vast expense and cost about $3,000,000 a year for maintenance. They have to be maintained along the rivers as well as across the breaks made by erosion in the sand-dunes that fringe the sea.

Photo by W. L. Gifford

THE SEAWARD SIDE OF A HOLLAND DIKE

The seaward side of the dikes has to be heavily armored with riprap. This riprapping consists of great granite blocks, which extend above the highest tide and below the lowest tide. In many places where the ocean threatens to break through a sand-dune dikes have been built back of the dunes to serve as Holland's reserves in its war with the waves.

reputed to be one of the wealthiest cities in the world. The appearance of this old town at once impresses one with its solidity and massive proportions. Its wide avenues and large buildings do not suggest that this city is supported on piles, connecting some 90 islands, except the frequent crossing of bridges, which number more than 350. So numerous are the waterways that the map of the city resembles a spider's web in form. And when one inquires the distance to a certain point, the reply is, "It is so many canals" in the direction indicated.

Amsterdam at the end of the eleventh century was a poor fishing village. Five centuries later it became the grain emporium of northern Europe, while its bankers have since assumed wonderful prestige and wield a tremendous power in the financial circles of the world.

Among the most conspicuous buildings of the city is the Royal Exchange, which rests on a foundation for which 34,000 piles were used. Another great building is the Royal Palace, built in 1648 on 13,659 piles. Its massive walls inclose a ball-room said to be the largest in all Europe.

The employment of 12,000 of Amsterdam's Jewish population in the polishing of diamonds is an important factor in the industry of this city.

PHILANTHROPY SYSTEMATIZED

The powerful philanthropic organizations of Holland have earned for her the reputation of being the most liberal in charities of the European States. To the tourist who has encountered the disgusting beggars of some parts of China and India, the entire absence of this class in Holland is very noticeable. Among other favorable conditions reputed to her is

Photo by Emil P. Albrecht

ON THE CREST OF ONE OF THE SAND-DUNES THAT SAFEGUARD HOLLAND

The sand-dune, despised, if not useless, in most parts of the world, is the faithful friend and protector of Holland. The government of that country in turn guards them with rare zeal. The force of the waves, which eat into their seaward sides, is broken, and they are robbed of their sands by numerous jetties built at large expense. Several jetties may be seen on the left. These sands, deposited at the base of the dune, broaden out and make Holland more secure. On the land side the winds are circumvented in their efforts to damage the dunes by the systematic planting of various grasses, which thrive in the sands and bind it fast.

that she has the best public instruction and the least corruption of any nation. Louis Napoleon's conclusions, too, were in the same strain: "In Holland is found more innate good sense, justice, and reason than in any of the other European countries."

It is estimated that about one-third of the people of Holland are of the Catholic faith, 100,000 of Hebrew, and the remainder made up of different branches of Protestantism, with the Calvinists predominating.

DUTCH LOVE OF MUSIC

The Hollander's love of music cannot be disputed. This fact is impressed upon the traveler by the continuous performances of strange belfry music, which not only floats in, but rushes through one's windows, when the chimes in the church towers ring in each hour of the day or night, with a flood of harmony. While the selections include many quaint old hymn tunes and movements from operas having rapid cadenzas of wonderful range, the degree of pleasure one experi-

Photo by Emil P. Albrecht

HOLLAND'S TIRELESS TOILERS

"The variety of work these mills perform includes almost everything but cultivating the soil. It would seem that the possession of at least one windmill is a condition precedent to the forming of the family ties, as the windmill furnishes not only shelter, but occupation and income. One must not take it for granted, however, that these wind engines are all engaged in grinding out florins for their owners. Many hundreds of them are constantly at work pumping water over the dikes; otherwise much of the fatherland would soon be reclaimed by the Father of Waters, who has ever carried on a vigorous warfare in his dispute for possession" (see text, page 12).

ences from listening to the bells depends more on the hour of the production than the composition played, since being awakened in the night by one tune, however choice the harmony, does not differ materially from another in its moral effect upon the sleeper.

Fortunately, the Dutch chimes do not include large castings with deeptoned vibrations. The bells are small in size and many of the carillons contain as many as 42 in the set. The mechanism of the chime is so arranged that the cylinder, which has pegs similar to a Swiss music-box, may be exchanged for another or removed entirely, permitting a performer to play whatever tune he chooses without waiting for the minute-hand to complete its circuit.

Many of the Dutch steeple clocks wear an unnatural, open expression, which we finally discovered was owing to their habit of holding but one hand—the hour hand—over their faces.

The location of Amsterdam is most favorable to tourists as headquarters from which to make excursions to places of great historical interest, and to towns in which the life of today is said to be lived precisely as it was centuries ago, and where the dress is similar and the adornments of jewelry and laces are identically the same.

THE DUTCH WINDMILL

A man's wealth may be measured by the stocks and bonds he owns in New York, by the cattle he has in Argentina, by the chain of gold eagles his wife wears in Tehuantepec, and so on; but in some parts of Holland the number of windmills a man owns gives the clue to his financial rating. They fight the water, shelter the family, afford an occupation, and provide an income for their owners.

WINDOW SPIES

On the front façade of many of the houses, hanging between the windows, are mirrors, placed at such an angle that those inside, without being seen, may view the street in either direction, including the front door and any one seeking admission. The home life of many of the people is said to be so quiet that, wishing to see all that is going on about them, they employ these "spies," as they are sometimes called.

As we proceeded along a narrow street of one of the little "dam" towns our attention was attracted to a front door on which was fastened a piece of white paper containing a note. Several persons preceding us had paused in passing to read its contents, and on inquiry we were informed that a member of the family who had been ill was improving. This sensible custom is followed by changing the bulletin each day, so that inquiring friends may keep informed of the condition of the patient without disturbing the household to inquire.

Our informant further stated that when a death occurs in a family the relationship of the deceased is indicated by the position of the folding shutters of the windows: If a cousin, one section; a brother, two; while for a parent all but one are closed.

THE ATLANTIC CITY OF HOLLAND—SCHEVENINGEN

The roller-chair is replaced here with the bath-tub chair, which protects the occupant from the wind or the sun. Charles II embarked at Scheveningen on his return to England at the Restoration, and in 1673 the Dutch navy, under Admiral de Ruyter, defeated the allied fleets of England and France near here.

Photo by A. W. Cutler

A STORK'S NEST: HAARLEM, HOLLAND

Nowhere else in the world does the stork stand in higher regard than among the people of western Holland. Nothing is regarded as more indicative of good fortune to come than for a pair of storks to build their nest in the chimney of a humble cottage. However humble that cottage may be, the occupants feel that the stork's nest promises many blessings in the future. The farmers erect long poles with a box at the top in their fields, feeling that if the birds build their nests there both the quality and the quantity of their crops are assured.

ANNOUNCING THE NEW-BORN

The Dutch differ from the Chinese in announcing to the world the birth of children only in the article displayed. The Chinamen hang a piece of ginger over the main entrance to the house, while the Hollanders indicate the event by a piece of lace, combining with the lace a pink background for a boy and tinsel for a girl.

The orphans of some of the cities of Holland are quite conspicuous, and especially so when seen on the streets of Amsterdam, dressed in what might be termed half-and-half clothing. The east half of a boy's coat, including the sleeve, is red, while the west half is black. The dresses of the girls are divided in a similar manner, but are topped off by becoming white caps, which make the young misses look very neat and attractive. This singular style of dress is said to have been adopted to enable the railroad officials, as well as the authorities, to keep track of them. As the orphan asylums of Holland have the control of children committed to them until they are of age, the more mature of the unfortunates (wearing these odd garments in public) present a very striking appearance.

DOMESTICITY A TRAIT OF THE DUTCH WOMEN

The housewifely traits of the women of Holland are in evidence throughout the little kingdom. The girls learn to knit early in life, and they are perhaps as busy knitting for the needy throughout Europe today as are our own good women in America

KEEPING ONE'S LOCATION

While familiarity with the Dutch language is a great advantage in visiting Holland, it is not essential to one's pleasure. Burton E. Stevenson in "The Spell of Holland" tells a good story of an Englishman who did not understand the language, but who took the precaution to write down upon his cuff the legend he saw on the corner house nearest his hotel, and which he took to be the name of the street on which the hostelry was located. During his wanderings he became confused in his direction and showed the legend to a number of passers-by. They only laughed, shrugged their shoulders, and passed on. Finally, exasperated at their treatment, he met an English-speaking native and expressed his disgust at their stupidity in not directing him toward his boarding place. The native inspected the memorandum and informed him that the sign he had copied was "post no bills."

Photo by A. W. Cutler

THE ISLAND OF MARKEN: HOLLAND

The styles do not change as frequently on the Island of Marken as they do in New York and Paris. The children there still wear the same curiously patterned dresses that were adopted by their ancestors over 200 years ago.

The swan, so much admired for its grace and beauty when seen lazily floating on the water in our public parks, is the object of quite as much admiration in Holland. Only in this old prosaic country the popularity of the bird appeals not alone to the esthetic taste, but to the palate also. The thought of this beautiful bird occupying the same responsible position at feasts as falls to the lot of the festive turkey in America is not altogether a pleasing one. However, if the reported decrease in the turkey industry in America continues, it is among the possibilities that the swan will replace our noble Thanksgiving bird.

A delightful hour spent on a packet winding her way up the picturesque river Zaan is a splendid introduction to Dutch landscape. Holland is sometimes spoken of as a monotonous country, and there certainly are few ups and downs in the scenery, excepting in the southern provinces. But the windmill as an adjunct to the landscape would not be nearly as effective were the face of the country less level. These great nature engines are to Holland's scenery what snow-capped mountains are to the vistas of Switzerland, and quite as numerous, especially on this river, where 400 of them may be seen in a ride covering but 12 miles (see page 6).

The objective point of this river ride is the little town of Zaandam, spread along the banks of the Zaan. The numerous mills of this region indicate that Zaandam is one of the wealthiest in Hol-

land, since financial ratings here are commonly given as so many windmills; and when we realize that one of these tireless toilers is as valuable as a farm, their importance can be appreciated. The variety of work these mills perform includes almost everything but cultivating the soil.

WINDMILLS AND FAMILY STANDING

It would seem that the possession of at least one windmill is a condition precedent to the forming of the family ties, as the windmill furnishes not only shelter, but occupation and income.

One must not take it for granted, however, that these wind engines are all engaged in grinding out florins for their owners. Many hundreds of them are constantly at work pumping water over the dikes; otherwise much of the fatherland would soon be reclaimed by the Father of Waters, who has ever carried on a vigorous warfare in his dispute for possession.

In addition to Zaandam's wealth, the city possesses what Napoleon the First called the finest monument in Holland—the little hut occupied by Peter the Great in 1697. After his triumphant entry into Moscow, he returned and worked here at the trade of ship-building until his identity was discovered. This incident for a time gave the place the name of Czardam. The interesting little cottage, containing two rooms, is encased in a small brick building for protection from the weather.

While the cattle of North Holland have long held a world-wide reputation for productiveness and beauty, their importance to the entire Dutch nation can never be fully realized until one traverses this wonderful country where so much of the land lies below the sea-level. Here not only the boundaries of farms are described by narrow canals of fresh water, but the fields are separated by connecting waterways. These prevent any crop failure from drought and contribute to produce ideal conditions for the raising of cattle.

THE CHEESE TRADE

The manufacture of cheese has assumed such proportions that it may almost be regarded as a national industry.

It is estimated that there are 150 varieties of cheese made throughout the world. Each sort is said to bear an individual trait or flavor which is as distinct and peculiar to the land or district where it is produced as is the language. That there is foundation for this claim in the output of Dutch dairies is clearly demonstrated.

No visitor should fail to visit Alkmaar on Friday, its market day. It is best to arrive Thursday night, so as to be on hand for the early morning sights. The town is surrounded by a region of great fertility, on which are pastured large numbers of Holland's black and white beauties.

In the center of Alkmaar stands the old weigh-house, erected in 1582. Connected with the town clock in the tower of this building hangs one of those tinkling chimes which plays a melody even stranger than those heard in Amsterdam. It is in this building that all of the cheeses are brought from the square in front, to be officially weighed, before they are delivered to the purchaser and stowed away in the packets or barges waiting near by in the canal.

From this, the principal cheese market of Holland, thousands of tons of golden spheres change ownership each year for millions of golden disks (dollars). On approaching, one might easily imagine that preparations for a bombardment are being gotten rapidly under way, as the 9-inch cannon balls of bright yellow, tossed from hand to hand in rapid succession, are being piled in double tiers of about 10 or 12 feet square.

THE CHEESE SALE

So numerous are the strange dog-carts and scows with which the farmers bring their loads to town that the adjoining streets and canal are completely filled, and the noon hour has nearly arrived before the cheeses are transferred to the square, where it is necessary to place them in perfect order before the sale can begin.

However, when all is in readiness the sales proceed very rapidly, and on the close of a deal, which is confirmed by solemn, and sometimes oft-repeated, handshakings, porters appear, dressed in white

Photo and copyright by International News Service

THE SOLDIER AND HIS SWEETHEART

The army of Holland is not large, but then the Dutch have always contended that the sea is as much their ally in war as it is their enemy in peace. There is a saying that no army whose soldiers are not 10 feet tall can invade Holland. "A Netherlands under water rather than a Holland in alien control" is a sort of military maxim in the dike country.

Photo by M. L. Millard

A SCENE ON MARKEN ISLAND

Situated in the Zuyder Zee, the Island of Marken is inhabited almost exclusively by fishermen and their families. Their gaily colored costumes; their manners, which have remained unchanged through centuries; and their houses, which possess striking tiled roofs, and which are connected by narrow embankments paved with the tiles, give the place a charm that makes it popular as an excursion point from Amsterdam and other cities.

linen and wearing straw hats with colored bands, carrying a long boat-like tray, with handles on either side, supported from the shoulders by straps. On these trays, piled in pyramidal form, rest from 60 to 80 four-pound cheese balls. Two men carry each tray, raising the load just high enough to clear the ground, and swing it along to the scales in the weigh-house. Then they carry it to the packet, which will deliver the cargo to the warehouses, to be consigned to all parts of the world. These yellow cheeses have a world-wide reputation as a table delicacy, and while known as the Edam cheese, from the little town a few miles distant, comparatively few of the spheres are produced there.

The old Groote Kerk, erected in 1470, occupies a prominent corner in Alkmaar

and contains many interesting features. The ceiling, rising 81 feet from the floor, is perhaps responsible for our impression that the interior is cold and unattractive as a place of worship and is more suggestive of a place of burial. Indeed, most of the marble slabs of which the floor consists cover graves. One of these, marking the resting place of a man and wife, bears the date of 1546.

A strange feature of this old kerk was noticed upon the face of several of the slabs where, carved in relief, was an animal or object meant to illustrate the name of the one whose grave it marks.

THE YOUTHFUL SHIPBUILDER

From the day when Admiral de Ruyter vanquished the allied fleets of England and France off the coast of Holland, every young Dutchman has gloried in his country's naval history.

WHERE LIMBURGER COMES FROM

Another of the cheese - producing districts is Limburg, sometimes called the Garden of Holland. Of the celebrated relish known as Limburger cheese it has long been a query how an article of food made from delicious material and considered such a delicacy can possess so obnoxious an odor and still retain its self-respect. This peculiarity has made Limburger cheese responsible for many amusing incidents and the brunt of numerous stories. A Dutch-American rural citizen once went to town to make some purchases, among which was some of this odoriferous commodity. For convenience he placed it in a long box in the wagon, behind the seat. Happening to stop on the road, an inquisitive acquaintance approached and asked what the box contained. In answer he raised the lid and replied: "I have my grandmother." "Well," rejoined the inquirer, as he caught a whiff of the contents, "She's not in a trance."

Holland is one of the countries where dogs are required to earn their bone. About 25 years ago their labors were so arduous that they aroused the pity of the legislators of Amsterdam, who passed a

WINTER TRANSPORTATION IN VOLLENDAM

Although their wooden shoes are not very well fitted for wading snow, Holland has its share of snowfall. The picture illustrates the rustic baby carriage, with sled runners instead of wheels; for most households have children in Holland, and Dutch children must have a good time when the snow flies.

law prohibiting the use of dogs for towing boats in that part of the State. Since then the law has become general.

DOGS MUST WORK

While canines have been freed from this work, their existence in Holland falls far short of being a life of idleness, for they are commonly seen hitched up in teams. Ofttimes their running mate is a woman, and together they draw a cart (a load in itself) filled to its limit with vegetables or milk cans. After the delivery of the produce the driver feels no hesitancy in himself occupying the place of the load, while he drives his team home.

The ride from Amsterdam to Vollendam fills an hour and a half full to overflowing with interesting suburban scenes and glimpses of country life, as one speeds along in the comfortable steam tram-car. Now and then a great sail looms up on the flat horizon and we imagine we are approaching the coast, but on nearing the locality a scow appears to be moving over the grassy meadows. We wonder if the farmer, not satisfied with having all of his grinding and machine work performed by the forces of nature, can have harnessed the wind to his wagon to convey his produce to market. Soon our car passes the narrow waterway on which this craft is gliding, and we find that if we substitute a boat for the wagon our conjecture is correct.

CANALS BETTER THAN ROADS

This little canal stands for Holland's solution of the good-roads problem, and it certainly possesses some advantages over our highways, such as durability, absence of dust and noise, as well as the saving in expense of sweeping and sprinkling. Of course, automobiles are out of the question; but the staid, practical Dutchman cares little for that, since if the speed of his scow is too slow a motor-boat will be entirely satisfactory and very much safer than an automobile.

In this land where waterways are the common thoroughfare and no coping or

guards are provided to prevent the careless or inebriate from falling in, one would naturally suppose that the mortality from drowning would be very great; but it is said that few deaths occur from this cause.

History, however, records many occasions of terrible inundations that have claimed great numbers of the population. In the latter part of the thirteenth century the waters overcame the dikes at the mouth of the Ems, causing a loss of 80,000 lives. Again, in 1421, the overflow of the Meuse buried 72 villages and drowned 100,000 people; and in 1570 another 100,000 lives were swallowed up by the North Sea, when it broke through the dikes.

WHERE THE FAMOUS CHEESE COMES FROM

Edam may be a small town and its population may live as their ancestors lived a century ago, but it is known in every part of the world where people who live well dwell; for Edam gave its name to the cheese produced in the rich farming district that surrounds the town.

THE CANAL-BOAT POPULATION

The numerous canals of Holland are populated by about 50,000 people, to whom the houseboat represents home all the year round, and with the exception of the winter season, when the canals are frozen, they are constantly on the move. The stern of the vessel is fitted up for the boatman and his family, while the space in front is used for carrying freight. So large a part of Holland is intersected by this network of waterways, which also connects with the river Rhine, that the owners of these barges do a thriving business and are said to become in time quite independent.

The attractive old town of Vollendam is one of the quaint little places which every one who visits Holland should see. Here for centuries one generation after another of the people have lived on in the same rut, content to exist in the memories of the past, when wealth was abundant, but which in return for the prevailing lethargy has taken its departure.

The advantage of visiting the place on

Photo by A. Nielen

YOUNG HOLLAND ALL DRESSED UP

The little girl in Holland is her mother in miniature when it comes to dress, and the boy who cannot be appareled just like his father and wear his hat at the same angle that his father wears his is the unhappiest of creatures. Little women and little men they must be, if it is true that "the clothes proclaim the man."

spread and hundreds of fish-nets hung from the masts to dry in the bright sunshine.

THE PEOPLE OF VOLLENDAM

Most of the people of Vollendam are Catholics. Their costumes, while in many ways resembling those worn in other localities, have certain features distinct from those worn by Protestants. After the conclusion of mass the street presents a strangely animated scene, being nearly filled with people clothed in peculiar, ill-fitting, queer-shaped garments in bright and contrasting colors and shuffling along in clumsy wooden shoes. Here we at once recognize from whence the Holland-American Steamship Company obtained models for their attractive posters. As the younger Vollendamers promenade back and forth the length of the little town on this narrow roadway, here and there at the side of the street are seen groups of old men squatting in their wooden shoes. So motionless do they appear, one could almost imagine them to be a species of snail that had emerged out of the shoe and would soon draw back within its protection.

As the hour for church service approaches, the road is quite deserted, and so full is the building that we can only gain admittance to the vestibule.

A stroll of a few miles into the country from Vollendam affords an opportunity for a closer acquaintance with some of the interesting objects one sees at a distance through car windows. This locality is studded with quaint old wind-

Sunday is that the 300 or more boats comprising the Vollendam fishing fleet will have returned for the day. The fishermen, who comprise practically all of the male population, are very conscientious observers of the Sabbath. They always return when possible to their homes for Sunday that they may attend the church services, visit with their wives and sweethearts, and if the weather is favorable promenade with them on the clean brick road, the principal thoroughfare that crowns the great stone-faced dike protecting the town from the turbulent waters of the Zuyder Zee (pp. 3, 19).

Upon reaching the top of the dike, which rises about 14 feet above the meadows, our first view included the harbor, formed by a substantial breakwater, the inclosure filled to its capacity by the picturesque fishing craft, with sails

Photo by W. L. Gifford

FISHER-BOATS AT HOME FOR SUNDAY: VOLLENDAM, HOLLAND

Next day they start again, but a wise man waits his turn

mills, which are large and strongly built. The ground floor of many of them is finished as a residence, which the owner occupies. While they are considered large as mills, they are rather small as homes. The interior of those we were permitted to inspect was scrupulously clean, and several windows were hung with little white curtains tied back with ribbons.

THE PRETTY MILKMAID

These mills set off many striking landscapes and make the locality very popular with artists. While most of them are attractive, some of them possess such striking features as subjects for pictures that a single one of them often commands the attention of three artists at the same time. If the traveler is ever in doubt as to the view to take with his camera, all he has to do is to follow the guidance of one of these landscape artists.

Continuing our walk into the country, we soon met a young woman supporting a wooden yoke on her shoulders, from which hung two pails. While her appearance plainly indicated her object in coming to this particular field, where several beautiful black and white cows patiently awaited her arrival, instinctively the lines came to mind, "Where are you going, my pretty maid?" From her unaffected, self-possessed manner one could easily imagine her to be the original maid whose face was her fortune, "so she said." On requesting our little friend to pose for a picture, her permission was obtained only after we had solemnly promised that it would not be used on postal cards. The evidence of mutual affection existing between the gentle animals which comprised the little herd and the milkmaid illustrated the consideration and devotion of the people of Holland to their faithful dumb servants.

In the course of our journeyings in Holland we frequently observed native women wearing curious metal helmets,

FAMILY LIFE IN HOLLAND

MILADY HAS HER DUTCH UP

Whether this youthful maid is angry at the thought of having her picture taken or whether she is nervous over the prospect of having it appear in the NATIONAL GEOGRAPHIC MAGAZINE may be a debatable question, but at least she knows how to voice her protest in her countenance.

A DUTCH BULB FARM

"From early April, when the hyacinths bloom, down to late June, when the Spanish irises are at their best, the fields hold carnival, and to that carnival all bulbous plants send their choicest flowers. Snow-drops open the ball and crocuses follow, before the elite begin to arrive; hyacinths, narcissa, and tulips succeed; ranunculi, anemones, and peonies come next: the stately Spanish iris brings up the rear. The visitor who goes carefully from one group to another is lost in amazement at the endless variety in form and hue, while if his color sense is developed he experiences a joy that few sights afford. . . . When the fields are all aglow the flowers are plucked and taken in baskets to the barges, which pass out toward the wider waters as though they were the fairy boat of some Charon of the garden world bearing the souls of hyacinths, tulips, and the rest to the enchanted land where they would bloom untouched by time. . . . Endless patience and perseverance are demanded to make bulb-raising a success. Six and seven

which not only entirely covered the hair, but part of the foreheads of the wearers. The hair is laid flat on the head and confined by a closely fitting skullcap. This in turn is entirely hidden by the helmet, which is made of very thin-beaten silver or gold, according to the circumstances of its owner. Over this—one and sometimes two—lace caps are drawn.

DUTCH HEAD-DRESS

In the province of Friesland the wearing of this style of head covering is very general and includes very elaborate ornaments, consisting of a spiral of five or six circles attached to the helmet at each side, near the temples. From the end of the spirals are suspended ear-rings, which remind one of the winkers on a horse's bridle. These are sometimes worn so long as to reach the breast. Although the metal caps often cost hundreds of florins, the possession of an elaborate helmet is not an indication of the wealth or high standing of the owner, since many peasant women deny themselves and save for years to obtain the coveted prize.

While the promenaders on the dike at Vollendam were generally sturdy and healthy in their appearance, the ladies of our party remarked on the flat chests, small waists, and large hips of the Dutch women. The custom of wearing from six to fourteen skirts, which are worn as an indication of wealth, will account for the abnormal appearance of their hips. The contour of many of these women, whose circumference rapidly increased from their closely fitting head covering down to the hem of their fourteenth heavy skirt, was directly the reverse to the recent appearance of some of their European sisters, whose lines, beginning with the washtub hats, gradually diminished down to the hem of their hobble skirt (see pages 26-32).

THE DUTCH BED

The absence of any sort of a bed was to us a surprising omission in the furniture of the first house we visited. On reflecting that possibly it was the custom of the Dutch to sleep on the floor, as it is with the Japanese, the piece of drapery hanging on a side wall was pulled aside, disclosing the secret. A kind of cupboard was built in the wall about 3 feet above the floor and contained all the bedding necessary for the parents and the younger children (see page 20). In some more pretentious houses these openings are further *protected* from fresh air by folding doors.

Such places would be considered unsafe for animals to occupy; but, as the old Dutch housewife reasoned, "The health of the cattle and hogs must be looked after; people can take care of themselves."

Many writers on the Netherlands ascribe the tendency toward tubercular disease among the women to the wearing of metal skullcaps and the excessive weight of the numerous skirts they wear. While both of these conditions may contribute to this result, it seems unnecessary to look beyond their cupboard beds for abundant cause for pulmonary disease. Indeed, the wonder is that any of those who habitually occupy these airless beds escape.

Before the winter sets in, Sunday night is a very busy time with the Vollendamers. At sunset the festivities of the day give way to hurried preparations for the departure of the fleet on another fishing cruise. Before daylight all but six of the several hundred vessels which had crowded the harbor the day before had sailed.

ON MARKEN ISLAND

The little isle of Marken, located about an hour's sail on the Zuyder Zee from Vollendam, comprises about as quaint a portion of the Netherlands as exists. The life and customs of its population, which numbers about one thousand souls, who are Protestants, dates back to an earlier period than does that of Vollendam, and their style of dress is even more peculiar.

The manner of dressing the hair of the women is peculiar to the island. The hair is cut straight across the forehead, leaving a heavy bang just above the eyebrows. On their heads they wear a white cap, trimmed with lace that covers the ears, which is tied under the chin. From under this cap, on each side of the face, emerges a long curl of hair, which swings

and dangles about their shoulders. These stray locks have been appropriately spoken of as "misplaced switches." That the side-tracked locks of these strawberry blondes bore no evidence of the ravages of time was quite noticeable. It was the one feature possessed by the old women of Marken which appeared to have quaffed from the "fountain of perpetual youth."

So satisfied are the people with their little island home that many of them die without ever having seen any other part of the world. The men of Marken, like those of Vollendam, are fishermen—an occupation which at times is extremely hazardous in the stormy waters of the North Sea.

THE DUTCH FISHER-FOLK

As we have visited the little fishing villages in this part of Holland we have been reminded of the many sad tragedies of the sea, whose victims were of those who sailed from these very shores. They departed on their final cruise with the same expectation of returning in due time to their loved ones as the jolly, rollicking sailors we had seen taking leave of their "vrouws" on the dike at Vollendam; and the words of a verse of one of Charles Kingsley's poems were frequenty recalled:

"Three wives sat up in the light-house tower,
And they trimmed the lamps as the sun went down;
They looked at the squall and they looked at the shower,
And the night-rack came rolling up ragged and brown;
But men must work and women must weep,
Though storms be sudden and waters deep,
And the harbor bar be moaning."

The Zuyder Zee was originally an inland lake and covers about 2,000 square miles, or an area of about 30 by 44 miles. In the thirteenth century the North Sea broke through the line of dunes and converted the lake into an arm of the sea. The government for a number of years has had plans under consideration for draining this great expanse of water. The expense was estimated at $75,600,000, and 33 years the time required to accomplish it. But for the present only the northwest section of the work is to be undertaken. The outlay for this part will be $16,000,000.

Investigation has shown that the soil covering this proposed new land now under water is extremely rich and, when drained, will not require fertilizing for 40 or 50 years. To one sailing over these waters, their conversion into gardens and fields appears a stupendous undertaking; but history proves it possible, for although 400 years were required to wrest Flemish Zealand from the sea, by patient, persevering toil it was successfully accomplished.

IN THE PEAT-BOG REGION

Continuing northeast from Marken, we enter the great peat district—the provinces of Drenthe and Groningen. Here thousands of men are engaged cutting, drying, and shipping this valuable turf, which, owing to the scarcity and high cost of coal, is the fuel in general use throughout the Netherlands. The vast stretches of desolate peat moors in Drenthe are inhabited by a type of people said to be quite distinct from other Hollanders.

Living in turf huts, widely separated from each other and having little intercourse with the outside world, they remind one of the old fisherman who, when asked by the tourist, "Have you lived here all your life?" replied, "Not yit." "Well, Captain," the inquirer continued, "What do you do when the long winter nights come?" Thoughtfully, as the old salt seemed to be recalling those lonely hours, he answered, "Oh, I set and think, and sometimes I just set."

THE BULB THAT BURST

In the springtime the flat country near the city of Haarlem, lying a few miles west of Amsterdam, is for the time being the beauty spot of Holland. As far as the eye can reach, the country is carpeted with great patches of tulip, hyacinth, narcissus, and daffodil blossoms in masses of most brilliant colors (see page 22).

During the seventeenth century many of the staid, conservative Dutchmen lost their heads, as well as their fortunes, in a wild speculating craze in these innocent bulbs, which was so wide-spread and se-

Photo by M. L. Millard

ALMOST EVERYTHING IN HOLLAND IS TRANSPORTED OVER ITS NETWORK OF CANALS

Even the mountainous hay-wagons of other lands here give place to the single-masted, flat-bottomed hay-scows, upon which the farmer brings all his product to market and carries supplies back home. The loaded fleet in the picture is tied up at a Dutch hay-market.

vere as to shake the entire nation. Bulbs were dealt in on the exchange in quantities impossible to furnish and in varieties which never existed.

The growth of bulbs is a very important industry to Holland, as from Haarlem the markets of the world obtain their supply.

It is told of Said Pasha, who had a great love for flowers, that he placed an order in Holland for a very choice assortment of these bulbs, for which he paid $5,000. When the bulbs arrived his "Secretary of the Interior," who received them, not knowing of the bulb order, sidetracked them to the kitchen. Soon after their arrival the Pasha was to give an important banquet, and his chief cook, wishing to serve an especial treat, grilled the new variety of onions and served them hot. Evidently as an article of food they did not prove a success, since the only comment the recorder of the incident made of the result was that the Pasha's interest in gardening received a severe body blow.

The two hours' car ride from Amsterdam discloses much characteristic Dutch scenery, which includes many large windmills standing guard like sentinels over the numerous waterway approaches to the great city of Rotterdam. This town, located 14 miles from the North Sea, has been a prominent trade center since the thirteenth century, and is today the most important shipping and commercial city of Holland. Based upon the recent increase of its population, it is predicted that it will become the metropolis of the Netherlands. The push and business ac-

Photo by Walter R. Brown

DUTCH SCHOOL CHILDREN

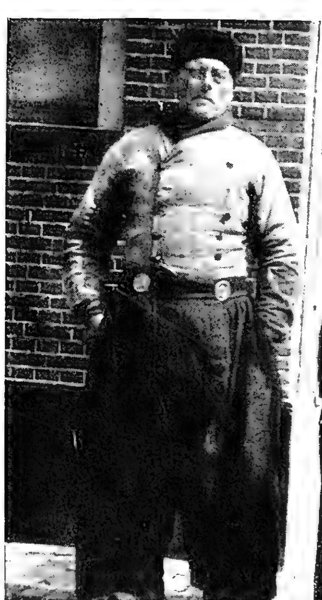


Photo by John Oliver La Gorce

THREE OLD FISHERMEN OF VOLLENDAM

Many of you who have visited Holland will recall these picturesque old Salts of Vollendam, who will pose for your camera, spin yarns of their terrible experiences on the treacherous North Sea nearly a century ago, or steer you around their quaint little village, as it may suit your fancy. Their fine old rugged faces, transformed by the salt winds of many winters into veritable maps traced on parchment, always attract artists and lovers of the characteristic; but if you let them spin their yarns of the sea for an hour or so, you will go on your way wondering whether all fishermen are liars or if only liars fish.

THE CHILDREN OF MARKEN

The little girls of the Island of Marken, which lies in the Zuyder Zee, are as full of health and fun as the unpampered lives they lead can make them. When they grow up they become the wives of the sturdy fishermen who make Marken famous for its fish.

Photos by Edgar K. Frank

ON THE BEACH AT SCHEVENINGEN

The bath-houses at the Holland seaside resort are more accommodating than those at American resorts. They meet the bathers half way (see page 8)

Photo by Walter R. Brown

DUTCH SCHOOL CHILDREN

Few countries are more insistent than Holland upon the education of her children. Primary public instruction is given to all children and compulsory education is in force. The school age is from 6 to 13. Out of the total number of children of school age 5.3 per cent were not receiving elementary training in 1910.

tivity of the place would seem to indicate the probability of this prediction soon being realized.

If the rating of a nation were based alone upon population, what an insignificant position would be occupied by the Dutch! Still, with a people numbering only a little more than six million and with an area only about one-fourth the size of the State of New York, this little nation ranks third among the countries of the earth in the number of its colonials and fifth among them in the area of its colonies.

Only Great Britain and France have greater colonial populations, and only Great Britain, France, Germany, and Portugal have greater colonial areas. The Dutch rule six times as many people—38 million—outside of Holland as there are within its boundaries, and govern colonies fifteen times as great in area as the mother country.

Measured by the standards of trade, Holland is an important member of the family of nations. With an area no larger than that of Massachusetts and Connecticut, the country is so thickly populated that it has almost as many people living within its boundaries as dwell in all six of the States of New England. In fact, its population is so dense that only Belgium, among all the nations of the earth, outranks it in that regard, and if France could match it she would have ninety-six million people instead of thirty-nine million.

Yet with all that seeming overcrowding and lack of elbow room to gain a livelihood, Holland has imports amounting to $236.40 per capita annually, as compared with $18.41 per capita in the

United States. Its exports amount to $203.69 per capita, as compared with $24.66 for the United States. Of course, a great deal of this is to be accounted for by the amount of international business that passes through Holland, but which neither originates nor ends there.

It is a matter of history that many of the greatest men the world has known, in every branch of art or knowledge, were Dutchmen.

To the world of art Holland gave Rembrandt, Jan Vermeer, and Ruysdael; to the world of navigation and exploration she gave Tasman and Hartog; to the world of theology and philosophy Erasmus and Spinoza. She founded the greatest city in America and called it New Amsterdam, and established trading posts on the sites of what are now many leading American cities. Everywhere and in every line of human endeavor Holland has a history creditable to herself and worthy of the admiration of her friends.

THE CITY OF JACQUELINE

By Florence Craig Albrecht

Illustrations from Photographs by Emil Poole Albrecht

IT WAS Motley who sent us there. "Little need to tell the story of fair and ill-starred Jacqueline," he said. But we thought that there was much need, for we didn't know it and Jacqueline was such an invitingly romantic name. The "Joan of Arc of the Netherlands" and various other charming things he called her, while still evading her history.

That epitome of all wisdom, the Encyclopedia Britannica, was quite "mum" on the subject. Delving through stacks of old books for any crumbs of information, flavored with frequent disappointments, was not inviting on summer days, so we sought the elusive lady upon her native soil. Perhaps had we known at the start that the lovely Jacqueline had had four husbands before she was thirty, and that her fellow-countrymen called her Jacoba, we might not have been so keen on the quest.

There is little romance about Jacoba or four husbands. Jacqueline's historians are a little divided as to the responsibility for the many misfortunes that beset her short life, and were it not that her early death draws a veil of pity over her career, opinion of it would be expressed more sharply.

Countess of Holland and Zeeland by birthright some five centuries ago, there is scarcely a town of note in either province which has no souvenir, sad or glad, of this ill-fated lady. The "Quest of Jacqueline" took us up and down the land from pretty Hoorn, the town of many gables, to charming Middelburg, ringed round an abbey's walls.

THE STORY OF JACQUELINE

In Holland, Jacqueline comes in for much sharp criticism. Hoorn tells a story of her, not in the least pretty, but none the less true, of a young man done to death at her command because he had ventured regretful comment upon some of her wanderings deserving of harsher censure.

And yet such is the romance which veils a female ruler, above all if she be young, pretty, and charming, that in spite of Jacqueline's vagaries and husbands she is yet enshrined loyally in Holland hearts, while in Zeeland, her best-beloved home, she dwells half saint, half martyr in loving memory.

She stands in carven stone upon Middelburg's charming town hall. She looks out over your head with far unseeing eyes, and such is her distraction one may venture to stare rudely and remark that she is neither so lovely nor so fascinating as one had expected her to be. Jacoba is written upon her pedestal, Jacoba it is who stands there; but the bewildering, elusive Jacqueline, who turned men's heads and hearts with her white fingers,

Photo by J. A. Welker

A WATER BOULEVARD IN AMSTERDAM

More beautiful in their tree-covered and green-broidered banks than the acclaimed marble, stone, and wooden-pile restrained canals of Venice, there are no city highways in the world as restful as the broad water boulevards through the better residential and suburban parts of Amsterdam.

who ruled with a glance from her bewitching eyes—Jacqueline, who loved and suffered and died before her youth was gone, cannot be done in paint or stone, but lives in imagination alone.

Here at Middelburg we hear: "Yes, that is our Jacoba; but Ter Goes, over there on Zuid-Beveland, was her very own city; she did not live here, you know." No, we didn't know; but we keep very quiet until a train takes us the 15 miles to Ter Goes, where, I am ashamed to confess it, but in the land of the Pilgrims the truth must out, we speedily forgot all about Jacqueline.

ON EVERY HAND ARE ROSY FACES

We left the train with good intentions. We all know what place is paved with good intentions unfulfilled. I hope its pavements are no harder to unaccustomed feet than those of Ter Goes, where our feet grew tired long before we did. It was Tuesday — market day — and the produce of Beveland's meadows and the tenants of her farms were gathered in her streets. It is very difficult to concentrate one's thoughts upon any lady — fair, lovely, unfortunate countess

Photo by M. L. Millard

SCENE ON THE SPAARNE: HAARLEM, HOLLAND

There is a large bend in the Spaarne as it flows through Haarlem, the city which is the center of the Dutch bulb trade. The gabled warehouses along the river tell of the natural love of beauty that dwells in the Dutch heart.

though she be—who has been dead 500 years, when on every hand are rosy faces smiling at one from the most novel frame of wide-spreading lace cap and golden pins.

Of course we had industriously "read up" the town's history. I do not know how Goes or Ter Goes received its name, but when the natives say it, it sounds like a Scotchman saying "Hoose," for the Zeelander and Hollander frequently makes his "g" an "h." "Goose" we should call it; the "oe" has the sound of our double "oo." But I am glad the conductor shouted "Ter Hoose," not "Goose," in my window, although for a traveler to add sensitive feelings to his luggage is ridiculous.

In any event, there was a castle here some six or seven centuries ago, and

Photo by Emil P. Albrecht

ST. NICHOLAS' CHURCH AND OLD AMSTERDAM

St. Nicholas' Church is a Roman Catholic edifice in the heart of the business district of Amsterdam and close to the great central railway station. Its two towers and central dome occupy a conspicuous place in the city's sky-line. The Warmoes Straat and the Zeedyk, two streets leading from the church plaza, are popular resorts for the masses in the evenings.

Photo by Emil P. Albrecht

THE INNER HARBOR NEAR THE RAILROAD STATION: AMSTERDAM

So numerous are the waterways that the map of Amsterdam resembles a spider's web in form; and when one inquires the distance to a certain point the reply is, "It is so many canals," in the direction indicated. The city is built on piles connecting some ninety islands and contains more than three hundred and fifty bridges.

Photo by Emil P. Albrecht

IN THE HEART OF OLD AMSTERDAM

Amsterdam has had a striking history. Once a member of the Hanseatic League, it came to be the dominating city of western Europe following the Spanish war, at the close of the sixteenth century, but its trade was nearly annihilated by Napoleon's continental blockade. There was no revival in business until the completion of the North Holland Canal in 1876. The houses of Amsterdam are built on piles, which led Erasmus of Rotterdam to remark that he knew a city whose inhabitants dwelt on the tops of trees like rooks.

Photo by Emil P. Albrecht

WAREHOUSES IN OLD AMSTERDAM

Amsterdam is now one of the leading commercial cities of Europe and, as the seat of the Bank of Netherlands, wields a tremendous power in the financial world. Between 2,000 and 3,000 steamers annually enter and clear its harbor. Its industries include shipbuilding, sugar refining, candle-making, the fabrication of machinery, and the polishing of diamonds. In the latter industry there are now more than seventy mills, employing in the aggregate about 10,000 workmen.

PILING FRESH CHEESES IN READINESS FOR THE WEEKLY MARKET: ALKMAAR

Brought by boats on the canals from neighboring farms, the golden yellow spheres are spread out in the market for inspection and test by buyers representing the large dealers. After the sale they are taken to the purchasers' warehouses, placed on racks to dry and ripen before they receive their familiar coat of red, and are packed for shipment to all parts of the world (see page 12).

Photos by Emil P. Albrecht

THE FISHERWOMEN COMING INTO MIDDELBURG FROM VLISSINGEN (FLUSHING)

CARRYING A TRAY OF CHEESES TO THE SCALES TO BE WEIGHED

As soon as a lot of cheeses have been sold, the clerk of the market is notified and he designates a weigher. Each set of scales has its own porters, who wear hatbands corresponding in color to the scales, and whose trays are painted the same color, all for identification purposes. Settlements are made through the market clerk.

Photos by Emil P. Albrecht

WEIGHING CHEESES

A tray will be piled with 100 to 120 cheeses and weighs several hundred pounds. After weighing, the porters carry the trays to the waiting wagon or boat of the purchaser

Photo by Emil P. Albrecht

WATCHING JUGGLERS IN THE MARKET-PLACE: TER GOES

Over their bodices the maidens of Ter Goes wear gay kerchiefs folded in prescribed and curious lines, and the caps which cover their shapely heads are of lace plaited into wide-spreading wings.

about the castle walls grew up a little town. This castle was called the Slot van Ostende. Jacoba's ancestor built it, and to its shelter she returned when armies, husbands, powers, all were gone, to sit beneath her mulberry-tree and dream love-dreams of the man she would marry if she dared. And, in spite of solemn promise and loss of lands, she did dare. But that story has little to do with Ter Goes.

Jacoba loved Goes and wished to wall it and make it strong. In her time the beautiful Church of St. Mary Magdalene, the "finest in Zeeland today," was consecrated, its huge walls towering beside her palace above the roofs of the little town. Its quaint lantern peeped invitingly through the trees as we neared the town; its high roof and beautiful windows promised lovely vistas within. Its interior was divided into two churches we knew well. It had been robbed of its saintly name and rebaptized "the Reformed Church," or, more simply yet, "the Great Church," in the centuries of Protestant worship; but those were its outside names alone. Within were a mighty and famous organ and the old choir, possessing renowned tombstones.

We meant to learn precisely why the choir was called the *wandelkerk*, for in our vocabulary *wandel* meant walk, and very plainly the huge church had stood very still for centuries. Did the other congregation walk in the apse and study tombstones when the fire in the *stoofjes* burned low and the preacher was still in full blast? Do you know what a *stoofje* is? A little perforated wooden box containing bricquets of peat to keep one's toes from being frost-bitten on the cold stone pavements in churches guiltless of heating apparatus in a land of ice, frost, and lengthy sermons. A good sexton is he and a far-seeing man who can accurately measure the probable length of the coming discourse in these coals of fire.

JACQUELINE'S MULBERRY-TREE

Of the castle there are but a few inconspicuous remnants, to be found with difficulty upon market days in the crowded courtyard of the rather shabby little inn which bears its name. In the maze of wagons, chaises, big, high-stepping horses and velvet-jacketed farmers you may perhaps find some one who will unlock for you a little door in the corner of the wall and disclose a tiny court almost filled by a decrepit tree.

Age and weather have split its trunk in many deep gashes; its limbs bend almost to the ground with weariness and years. Yet even this summer its foliage was youthfully fresh and dense; its twigs

Photo by Emil P. Albrecht

IN THE MARKET-PLACE: TER GOES

hung thick with fruit. Like Jacqueline's story, Jacqueline's tree seems immortal and Goes does its best to keep both green. The poor old trunk, with its clefts and crannies, is carefully covered to protect it from weather. It has a patched-up look, as of a man with limbs in splints and on crutches; but feeble as it is, Goes rejoices in its possession, for is it not the tree which Jacqueline planted, and beneath whose shade she sat watching and waiting the coming of the knight who should set her free.

Just how both tales can be credited is a little difficult. Jacqueline must have planted the tree in extreme infancy if she sat beneath its shade within 30 years; but then mulberry-trees grow rapidly, Zeeland soil is fertile, and why spoil a good story with too many questions?

The knight came and she married him; but the fairy tale closes there, for the proper ending, "and they lived happily ever after," is wanting. "A bad promise is better broken than kept," the fair lady thought, when she married without asking consent of that cousin who had extorted the pledge to do so and to whom, as a consequence, she forfeited her lands; but the broken promise and the new husband did not bring the power or peace she craved, and freedom from sad memories was not hers for the asking. Poor disappointed Jacqueline found it only far from her dear Goes, in her tomb at The Hague.

Photo by Emil P. Albrecht

COUNTRY PEOPLE SEEING THE FAIR: ALL IN A ROW, AS USUAL

The *boers* (farmers), both masculine and feminine, old and young, are fond of going hand in hand, spread out from side to side of the street, giving way to let others pass, but holding tightly to their chain as if afraid of being lost if they broke it.

Photo by Emil P. Albrecht

CHINA SALE IN THE MARKET [illegible] TER GOES

The serving-maids wear a work-a-day apron of plaid gingham, but the mistress wears one of fine black sateen

Photos by Emil P. Albrecht

THE OLD AND THE NEW IN TER GOES

There cannot be a moment's doubt as to which costume is the most pleasing to the visitor's eye, although the wearers of each style seem entirely satisfied with themselves

Photo by Emil P. Albrecht

MOTHER AND DAUGHTERS SHOPPING

The mulberry-tree was a bit saddening, so we hurried back to the market. Besides its church and town-hall, Goes has few buildings of great note save a quaint *hofje,* where live numerous old men and women in tiny houses ranged about a flower-filled court; but it has curious, winding streets filled on market days with picturesque shoppers and a very pretty promenade upon the site of its old walls.

Its market is a general one. The farmers and their wives bring in the products of their meadows; the peddlers set up booths or spread their wares upon the stones of the market-place to catch the *boer*'s (farmer's) or *boerin's* eye. It is not the cups and saucers, the bits of lace and gay chintzes, the ropes and twine, the cutlery or picture postal cards, the pigs, poultry, butter, eggs, and chickens, which rivet our attention, but the buyers and sellers, whose quaint costumes seem better fitted to a comic opera than a very material scene.

A PARADISE OF QUAINT COSTUMES

Zeeland is a paradise of quaint costumes. Every island, almost every town, once had its own distinctive dress, and many still retain it.

The butter market at Middelburg has a pretty setting. The wagons and chaises roll up to the two gateways in endless procession, and the fair Walcheren dames descend with much shaking of voluminous skirts and aprons, much patting of caps and adjusting of coral necklaces, to set their baskets of golden butter and pearly eggs in even rows upon the long benches within before trotting off to the inevitable shopping.

The product of dairy and chicken-coop belongs exclusively to the farmers' wives in Zeeland. It is they who do the selling, they who spend the earnings. You may find the men at the grain market; on the corners where pigs, calves, or sheep are for sale; in the cafés about the market square smoking and drinking with their fellows, and upon the days of great cattle markets very busy indeed driving shrewd bargains.

But the butter market is left to their dames. When the farmer (*boer*) has lifted down the last basket to his buxom wife or daughters, his duties there are

MOTHER AND DAUGHTER: TER GOES

Photos by Emil P. Albrecht

WEEDING THE STREET: MIDDELBURG

In the damp, cool shadow of tree-bordered canals grass springs readily between the stones wherever much traffic or constant watchfulness gives it an opportunity. A frequent penalty for minor offenders against law and order is the weeding of a certain tract of quay or street. Each is provided with a wooden stool and a stout knife and is expected to "hitch" himself or herself along the straight lines of stones, digging up faithfully every green leaf in sight until the quay is clean or the time worked out. In this case all the offenders are women. The man seated by the tree is a guard watching them and their work.

done. He drives away to stable his prized horse and to attend to his own affairs.

The butter market is ready for business about 1 o'clock. If you saunter in then through the iron gateway, now standing hospitably wide to invite buyers, you will find the front row of benches occupied around all three sides of the arcade with close-set rows of heavy baskets and the back row by the wall with a hundred or more rosy farmers' wives and daughters, dainty as the proverbial new pin, in glistening white caps, gold spirals, coral necklaces, many finger-rings, and best black aprons over the second-best gown. The *very* best belongs to festivals and kermis.

The work-a-day apron is of plaid gingham; you will see it upon the serving-maids who come from various houses to purchase the week's supply of fresh butter. When the farmer's wife comes to town she replaces it by one of black sateen or "farmer's satin," almost as long and full as her skirts and close shirred at the waist in many fine, even rows. Her bodice is black likewise; but a shield-shaped tucker is frequently of gay colors, and the sleeve is but an apology, ending far above the elbow in a broad and very tight black velvet band.

A PRETTY PICTURE

The gay frontispiece and the bare arms give an air of gaiety to the somber costume, and the upturned gold spirals at each temple are fine hangers for many broad pearl-tipped pendants, which quite belie the demure primness of the close white cap.

They are not so demure after all, these dainty little dames who trip so swiftly and lightly from house to house, from shop to shop, from booth to booth, in the market-place. They are mischievous and roguish, despite the somewhat puritanical air lent by their garb, and quick at repartee and banter as our friend from Cork, whom in vivacity they somewhat resemble.

M. Havard in his inimitable book on Zeeland records the answers of the saucy girl whose mother "knew her name before she did," and 70 years ago Hildebrand, whose pictures of Dutch life are so truthfully charming, must have known her ancestress, for he tells the same story. Her daughters today might echo, "Ask mother, she knew it first," if you insist upon inquiring her name. She has no objection to your knowing it, but much pleasure in teasing you.

You will find her perhaps in the market-place with her own small daughter or son beside her. There is always room for a chubby boy or girl among the baskets when mother comes to town in Walcheren. You miss them in Zuid-Beveland, where she frequently rides into market upon a bicycle. They are so funny—so cunning, we would say—these little replicas in miniature of their parents.

A tiny maid of four, a wee laddie unable to speak plainly, wear precisely the same costume as mother or father—full, long, black skirts, white cap, tiny gold spiral, coral beads, and aprons for one; black cloth or velvet trousers and jacket, much adorned with silver buttons, silver-buckled shoes, and queer black hat for the other.

You may have seen them buying sweeties or fruit in the market-place, eyeing the coveted baubles which kermis brings, or waiting patiently while mother bargains for a new tea-pot; and if you look closely you will meet them again here in the butter market, wedged in between the chubby mothers and half-hidden by the voluminous skirts. Dear little round baby faces looking out from a frame of quaint old-worldly dress!

THE BUTTER MARKET

When market begins the wrappings are folded back from the well-filled baskets; first a print cover to keep the white one fresh and clean, then snowy white damask, and beneath it rolls of golden butter wrapped in fresh green leaves, or dozens of big pinky-white eggs translucent in their freshness.

The buyers come in numbers, crowding along the rows; the bargaining is brisk and keen; the big-headed bag, with its rich silver clasps, which so many of the country women wear swinging from the waistband, grows heavy with coin, and a roll of bills is perhaps tucked away in the huge pocket hidden beneath the flowing skirt.

Photos by Emil P. Albrecht

LINGERING FOR A MORNING GOSSIP

The Island of Walcheren, at whose center Middelburg lies, is very fertile, its soil and climate being especially suitable to the growth of small fruits and vegetables. Queen Elizabeth, three centuries ago, spoke of it as her "fair kitchen garden," and fair and fruitful it is today, although no longer hers.

BOERS (FARMERS) OF WALCHEREN IN THE MARKET-PLACE AT MIDDELBURG

Photos by Emil P. Albrecht

WITHIN THE ABBEY WALLS: MIDDELBURG

Our milkmaid coming in the early morning. All Middelburg is served with milk in this way

SHOPPING AFTER THE BUTTER AND EGGS ARE SOLD: MIDDELBURG

Observe the tightness of sleeve (see page 49)

Photos by Emil P. Albrecht

CLEAR THE TRACK: TER GOES

"How those Protestant ladies with the wide-spreading wind-scoops of caps can ride so merrily and so swiftly is beyond me to tell. Very rarely one "ducks" her head or trims her sails to the wind."

BROTHERS: MIDDELBURG

Note that the left-hand one holds the butt of a cigar quite nonchalantly, although he is certainly not more than eight years old. I have seen a child of four with a cigar, but only once, and I doubt if it is common. Undoubtedly, however, the boys learn to smoke very young and continue it incessantly.

The Walcheren farmer is comfortably well-to-do, even rich; he can easily afford to let his wife have the butter money and is quite sure she will use it wisely. There is always ample for the children to have a sweetie or toy, for fritters and waffles, and all the shows at kermis.

If you have not seen them arrive, the descent from the high wagon, the unpinning of skirts, the shaking and settling of ruffled plumage, it is fun to see them depart, when the scene repeats itself in reverse order. The tiny baby pats and smooths and settles its many wide skirts, adjusts its beads, and feels its gold spirals, to be quite sure all are as they ought to be, with as much care as its mother.

It must be confessed that this anxiety of dress is much more developed in baby girls than boys. Once or twice I have met a small man manifestly proud of his many buttons or his new cap, but he has no concern or care for them except that his cap shall be tilted at just father's angle over one eye. Perhaps it is only another example of masculine conceit, this seeming indifference. The little *boer* (country boy) may think that he cannot fail to look well under any circumstances, while his sister *simply must know* that her cap is straight, her skirt even and unwrinkled, to be happy.

Somehow in Zeeland one is always coming back to Middelburg. It sits serene in the center of its green island and draws you back like a loadstone whenever you stray beyond the sound of its merry bells.

At Ter Goes the butter market is also ruled by the ladies. It also is held in an enclosure and its gate opens upon the market-place. Without it the men are grouped in numbers, but within the dames reign supreme. There is no great linden to cast picturesque shadows nor to filter the sunshine which touches a gold pendant or coral bead now and then as with living fire. There is not the same cool, green shadow to make yellower the golden butter or whiter the pearly eggs; but the matrons and maids who buy and sell there are far more startling to stranger eyes than the Walcheren beauties.

Over their bodices gay kerchiefs are folded in prescribed and curious lines, and the caps which cover their shapely heads are of lace plaited into widespreading wings. There is always a small close cap which fits the heads snugly, disclosing the hair only at the forehead, where it rolls back in a tiny smooth puff.

THE STYLE OF CAP DENOTES THE RELIGION

From beneath this cap jut shiny gold plates like window mirrors, secured firmly in place by huge gold pins. Above this is worn the lace cap, coming down smooth and straight to end squarely across the shoulders for a Catholic woman, gathered or plaited to flare widely and coquettishly for the woman whose faith is Calvinistic.

Their fathers or husbands also mark belief by head-dress. The Protestant wears his beaver hat with brim rolled up the entire round; the Catholic turns his down in front to form a visor.

The women's kerchiefs also once denoted their church by their color, but that, I believe, is no longer true. The men do not now wear knickerbockers, but the long, baggy trousers are still held at the waistband with four huge silver plates, as of old, and the high vest, the short-cut jacket, boast their rows of silver filagree buttons; a pair of gold ones clasp the shirt at the throat.

As in Walcheren, the women's sleeves end almost before they begin in the tightest of black velvet bands, which make the plump, sunburned arms appear yet redder and fatter; but I seem to have noticed that the elderly ladies go in for a bit more of comfort, less of fashion. One could slip a finger easily beneath their velvet bands, although it would not be wise to try it.

A JOLLY CROWD

If there is nothing much gayer, more unreal, theatrical in effect than these oddly-capped girls scurrying about the market-place, with their small bags and baskets, laughing, giggling (they *do* giggle in Dutch as well as English; their verb is *gigglelen*, but they pronounce it "hihhelen," with all h's aspirated as I cannot), shopping for picture postal cards, tripping over the twine which the rope-seller has led quite across the square in his endeavors to prove how much is in a ball, scolding, jesting, bargaining with

Photo by Emil P. Albrecht

PROTESTANT GIRLS IN TER GOES

The religious faith of the peasants is indicated by their head-dress. The lace cap comes down smooth and straight, ending squarely across the shoulders for a Catholic, but gathered or plaited to flare widely and coquettishly for the woman whose faith is Calvinistic. Beneath this cap jut shining gold plates like window-mirrors, securely held in place by huge gold pins. The carefully folded kerchiefs, the long black aprons, the short-sleeved bodice with the tight velvet bands around the arms, and the coral necklace complete the costume.

Photo by Emil P. Albrecht

GOING HOME FROM MARKET: TER GOES

Judging from their smiling faces, something pleasant or amusing must have happened to these two young women while at market

Photo by Emil P. Albrecht

ONE OF ENKHUISEN'S MANY GABLED HOUSES OF THE SEVENTEENTH CENTURY

The brick-work is as fine as can be found anywhere. The courses of stone are well and elaborately carved. Enkhuisen is one of the so-called "Dead Cities of the Zuyder Zee," but of recent years has shown considerable awakening.

Photo by Emil P. Albrecht

THE ORPHANAGE: ENKHUISEN

A fine gabled building of 1615. Over the sculptured doorway are carved figures of a boy and girl in the uniform provided for them at that time. In most of the cities of Holland the costumes provided for cities' wards have never been changed; often each half is of a different color.

Photo by Emil P. Albrecht

THE TOWN HALL, MIDDELBURG, ONE OF THE MOST CHARMING SECULAR BUILDINGS IN THE NETHERLANDS

It was begun in the sixteenth century, but was not completed until the eighteenth. The tower, which is 180 feet high, dates from 1507-13, and the façade upon the market-place is of the same epoch, both the work of Ant. Keldermans the Younger. This façade is adorned with twenty-four statues of counts and countesses of Holland and Zeeland. Under the western end, obscured in this picture by scaffolding, is the ancient Gothic meat market.

Photo by Emil P. Albrecht

SCENE IN FRONT OF THE TOWN HALL: MIDDELBURG

Two dozen figures of former counts and countesses of Holland and Zeeland adorn its façade, among them that of Jacqueline

zest and energy, there is certainly nothing much funnier than to stand upon the bridge over the old moat and watch them mount their bicycles and ride away home.

In the courtyard of the old inn there are many chaises and wagons, but they would not contain half nor quarter the marketers of a Tuesday morning. In they come by twos and threes and fours upon their wheels; a hundred bicycles at least were stacked in rows beside one little café. Carts and wagons bring in the market supplies.

Under the tall old trees about the church you will find them reloading at noonday, and a miscellaneous load it is that they take. The butter, eggs, and poultry which they brought are all sold to the townsfolk. Back to the various farms along their road they are taking the farmers' purchases—crockery, hardware, farm tools, a lamp, a crate of tiny pigs, a pair of fancy chickens, a new table, a bolt of muslin, shoes, an alarm-clock (a waker-up clock, our Dutch friends would say), groceries—anything which towns supply and farms lack.

The freight wagon commissioned to deliver his packages, the farmer may mount his high chaise or his bicycle and ride off, care and burden free. The roads are good, tree-shaded, dust-free, and level; the only enemy of the wheelman in Zeeland is the wind, which bloweth where and when it listeth, which is pretty much all the time and directly in his face.

How those Protestant ladies, with the wide-spreading wind-scoops of caps, can ride so merrily and so swiftly is beyond me to tell. Very rarely one "ducks" her head or trims her sails to the wind. Over the bridge they come in a long procession, heads up, eyes bright, gold plates gleaming, coral beads glowing, gay kerchiefs unruffled, full skirts falling smoothly, black-shod feet pedaling steadily, trim, orderly, and merry, as if rehearsing for some performance, not riding home from a busy morning to a busier afternoon.

The men ride a little more solemnly than the girls, or is it their black clothing which gives them that grave aspect? There is no "scorching," no ducking low over down-turned handle-bars; no high gears; the bicycle in the Netherlands is not a plaything or a race-horse; it is a useful servant. There are numerous motor-cycles, but the automobile has not yet come to dwell in Zeeland.

A PROGRESSIVE PEOPLE

The Zeeland farmer takes kindly to progress, however, in spite of his conservatism in the matter of costume. American farm machinery stands in many a farmyard; the quick adoption of bicycle and alarm-clock, the constant use of tram-car and telephone give proof of this.

Jacqueline may have seen lace caps and coral beads, who knows? But certainly she never saw a bicycle. Look once more at her as she stands above Middelburg market. She would not seem out of place in that costume in Goes today, amid all these oddly-clad maids and matrons; one might even fancy her mounting that tall black chaise, although she would probably prefer a well-cushioned saddle or pillion. High enthroned in a great motor-car, our lady fair might even look comfortable and imposing, but mounted upon a bicycle—strangle the thought ere it chokes us with laughter.

Let us return, then, to Middelburg filled with gay memories of sunshine and laughter. Some gray day when there is no market to distract, when Goes is quiet and sleepy and heavy with dreams of her past, we shall return to sit beside Jacqueline's mulberry-tree, read once more the old poet's halting but pathetic lines which in such small compass embrace her whole short life:

"Four times in marriage sweet love me did give,
Yet not through me shall my race grow or live.
Gorinchem from Arkel I took at fearful cost,
And in one day three thousand English lost.
From prison cell my husband dear to save,
I all my lands to Burgundy's Duke gave.
Ten years I ruled distressed; now, in one tomb
With my ancestors, content I have found room."

SOME PERSONAL EXPERIENCES WITH EARTHQUAKES

By Rear Admiral L. G. Billings, U. S. Navy, Retired

THERE is no natural phenomenon more deeply interesting and yet so little understood as the seismic disturbances which have from earliest history devasted the earth and carried terror and dismay into the hearts of all survivors.

Up to 1903, it is computed by an eminent scientist, Compte de Balloré, there had been 159,782 recorded earthquakes. Of later years, when more accurate records have been kept, they have averaged about 60 per annum. There is comfort to the dwellers in most of the world to know that 94 per cent of recorded shocks have occurred in two narrow, well-defined belts—one called the Mediterranean, with 53 per cent to its credit, and, the other, the Circum-Pacific, with 41 per cent—while the remainder of the world has only 6 per cent, widely distributed.

The United States has been singularly free from recorded seismic disturbance, perhaps the most disastrous being in 1811, when a very severe shock occurred in the Mississippi Valley south of the Ohio, which was felt in New York in one direction and in the West Indies in another. This earthquake changed the face of the earth. A vast extent of land was sunk, lakes were formed, and even the course of the Mississippi River was obstructed for a time (see page 67).

Most of the earthquakes occurring of late years can hardly be classed with the great ones of history, nearly all of the destruction being caused by uncontrollable fires. In the more stable zones long periods may elapse between shocks, as, for instance, in Kingston, Jamaica, 215 years intervened.

While the Panama Canal is not situated in the earthquake zone proper, it has experienced numerous shocks, though none in historic times have been fatal.

THE CAUSE OF EARTHQUAKES

The cause of earthquakes and volcanoes is an elusive problem, not yet settled to the satisfaction of the scientist. Tremors of the earth may be caused by many things. The explosion of mines, falling in of caves, slipping of rock strata, and many other movements of the earth may cause them; but for the great shocks which have recurred almost since the history of the world began we must look further.

For ages theories have been evolved, and, though most of them have received the earnest consideration of our modern scientists, they seem to be advanced only to be combated and denied; so that, after all, we must confess to the humiliating fact that we know very little about the cause of earthquakes.

Though many times there seem to be an intimate connection between earthquakes and volcanoes, the law regarding them has not been established. Some remarkable coincidences have been observed in late years. The terrible cataclysm of Mount Pelee, which, on May 8, 1902, almost instantly killed 30,000 inhabitants, was preceded by the earthquake which in January and April of the same year wrecked a number of cities in Mexico and Guatemala. The distance between these points is at least 2,000 miles, showing how deep-seated must have been the disturbance, if, as has been suggested, there was communication between them. The great San Francisco earthquake was preceded only two days by one of the most violent eruptions of Vesuvius recorded in many years.

THE BEHAVIOR OF BOGOSLOF

It is also a significant fact that the fuming island off the coast of Alaska, called Bogoslof No. 3, appeared at almost the same time. A revenue cutter, visiting this island, was astonished to see that the mountain, or hill, some 400 feet high, on the island, had disappeared, and in its place a bay had been formed. Soundings showed a depth of from 8 to 25 fathoms of water.

Photo from Admiral F. Singer, U. S. Navy

THE CHURCH OF LA DOLOROSA WRECKED BY THE EARTHQUAKE: CARTAGO, COSTA RICA

The same earthquake that destroyed this church razed to the ground the beautiful peace palace built for Central America by Andrew Carnegie, and opened many graves in Cartago's cemeteries. Cartago is only about a hundred miles from the point where it was proposed to construct some of the most important regulating works of the Nicaragua Canal (see "Costa Rica—Vulcan's Smithy," by Henry Pittier, NATIONAL GEOGRAPHIC MAGAZINE, June, 1910).

Nor is that the only time Bogoslof has changed. When the revenue cutter *"Tahoma"* called there on September 10, 1910, it was found that what was once a group of islands had now become a single mass of land, with several peaks. The cutter's officers found on the new-born land the skeletons of myriads of sea-birds that had been roasted alive before they could fly away from the terrible upheaval caused by the submarine explosion. They had been burned in such a fervent heat that the skeletons crumbled to dust upon being touched. Nine days later the *"Tahoma"* visited Bogoslof again, and when 25 miles off, witnessed another eruption, which resulted in another upheaval and another change in the appearance of the island.

But volcanoes, terrible and impressive as they are, are hardly worthy of comparison with the great earthquakes. The volcanic effects are of limited area, while the "earth movers" frequently extend thousands of miles, marking their paths with destruction.

It has been observed that in certain portions of the South Pacific Ocean there are almost continuous eruptions of fire, water, and foreign bodies, forming considerable islands in inconceivably short periods, which quite as frequently vanish again beneath the waves.

The eruption of the volcano of Krakatoa was a most wonderful illustration of this hidden power. Ashes were projected 14 miles into the air and carried 600 miles, while the accompanying tidal wave swept the shores for immense distances, submerging all life.

THE HUMAN TOLL OF EARTHQUAKES

One appalling feature of earthquakes is the almost instant death of thousands of people. What wonder, then, that no other phenomenon of nature produces such unreasoning terror in all forms of life?

Tracing back, it is recorded that in 373 B. C. Burao Helico, called the Superb, was engulfed in the Sea of Corinth and over 100,000 inhabitants drowned.

In 13 A. D., 13 great and noble cities of Asia Minor were destroyed in one night. The destruction of Burao Helico was paralleled November 4, 1799, at Cumana, a magnificent New World city, situate on the Venezuelan coast, where, almost in the twinkling of an eye, the city, with all its unhappy inhabitants, sank beneath the waves.

THE DESTRUCTION OF PORT ROYAL

The last earthquake at Kingston, Jamaica, almost sinks into insignificance when compared with that which destroyed the old city of Port Royal, practically on the same location, on June 7, 1692. Immense waves swept over the town, and in less than three minutes submerged 2,500 houses, drowning nearly all the inhabitants. The sea remained 33 feet above even the steeples of the town, and the large English frigate *"Swan"* was carried safely over the city and escaped to sea.

Lisbon was destroyed in 1755, when, it is computed, 60,000 people perished in less than two minutes.

The destruction of Sodom and Gomorrah, the wicked cities of the plain, by fire sent from heaven, is paralleled by the utter destruction of a small town in Equador by fires bursting through the ground.

I quote from a quaint account given by "a member of the Royal Academy" at Berlin concerning the birth of an island:

"At a place in the sea where fishermen used to fish every summer, called La Fermera, 6 miles from Pico Della Caramine, upon the fifth Sunday in July, a subterranean fire — notwithstanding the weight and depths of the sea in that place, which was 120 feet by soundings, and the multitude of waters, which one would have thought sufficient to have quenched the fire—fire, I say, broke out with inexpressible violence, carrying with it up to the clouds water, sand, earth, stone, and other bulk of bodies, after which was formed an island in the main ocean, which was not, at first, over 5 furlongs; but in 13 days it had extended to 14 miles."

RIDING A TIDAL WAVE

It is the purpose of this article to record a thrilling experience in one of the modern earthquakes, in which a United States man-of-war was carried on the

crest of a tidal wave 5 miles down the coast, 2 miles inland, and set down, entirely unharmed, upon the beach, within 100 feet of the Andes (see page 70).

In 1868 I was attached to the U. S. S. "*Wateree*," then on duty in the South Pacific—one of a class of boats built at the close of our Civil War to ascend the narrow, tortuous rivers of the South; she was termed a "double ender," having a rudder at each end, and was quite flat-bottomed—a conformation which, while it did not add to her seaworthiness, enabled her to carry a large battery and crew, and eventually saved our lives, in the catastrophe which was soon to come upon us.

We had about finished our cruise and, now that it was nearly over, were congratulating ourselves that we had passed safely through all the exciting phases of our station, such as northers, revolutions, yellow fever, and even earthquakes, for we had experienced several shocks which sent the natives screaming to the squares, while we, with an ignorance soon to be enlightened, smiled calmly at their fears and made the usual remarks about "the cowardly Dagos."

AT ANCHOR AT ARICA

August, 1868, found us quietly at anchor off the pretty Peruvian town of Arica, whither we had towed the old United States store-ship "*Fredonia*" to escape the ravages of yellow fever, then desolating Callao and Lima. We had received preparatory orders to go up the coast to San Francisco, and had been at anchor for six weeks overhauling boilers and engines preparatory to the long trip. This unusually prolonged stay in one port had given us opportunities to form pleasant acquaintances and friends among the hospitable citizens, and we congratulated ourselves on the fact that our lines had been cast in such a charming place.

Arica was, for a Peruvian town, beautiful, having about 10,000 inhabitants, it was supposed—I say supposed, for the inquisitive census-taker had never made his rounds, and one arrived at population as the Jerseyman weighs his pig—by guessing.

Being the only port of entry for rich and prosperous Bolivia, behind her; connected with Tacna, 40 miles distant, by what then was the only railroad in Peru, her inhabitants had grown rich and cultured on the imports and exports that crowded the large and imposing customhouse and the shipping that thronged the open roadstead.

THE SITUATION OF ARICA

The town was picturesquely situated in a cleft or valley running up into the seacoast range of the Andes. Through the valley ran a little stream, which furnished the water for irrigation, and caused the desert to blossom with a fertility that never ceased to surprise. It was blocked in, on the one hand, by the perpendicular cliffs of the Morro, 500 feet high, which, without a single break to mar its imposing front, was ever lashed by the waves of the mighty Pacific; on the other, by gradually sloping heights, rising one above the other until lost in the clouds.

The town was of unknown antiquity, there having been a large city of the Incas located there when the Spaniards overran the country, and tradition asserts that even the Incas found a people dwelling there when they, in their turn, had been conquerors.

Favored with a most charming climate, with a temperature varying from 70 to 80 degrees; the cloudless blue of the sky never darkened by storm or rain; fevers and epidemics unknown; it seemed an Eden until we found our "crumpled rose leaves" in the form of a myriad of the most active and voracious fleas that ever drove a human being distracted, and further discovered that a regular deluge would be necessary to remove the cause of a lively series of unsavory odors which would have thrown the famed city of Cologne into the background.

Behind these minor discomforts lurked the ever-present fear in the native mind of another earthquake, for Arica seemed a sort of "head center" for such seismic disturbances, having been twice before destroyed, with great loss of life.

OUT OF SYMPATHY WITH NATIVE FEARS

In blissful ignorance of what a *terremote* (earth mover) really was, we did not sympathize with their fears, and we

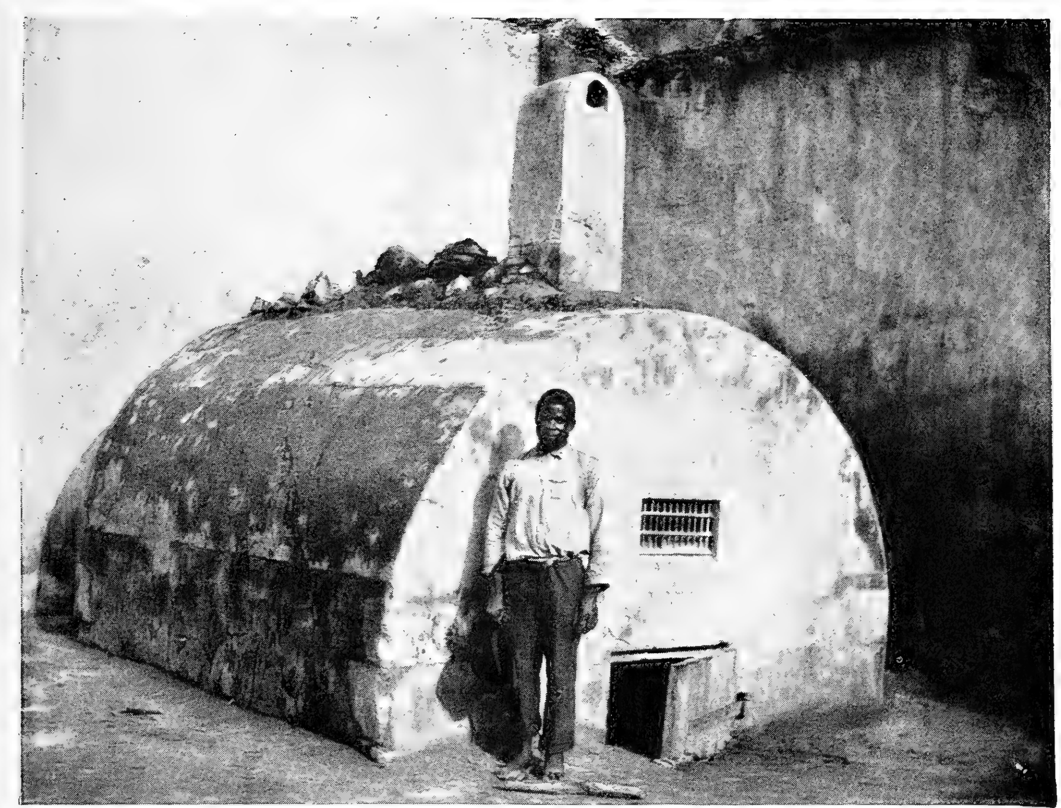


Photo from E. Tudor Griss, Providence, R. I.

ONLY SURVIVOR OF ST. PIERRE

It is estimated that 30,000 people lost their lives when Mt. Pelee, on the island of Martinique, broke forth with a whirlwind of gas or steam that overwhelmed the city of St. Pierre, May 8, 1902. Only one ship, the *"Roddam,"* escaped from the harbor, and the only person in the city to come through the ordeal alive was the Martinique negro in this picture, who was imprisoned in a dungeon.

had celebrated our National holiday, the 4th, and theirs, the 10th, of July with zeal and an abundant burning of gunpowder. We were not alone in the roadstead—our store-ship, the *"Fredonia"*; a large Peruvian man-of-war, the *"America"*; and several square riggers, together with quite a fleet of smaller merchantmen, being in our company.

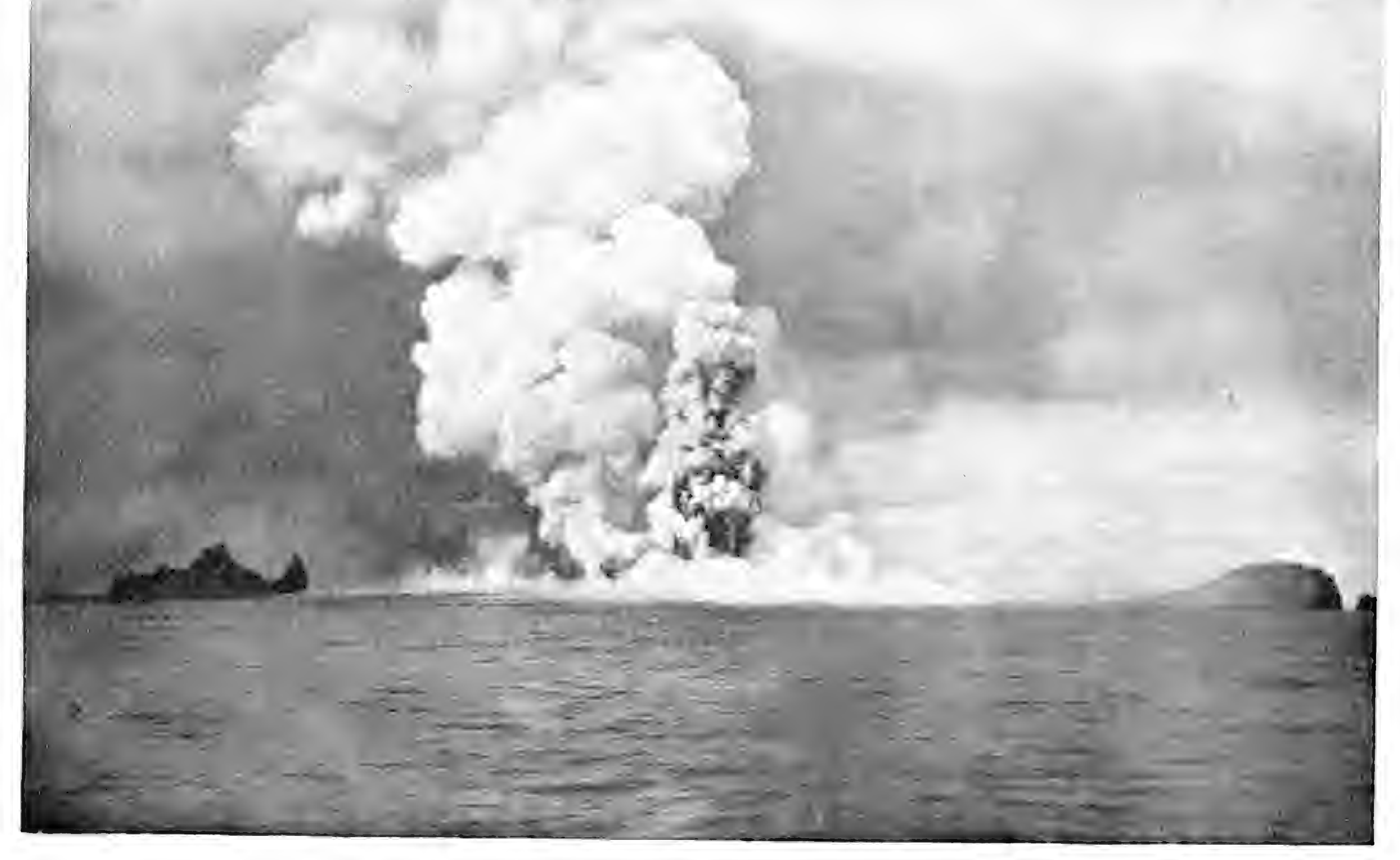
While the anchorage at Arica was an open roadstead of almost unlimited extent, it was partly protected from the prevailing winds by Alacran Island, small and apparently a lump of rock broken off from the Morro by some prior convulsion. All the merchantmen were clustered rather closely under the lee of this island, near the Morro, maybe a quarter of a mile from the usual man-of-war anchorage, and about the same distance from the shore. The men-of-war anchored more abreast of the town and possibly half a mile distant.

The vessels were about 200 or 300 yards apart and anchored in from 8 to 10 fathoms of water. The bottom was a somewhat sandy plateau, shelving gradually from 2 fathoms to 40 or 50 for a few miles, and then dropping off rather abruptly to great depths.

WHEN THE EARTH SHUDDERED

It was August 8, 1868, that the awful calamity came upon us, like a storm from a cloudless sky, overwhelming us all in one common ruin.

I was sitting in the cabin with our commanding officer, about 4 p. m., when we were startled by a violent trembling of the ship, similar to the effect produced



A CLOSE VIEW OF BOGOSLOF ISLAND IN ERUPTION

Situated in the Aleutian Islands, Bogoslof is a sort of Jack-in-the-Box of the sea. Now there is no island there; now there is a group of them; now there is one island with several volcanic peaks on it. For years the Revenue Cutter Service has watched and reported upon the antics of Bogoslof (see page 57).

by letting go the anchor. Knowing it could not be that, we ran on deck. Looking shoreward, our attention was instantly arrested by a great cloud of dust rapidly approaching from the southeast, while a terrible rumbling grew in intensity, and before our astonished eyes the hills seemed to nod, and the ground swayed like the short, choppy waves of a troubled sea.

The cloud enveloped Arica. Instantly through its impenetrable veil arose cries for help, the crash of falling houses, and the thousand commingled noises of a great calamity, while the ship was shaken as if grasped by a giant hand; then the cloud passed on.

As the dust slowly settled we rubbed our eyes and looked again and again, believing they must be playing us a trick; for where but a few short moments before was a happy, prosperous city, busy with life and activity, we beheld but a mass of shattered ruins, hardly a house left standing; not one perfect; the streets blocked with debris, through which struggled frantically the least wounded of the unhappy wretches imprisoned in the ruins of their once happy homes; while groans, cries, and shrieks for help rent the air. Over all this horror the sun shone pitilessly from an unclouded sky; the sea rolled shoreward as steadily as before. How long did it last? No one took any note of time. It seemed a nightmare, from which we would presently awake; but the agony and suffering before us were too real and apparent to be the effects of imagination. The shock may have been four or five minutes in reaching us and passing.

With the fresh recollection in our minds of the tidal wave that followed the earthquake at Santa Cruz and stranded one of our proudest sloops-of-war, the "*Monongahela,*" in the streets, we anxiously scanned the sea for any unusual appearance betokening the coming of that dreaded accompaniment; but all was as calm and serene as before.

PREPARING FOR THE WORST

Our prudent commander, however, gave the necessary orders to prepare for the worst. Additional anchors were let go, hatches battened down, guns secured, life lines rove fore and aft, and for a few moments all was the orderly confusion of a well-disciplined man-of-war preparing for action. Many hands make short work, and in a few moments we were prepared for any emergency.

Looking shoreward again, we saw the uninjured thronging the beach and crowding the little pier, crying to the vessels to aid them in digging their loved ones from the ruins and to transport them to the apparent safety of the vessels riding so quietly at anchor. This was more than we could witness unmoved, and orders were given to prepare a landing party of 40 men, duly equipped with shovels, etc. The gig, a large, double-banked whaleboat, with a crew of 13 men, shoved off at once. She reached the shore and landed her crew, leaving only the customary boat-keeper in charge.

WAVING A BRAVE FAREWELL

Our attention was now distracted from the formation of our working party by a hoarse murmur. Looking shoreward, to our horror we saw vacancy where but a moment before the pier had been black with a mass of humanity—all swallowed up in a moment. Amid the wreckage we saw the gig, bearing a single boat-keeper, borne by an irresistible tide toward the battlemented front of the Morro, with the gallant seaman struggling to stem the current. Finding his efforts vain and certain death awaiting him, he laid in his useless oar, and, running aft to the cockswain's seat, grasped the boat flag and waved a last farewell to his shipmates as the boat disappeared forever in the froth of the cruel rock at the foot of the Andes. Thus the "*Wateree*" lost the only one of her crew of 235 souls on that fateful day.

OTHER TROUBLES CAME UPON US

But our troubles then commenced. We were startled by a terrible noise on shore, as of a tremendous roar of musketry, lasting several minutes. Again the trembling earth waved to and fro, and this time the sea receded until the shipping was left stranded, while as far to seaward as our vision could reach, we saw the rocky bottom of the sea, never before exposed

Photo by W. Von Gloeden

ITALY HAS SUFFERED MORE FROM EARTHQUAKES THAN ANY OTHER COUNTRY: THE RUINS AT MESSINA

The present earthquake disaster in Italy is only one of hundreds that have marred the history of that country within historic times. Comprising only one-fiftieth of the landed area of the globe, Italy has sustained one-fifth of all the recorded earthquake shocks of the world during the entire period of modern seismological observations. Italy and Japan together sustain 40 per cent of the world's seismic disturbances. The Messina quake, only six years now past, resulted in a death list of 77,000, being even more disastrous than the latest catastrophe, which has cost 40,000 lives.

to human gaze, with struggling fish and monsters of the deep left high and dry. The round-bottomed ships keeled over on their beam ends, while the *"Wateree"* rested easily on her floor-like bottom; and when the returning sea, not like a wave, but rather like an enormous tide, came sweeping back, rolling our unfortunate companion ships over and over, leaving some bottom up and others masses of wreckage, the *"Wateree"* rose easily over the tossing waters, unharmed.

THE SEAS DEFY ALL NATURE

From this moment the sea seemed to defy the laws of nature. Currents ran in contrary directions, and we were borne here and there with a speed we could not have equaled had we been steaming for our lives. At irregular intervals the earthquake shocks recurred, but none of them so violent or long-continued as the first.

The Peruvian man-of-war *"America,"* said to be the fastest ship in the world at that time, had hastily gotten up steam and attempted to get to sea. She was well out when the receding water left her partly afloat and broke her back, of course destroying her engines. With her funnels still vomiting black smoke and apparently under full command of her people, she backed down toward the helpless *"Fredonia,"* which was then rapidly setting in toward the Morro, as if intending to help her.

Lieutenant Commander Dyer, commanding the *"Fredonia,"* saw the maneuver, and, thinking the *"America"* was coming to their aid, and that a nearer approach would only involve them both in destruction, ran on the poop and hailed the approaching ship, then but a few yards distant: "*'America,'* ahoy! You can do nothing for us; our bottom is crushed. Save yourselves. Good-bye." Then down to his station among his silent, unshrinking crew he ran again. The next moment the *"Fredonia"* was crushed, and of that ill-fated company not one was saved, while a counter-current catching the Peruvian ship drove her rapidly in another direction.

Facing the Morro, and a short distance away, a rocky islet rose some feet above the sea. On it the Peruvians had hewn a fort from the solid rock and had mounted therein two 15-inch guns, the garrison numbering some 100 souls. We were but a short distance from this fort and were fearing to be cast against its rocky sides, when suddenly we saw it disappear beneath the waves. Whether it sank or the water rose we could not tell; we only knew it vanished; and when it reappeared, after a few moments, like a huge whale, not only were the unfortunate garrison gone, but the guns and carriages as well. Imagine, if you can, how the water lifted those immense masses of iron, weighing many tons and offering no holding surface from their resting places and tumbled them out of the 8-foot parapet. It is a problem never to be solved.

Before the earthquake Arica had one of the best and most modern machine-shops between Callao and Valparaiso. Many of the machines were ponderous and properly secured on cement foundations. There were also several locomotives, cars, and many heavy castings. These all disappeared; not a vestige was left. It seems impossible they could have been swept out to sea, but assuredly they could not be found on shore.

During the first of the disturbance we had lowered one of our large cutters and sent it, in charge of a midshipman, to rescue a number of persons drifting about on some wreckage. There was no sea on at this time, but to our astonishment we saw that, with all the efforts of the crew, the boat could make no headway, but went sailing about in the most erratic fashion.

The midshipman, finding it impossible to rescue the people he had been sent to save, attempted to return to the ship. That, too, was impossible, and presently his efforts were ended by having his boat dashed violently against the side of the *"America"* and crushed like an egg-shell. He and his crew managed to scramble to her deck.

There they found a scene which beggars description. A condition of panic prevailed. Officers and men in abject terror were running about, imploring all the saints in the calendar to help them.

Meantime the heavy guns, that had been cast adrift in a vain attempt to throw them overboard to lighten the ship when she grounded, were running riot. With every "send" of the sea the guns rushed madly from side to side, crushing everything, animate or inanimate, in their path, and strewing the deck with bloody victims. There is nothing more to be dreaded than a gun on an old-time mount adrift in a seaway; it seems possessed of a demon, and baffles ordinary means of control. Some of the *"America's"* spars had been carried away and still further lumbered her deck, and, worse than all, fire had broken out near the engine-room and threatened the after powder magazine.

A HEROIC MIDSHIPMAN

Finding the Peruvians so panic-stricken as to be of no use, our gallant young midshipman, only a lad of 18, quickly took command, with his crew of 13 men. Making a line fast around his waist, he was lowered into the burning hold and flooded the powder magazine; then by choking the rampant guns with masses of hammocks piled on them he soon had them secured, extinguished the fire, and, after quieting the natives, calmly awaited events.

No one born under our glorious flag could help feeling proud of the courage, discipline, and self-reliance displayed by our officers and men at this awful test of bravery and fidelity to duty. While the crew of the Peruvian ship was simply an ungovernable mob, whose cries pierced the air, our men stood in battle array, grouped around the guns, every man at his station, ready to obey any order given by the keen-eyed first lieutenant; not a word spoken or a movement made, except when a sharp command called for instant obedience!

When men are taught self-discipline and control, as were our sailors during the four years of battle and storm which we had just passed through in our Civil War, not even nature's greatest convulsions can shake their nerve, and in this awful test of courage they determined if they could not live they would at least emulate the example of the heroes of the *"Fredonia"* and show how American sailors could die.

THE GRAVES GIVE UP THEIR DEAD

As the last rays of the setting sun fell on the heights of the Andes, we saw to our horror that the graves, where the ancients had entombed their dead, on the sloping side of the mountain, had opened, and in concentric rows, like chairs in an amphitheater, the mummies of the long-buried and forgotten aborigines rose to the surface. They had been buried in a sitting posture, facing the sea. The soil, impregnated with niter, had thoroughly preserved them, and the violent shocks disintegrating the dry earth was now exposing this long-buried, frightful city of the dead. Words cannot paint the ghastliness of the scene. In addition to what we had already experienced, to our excited imagination it seemed as if the day of judgment had come, the earth was passing away, and the bitterness of a death so full of terrors as no imagination can conceive was now to befall us.

It had now been dark for some time and we knew not where we were, the absence of the usual beacon and shore lights adding to our confusion. About 8.30 p. m. the lookout hailed the deck and reported a breaker approaching. Looking seaward, we saw, first, a thin line of phosphorescent light, which loomed higher and higher until it seemed to touch the sky; its crest, crowned with the death light of phosphorescent glow, showing the sullen masses of water below. Heralded by the thundering roar of a thousand breakers combined, the dreaded tidal wave was upon us at last. Of all the horrors of this dreadful time, this seemed the worst. Chained to the spot, helpless to escape, with all the preparations made which human skill could suggest, we could but watch the monster wave approach without the sustaining help of action. That the ship could ride through the masses of water about to overwhelm us seemed impossible. We could only grip the life-line and wait the coming catastrophe.

AT LAST THE TIDAL WAVE

With a crash our gallant ship was overwhelmed and buried deep beneath a semi-

Photo by Guy E. Mitchell

REMAINS OF A DRY-LAND HARDWOOD FOREST, REELFOOT LAKE, TENNESSEE, CAUSED BY SINKING OF THE LAND

One of the greatest earthquakes of which the modern world has knowledge took place within our own country. It occurred in the year 1811 in the West Tennessee-East Arkansas region, and the remains of the sunken forests, upheaved swamps, and uprooted trees tell an eloquent story of the devastating character of the quakes. The few inhabitants of that region were kept in terror for days. Such a quake in the same region today might destroy tens of thousands of people and do millions of dollars' damage (see page 67).

solid mass of sand and water. For a breathless eternity we were submerged; then, groaning in every timber, the staunch old "*Wateree*" struggled again to the surface, with her gasping crew still clinging to the life-lines—some few seriously wounded, bruised, and battered; none killed; not one even missing. A miracle it seemed to us then, and as I look back through the years it seems doubly miraculous now.

Undoubtedly our safety was due to the design of the ship. Part of our battery was two 200-pound rifles; one forward the other aft; both mounted so they could be pivoted on either side. When not in battery, they were secured amidships.

The bulwarks, or pivot ports, in the side of the ship were arranged as a series of heavy ringed panels, which, when the guns were in use, could be lowered outward, leaving an opening of about one-third of the side of the ship practically level with the deck. Expecting the tidal wave, they had been lowered early in the afternoon. This permitted the water to run off the deck—about as it would from a raft or floating plank.

The ship was swept on rapidly for a time, but after a while the motion ceased, and, lowering a lantern over the side, we found ourselves on shore, but where, we knew not. Smaller waves washed about us for a time, but presently they ceased. For some time we remained at quarters; but as the ship remained stationary, and nothing new occurring, the order was given to "Pipe down," followed by the welcome order, "All hands stand by your hammocks," and such of the crew as were not on watch quietly made their way through the reopened hatches to the sodden berth deck—to sleep. I know not

Photo from Rear Admiral L. G. Billings, U. S. Navy

MORRO HILL AND THE RUINS OF THE CITY OF ARICA, PERU

"The cloud enveloped Arica. Instantly through its impenetrable veil arose cries for help, the crash of falling houses, and the thousand commingled noises of a great calamity, while the ship was shaken as if grasped by a giant hand; then the cloud passed on. As the dust slowly settled we rubbed our eyes and looked again and again, believing they must be playing us a trick, for where but a few short moments before was a happy, prosperous city, busy with life and activity, we beheld but a mass of shattered ruins, hardly a house left standing; not one perfect; the streets blocked with debris, through which struggled frantically the least wounded of the unhappy wretches imprisoned in the ruins of their once happy homes, while groans, cries, and shrieks for help rent the air. Over all this horror the sun shone pitilessly from an unclouded sky; the sea rolled shoreward as steadily as before" (see page 63).

what dreams must have visited the pillows of these brave fellows on that eventful night, but to me one of the wonders of this wonderful experience was the matter-of-fact obedience to orders manifested by these sorely tried men.

FINDING OURSELVES HIGH AND DRY

The morning sun broke on a scene of desolation seldom witnessed. We found ourselves high and dry in a little cove, or rather indentation in the coast-line. We had been carried some 3 miles up the coast and nearly 2 miles inland. The wave had carried us over the sand dunes bordering the ocean, across a valley, and over the railroad track, leaving us at the foot of the seacoast range of the Andes. On the nearly perpendicular front of the mountain our navigator discovered the marks of the tidal wave, and, by measurements, found it to have been 47 feet high, not including the comb. Had the wave carried us 200 feet further, we would inevitably have been dashed to pieces against the mountain-side.

There we lay on as even a keel as if still afloat, with our flag flying and our port anchor and 100 fathoms of chain led out as carefully as we could have placed them there. Was it possible that this, our heaviest anchor and chain, could have drifted with us throughout all the mazes of our voyaging of the afternoon? And why was not the chain parted by the last shock, as were the others?

We found near us the wreck of a large English bark, the *"Chanacelia,"* which had one of her anchor chains wound around her as many times as it would go, thus showing she had been rolled over and over; a little nearer the sea lay the Peruvian ship, the *"America,"* on her bilges; and the sand was strewn with the most heterogeneous mass of plunder that ever gladdened the heart of a wrecker: Grand pianos, bales of silk, casks of brandy, furniture, clothing, hardware; everything imaginable was there. A rough estimate placed this emptying of the custom-house at $1,100,000.

"WE SAVED THE FLAG, SIR!"

Our first work was to establish a cordon of sentries around the ship, while a strong working party stove in the brandy casks and shattered the wine cases, for we did not propose having drunkenness added to the other horrors surrounding us. One of the incidents of the morning was the return of the midshipman and crew from the wrecked Peruvian ship and the laconic report of the youngster in command: "Returned on board, sir. I have to report the loss of the second cutter, 12 oars, and two boat-hooks; but we saved the *flag,* sir."

Most of the surviving Peruvians, when they discovered the *"America"* was on shore, deserted the ship, and were drowned by the next incoming wave, which, though not a breaker, was high enough to sweep them away, while our officer held his men until daybreak.

In a few days the savage Araucanian Indians from the mountains descended upon us with long trains of llamas, the camels of the Andes. They broke open boxes, cut the fastenings of bales, and started back to their retreats loaded down with plunder. We were not able to argue with them, but there was an invitation to stop in the shriek of our shells that all understood. By firing in front of them with one of our smaller guns we "hove them to" and made them approach and unload their cargoes near us. Soon we had accumulated an assorted pile of merchandise much larger than our ship.

MUMMIES CARRIED TO WASHINGTON

The earthquake shocks continued at varying intervals, but none of them so violent or long-continued as at first; some of them, however, were severe enough to shake the *"Wateree"* until she rattled like an old kettle, and caused us to abandon the ship and camp on a considerable plateau, some 100 feet high, and overlooking the ship and wreckage. Here we had an opportunity of seeing the disastrous results of the earthquake on land. We found in some places immense fissures, many of them over 100 feet wide and of unknown depths; others were mere cracks. Some of them proved the graves of the fleeing inhabitants. In one instance, I remember, we found the body of a lady sitting on her horse, both swallowed up while fleeing for their lives.

Photo from Rear Admiral L. G. Billings, U. S. Navy

THE "AMERICA," PERUVIAN MAN-OF-WAR, AND THE U. S. S. "WATEREE" ON SHORE AFTER THE EARTHQUAKE; ALSO WRECK OF THE ENGLISH MERCHANT VESSEL "CHANACELIA": ARICA, PERU

"Heralded by the thundering roar of a thousand breakers combined, the dreaded tidal wave was upon us at last. Of all the horrors of this dreadful time, this seemed the worst. Chained to the spot, helpless to escape, with all the preparations made which human skill could suggest, we could but watch the monster wave approach without the sustaining help of action. That the ship could ride through the masses of water about to overwhelm us seemed impossible. We could only grip the life-line and wait the coming catastrophe. . . . The morning sun broke on a scene of desolation seldom witnessed. We found ourselves high and dry in a little cove, or rather indentation in the coast-line. We had been carried some three miles up the coast and nearly two miles inland" (see page 66).

Quite a number of the mummies were brought down to the ship and were ultimately sent to the Smithsonian Institution in Washington, where, I presume, the curious can inspect them at any time.

It is now known that while Arica was probably the center of disturbance, the shocks were felt nearly 1,000 miles, and great destruction was occasioned in Bolivia. The beach line of the ocean was raised from 2 to 20 feet for over 600 miles.

The tidal wave was felt at the Sandwich Islands, 5,580 nautical miles distant, only 12 hours and 37 minutes later than it had broke on the desolated shores of Peru.

DESOLATION AND DEATH

At Arica we found but desolation and death. Where once had stood that pretty little city, a flat, sandy plain stretched before us. Except on the outskirts, higher up on the mountain, not a house marked the spot. Built to withstand earthquake shocks, the houses were low—few boasting a second story—with light roofs and thick walls of "adobe brick" (sun-dried mud). The shocks first leveled them, then the waves dissolved and washed them away. On the higher slopes a few houses, part of a church, and a hideous mass of debris, composed of everything, including dead bodies, was piled 20 or 30 feet high. This was all that remained of Arica. The loss of life was proportionate to the destruction of property. We could not ascertain how great it was, but as all provisions, clothing, and even fresh water were destroyed, the pitiful remnant of the few hundred persons who gathered about the "*Wateree*," living on our stores, in tents made of our sails, told the story as could no figures. Afloat, with the exception of the crew of the "*Wateree*," nearly all perished.

It was three weeks before relief came. Then can well be imagined the swelling of the hearts and the mist that dimmed the eyes of our sailor men as we looked across the water and hailed the stars and stripes floating from the mast-head of the old United States frigate "*Powhatan*" as she steamed majestically into that desolated harbor. Her decks were filled with all possible stores and supplies, which were soon distributed among the stricken and helpless who had sought our aid and succor.

Careful survey of the "*Wateree*" proved that while she was practically uninjured, it would be impossible to launch her; so, after removing the most valuable of her equipment, she was sold at auction to a hotel company. An epidemic of yellow fever broke up that enterprise, and the old ship was afterward used successively as a hospital, a store-house, and, lastly, a target for great guns during the Peruvian-Chilian war. But her gaunt iron ribs still rise above the shifting sands, a fitting monument to one of the greatest of modern earthquakes.*

* See "The World's Most Cruel Earthquake," by Charles W. Wright, NATIONAL GEOGRAPHIC MAGAZINE, April, 1909.
"The Recent Eruption of Mount Katmai," by George C. Martin, NATIONAL GEOGRAPHIC MAGAZINE, February, 1913.
"Taal Volcano and Its Recent Destructive Eruption," by Dean C. Worcester, NATIONAL GEOGRAPHIC MAGAZINE, April, 1912.

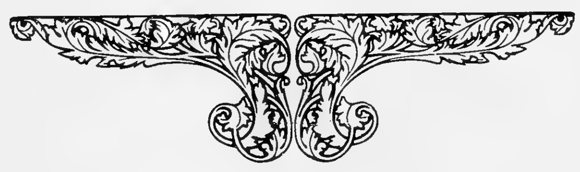


Photo from Office of Indian Affairs

FROM THE WAR-PATH TO THE FURROW

Approximately 450 white farmers are employed to demonstrate to the Indian agriculturists the art of profitable farming. They are required to show the Indians how to prepare the soil, how to select their seed, how to plant, cultivate, and harvest their crops, and how most advantageously to dispose of them.

FROM THE WAR-PATH TO THE PLOW*

By Franklin K. Lane, Secretary of the Interior

On the first of last July the Cherokee Indian Nation ceased to exist. This act was the culmination of a treaty promise made over 80 years ago, extended by statute, and at last placed within administrative discretion.

The word of the white man has now been made good. These native and aspiring people have been lifted as American citizens into full fellowship with their civilized conquerors. The Cherokee Nation, with its senate and house, governor and officers, laws, property, and authority, exists no longer.

Surely there is something fine in this slight bit of history. It takes hold upon the imagination and the memory, arouses dreams of the day when the Indian shall be wholly blended into our life, and at the same time draws the mind backward over the stumbling story of our relationship with him.

THE UNITED STATES STILL GUARDIAN

The people of the great Sequoyah have lost their identity, yet—and this is a fact that all do not know—there are still several thousand of these American citizens for whom the United States stands to a greater or less degree *in loco parentis*. We hold our hands upon the property and the private concerns of approximately one-fifth of these "free people."

This seems to be an anomalous situation and prompts at once the inquiry, Has this government a policy with relation to these people and the others of their race? We have had three centuries of contact with the Indian. Do we now know where we are leading him and what our own purpose is with regard to him? Have we aught that may be openly declared as a definite and somewhat immediate aim toward which we can work with clear and unwavering purpose?

If we have such a policy, it should be stated; and this is for love of the Indian himself, who daily asks the question, "What is my future to be at the hands of the white man?"

A BEWILDERED PEOPLE

That the Indian is confused in mind as to his status and very much at sea as to our ultimate purpose toward him is not surprising. For a hundred years he has been spun round like a blindfolded child in a game of blindman's bluff. Treated as an enemy at first, overcome, driven from his lands, negotiated with most formally as an independent nation, given by treaty a distinct boundary which was never to be changed "while water runs and grass grows," he later found himself pushed beyond that boundary line, negotiated with again, and then set down upon a reservation, half captive, half protégé.

What could an Indian, simply thinking and direct of mind, make of all this? To us it might give rise to a deprecatory smile. To him it must have seemed the systematized malevolence of a cynical civilization. And if this perplexed individual sought solace in a bottle of whisky or followed after some daring and visionary Medicine Man who promised a way out of a hopeless maze, can we wonder?

Manifestly the Indian has been confused in his thought because we have been confused in ours. It has been difficult for Uncle Sam to regard the Indian as enemy, national menace, prisoner of war, and babe in arms all at the same time. The United States may be open to the charge of having treated the Indian with injustice, of having broken promises, and sometimes neglected an unfortunate people, but we may plead by way of confession and avoidance that we did not mark for ourselves a clear course, and so, "like bats that fly at noon," we have "spelled out our paths in syllables of pain."

THE INDIAN'S STATUS

There are some 300,000 Indians in the United States. This grand total includes

*An abstract from the annual report to the President of the United States by the Secretary of the Interior.

Photo from Office of Indian Affairs

FIVE HUNDRED CATTLE READY FOR ISSUE TO INDIANS: STANDING ROCK

The valuable grazing lands of the Indians offer unusual opportunities for increasing the meat supply of the country. They have what are regarded as the most desirable grazing lands in unbroken bodies in the United States. Last year about $1,500,000 was expended in buying horses, cattle, and sheep to stock these lands and to establish large tribal stock ranches. Heretofore Indian grazing lands have been rented to white ranchmen.

Photo from C. J. Blanchard

WOLF EAGLE AND RELATIVES: BLACKFEET TRIBE

The Indians of the United States own lands almost equalling in area those of all New England and New York. A rough estimate places the value of these lands at $600,000,000. If to this be added their holdings of timber, etc., they would probably be found to be worth not far from a billion dollars.

all who are of Indian blood or who have been adopted into the tribes. The census figure of 1910 shows an Indian population of 304,950, as contrasted, it may be noted, with a population in 1860 of 254,300.

These are for the most part wards in chancery, the government being the chancellor. They live in large part on reservations, which are little more than expanded and perhaps somewhat idealized orphan asylums. They have lands aggregating in extent 109,150 square miles, or a territory equal to that of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Kentucky, and Virginia, and worth, by rough estimate, six hundred million dollars.

THE WEALTHIEST PEOPLE IN THE WORLD

Over two-thirds of this land is now held as individual farms, the unallotted or tribal lands being estimated as worth less than $200,000,000. If an appraisement were made of the full value of the timberlands and of the oil and coal lands, and added to this was the value of the herds and personal property of the Indians, it is probable that they would be found to have a wealth approximating $900,000,000. In moneys, the Treasury of the United States has trust or tribal funds approximating $50,000,000, while in the banks throughout the country we have deposited to the credit of individual Indians under our control something over $18,000,000.*

* The general allotment act of 1887 was the first step toward the setting aside for each Indian of a tract of land which he could develop by his own efforts and on which he could construct a home for himself and for his family.

Each of the 41,698 members of the Cherokee Tribe receive an allotment of 110 acres of the

Photo from C. J. Blanchard

TYPICAL HOME OF FLATHEAD INDIANS ON THE FLATHEAD RESERVATION: MONTANA

"The Osages are probably the wealthiest people in the world. The average wealth of the Osage Indian is $9,570.85, and 2,230 Osages each received approximately 657 acres of land as allotments. The average income of the Osages from oil and gas royalties is $690.89. For an average family of four this would make an annual income of approximately $2,700, to say nothing of the large income from the lands allotted to them. Some few families have an income of $12,000 per year" (see text, page 77).

Photo from C. J. Blanchard

BLACKFEET INDIAN AND FAMILY: MONTANA

"The political conditions of the world will make the next few years a period of great prosperity for the American farmer. Let us see that the Indian, with his broad acres, is in truth an American farmer, and that he properly participates in this unusual opportunity."

MUST THE INDIAN REMAIN A WARD OF THE GOVERNMENT FOREVER?

The function which this government is performing for these Indians is to care for their personal welfare, supervise their business affairs, improve their property, hold their moneys, give education to their children, care for their sick, protect them from their enemies, and insure them against starvation.

This surely is doing much for a people who are richer on the average than the majority of our own people. And, we ask, must this governmental activity persist? Must this burden always rest upon the people of this country? Is it for the benefit of the Indian himself that it should continue?

There are those who say that it should not last a single day. The American conscience, however, our sense of justice,

average allottable lands, valued originally at $325.60. The average Cherokee family may be said to number four persons, which would give to it 440 acres of land. The Choctaws and Chickasaws, the Creeks and the Seminoles, have also received allotments and their tribal funds are being divided.

The Osages are probably the wealthiest people in the world. The average wealth of the Osage Indian is $9,579.85, and 2,230 Osages each received approximately 657 acres of land as allotments. The average income of the Osages from oil and gas royalties is $690.89. For an average family of four this would make an annual income of approximately $2,700, to say nothing of the large income from the lands allotted to them. Some few families have an income of $12,000 per year.

The individual wealth of the Indian necessarily depends upon the value of his individual allotment; as, for instance, in the Creek Nation, one of the Five Civilized Tribes, the great oil fields have brought wealth to those Indians so fortunate as to hold allotments within the oil territory. The following cases are examples of the royalties for 1914 received

Photo from Office of Indian Affairs

"RIDES A SORREL HORSE," OR GLYDIS LITTLENEST, A CROW INDIAN

"There are no better schools than many of our reservation schools, where each child is taught the rudiments of learning and to be useful in practical things—reading, writing, and arithmetic; how to plow and sow, hoe and harvest; how to build a house and shoe a horse, or cook a meal, make a dress, and nurse a sick man or animal" (see text, pages 86 and 87). There are 65,000 Indian children of school age in the United States today

Photo from Office of Indian Affairs

ONE OF THE CROWS WHO WON THE TITLE OF "CHIEF" ACCORDING TO THE OLD CUSTOMS OF DARING AND DIPLOMACY

To fill the Indian's soul with an ambition that will not let him rest content with a war bonnet, a life of ease, and a mind for the past—that will lead him to learn surely, if slowly and by hard knocks, to lean upon himself and to make him able to take care of himself, his family, and his property—such is the aim of our government. "There are many thousand Indians in our charge who are entirely self-supporting, capable, thrifty, far-sighted, sensible men; and, singularly enough, these are most often found among those tribes which were most savage and ruthless in making war upon the whites. Some of these are indeed so far-sighted that they do not wish to enjoy full independence, because their property would then become subject to taxation" (see text, page 85).

our traditions, in fact, will not permit the adoption of a drastic course that would cast the Indian upon a world for which he is ill-prepared.

Yet I am of the opinion that it would be better, far better, to sever all ties between the Indian and the government, give every man his own and let him go his own way to success or destruction, rather than keep alive in the Indian the belief that he is to remain a ward of the government. The advocates of the sink or swim policy may be reckless. The advocates of the almshouse policy are surely doing harm.

Is there, then, no way out? Must we go blunderingly on without goal and without policy?

KILLING "THE ORPHAN ASYLUM" IDEA

The way out is gradually and wisely to put the Indian out. Our goal is the free Indian. The orphan-asylum idea must be killed in the mind of Indian and white man. The Indian should know that he is upon the road to enjoy or suffer full capacity. He is to have his opportunity as a "forward-looking man."

This is not my dictum, for the government has been feeling its way toward this policy for nearly 40 years. This is the rationale of the whole of our later congressional policy, of the liberality of Congress toward the education of the Indian, of the allotment system, of limitations fixed upon disposition of property. If the course of Congress means aught it means that the Indian shall not become a fixture as a ward.

It is the judgment of those who know the Indian best, and it is my conclusion, after as intimate a study as practicable of his nature and needs, that we should henceforth make a positive and systematic effort to cast the full burden of independence and responsibility upon an increasing number of the Indians of all tribes.

I find that there is a statute which significantly empowers the Secretary of the Interior to do this in individual cases. That authority is adequate. And as soon as the machinery of administration can be set in motion I intend to use such authority. If year by year a few from each of the tribes can be made to stand altogether upon their own feet, we will be adding to the dignity of the Indian race and to their value as citizens. To be master of himself, to be given his chance—this is the Indian's right when he has proven himself. And all that we should do is to help him to make ready for that day of self-ownership.

PREPARING THE INDIAN TO STAND ALONE

Viewed in this light, the Indian problem is incomparably larger today than it was when the Cherokees were gathered up from the Southern States and sent into the unknown across the Mississippi. In 1830 the problem was how to get the Indians out of the way. Today the problem is how to make him really a part of the nation.

This blend of wisdom, dignity, and childishness, this creature of a non-commercial age, has been brought into a new day when all must live by conforming to a system that is as foreign to him as the life of the Buddhistic ascetic would be to us. Slowly through a century and more of torturous experience he has come to see that it is not our purpose to do him harm; but he must learn to find his place in an economy that antagonizes every tradition of his ten thousand years of history.

How, then, are we to get into the mind of this soldier-sportsman the fact that the old order has passed away, and that the gentleman of today earns his right to live by his usefulness; that the American cannot be a man and a ward at the same time?

by Indians of the Creek Nation from oil: Samuel Richard, $94,000; Jeannetta Richard, $90,000; Seeley Alexander, $57,000; Lessey Yarhola, $73,000; Eastman Richard, $93,000; Thomas Long, $35,000; Ella Jones, $31,000; Nancy Yarhola, $29,000; Johnston Wacoche, $27,000; Miller Tiger, $23,000.

Some of the Bad River Indians have received as high as from $14,000 to $16,000 for the timber cut from their allotments.

On the other hand, we must not forget that many of the Indians have lands which are little better than sand hills, that even though these tribes have vast herds of sheep and the wealth of the tribe seems large, when divided pro rata shares it would be but a small sum which could quickly be expended for subsistence.

Photo from N. H. Darton

APACHE PAPOOSE AND BASKETS: ARIZONA

"There are some 300,000 Indians in the United States. This grand total includes all who are of Indian blood or who have been adopted into the tribes. The census figure of 1910 shows an Indian population of 304,950, as contrasted, it may be noted, with a population in 1860 of 254,300" (see text, pages 73-75).

BLACKFEET INDIANS AT WORK ON THEIR IRRIGATION PROJECT

"The great oil fields have brought wealth to those Indians so fortunate as to hold allotments within the oil territory. The following cases are examples of the royalties for 1914 received by Indians of the Creek Nation from oil: Samuel Richard, $94,000; Jeannetta Richard, $90,000; Seeley Alexander, $57,000; Lessey Yarhola, $73,000; Eastman Richard, $93,000; Thomas Long, $35,000; Ella Jones, $31,000; Nancy Yarhola, $29,000; Johnston Wacoche, $27,000; Miller Tiger, $23,000. Some of the Bad River Indians have received as high as from $14,000 to $16,000 for the timber cut from their allotments" (see text, pp. 77-80).

Photos from Office of Indian Affairs

The irrigable lands belonging to the Indians form one of the principal sources of wealth of these people, and also form probably the best opportunity for these people to become individually self-supporting. In some sections of the country the Indians are better acquainted with irrigation farming than the whites in the same communities, and they are making great success in this line.

It is a strange thing indeed that we should be concerning ourselves so largely and spending so many millions each year for the remaking of the people who are the truest of Americans. It shows how anxious to be just and willing to be generous are our people. They feel with a quick conscience how cruel it would be to introduce this primitive man into a harsh, competitive world of business with a code of its own more foreign to him than that of the Bushido; too much, they fear, like pitting Little Boy Blue against Shylock in a trade.

Let us frankly state the fact—there is such a thing as being too unselfish, and this the Indian too often is, for he has not gained a forecasting imagination. His training has not given him the cardinal principle of a competitive civilization, the self-protecting sense. It is not instinctive in him to be afraid of starving tomorrow if he is generous or wasteful today.

"WHY SHOULD WE WORK?"

And work? Why work if not necessary? Is it not, as an Osage chief once reprovingly said to me, is it not the hope of every American that he may some day be a gentleman who does not work?

We are bent, then, upon saving the Indian from those who would despoil him until the time comes when he can stand alone. And that time comes when he has absorbed into his nature the spirit of this new civilization of which he has become a part. This is certainly a revolution we are expecting—an impossible revolution in some natures—the substitution of a new standpoint for one long taught by fathers and grandfathers.

Truly such a transformation is not to be worked like some feat of legerdemain, by a turn of the wrist. Bayonets cannot do it; money cannot do it. We can force men to work. We can keep them without work. These two methods we have tried with the Indian, and they have failed in leading him toward the goal of responsible self-support. Adaptation to new environment comes from education through experience.

We therefore have the task of introducing a new conception into the Indian mind This is not a thing that can be done wholesale. It becomes an individual problem, and our hope lies in schools for the young and in casting more and more responsibility upon the mature and letting them accept the result.

What should the test be in passing upon the fitness of one who is to be sent out into the world? Plainly his ability to handle himself, to care for himself so that he will not become a charge on the community. To be a rich Indian is not a qualification, for his wealth may indicate, and generally does, nothing more than good fortune. In the land lottery some drew prizes and some blanks. Nor should the degree of blood be the test nor education; for many of those who are wisest in counsel and most steady in habits and sturdy in character are uneducated fullbloods. The man who can "do" for himself is the man to be released. And he is the man who thinks not in terms of the Indians' yesterday, but in terms of the Indians' tomorrow. One whose imagination can take that leap and whose activities will not lag behind. It is to be remembered that we are not looking for an ideal Indian nor a model citizen, but for one who should not longer lean upon the government to manage his affairs.

MANY THOUSANDS ARE CAPABLE AND THRIFTY

There are many thousand Indians in our charge who are entirely self-supporting, capable, thrifty, far-sighted, sensible men; and, singularly enough, these are most often found among those tribes which were most savage and ruthless in making war upon the whites. Some of these are indeed so far-sighted that they do not wish to enjoy full independence because their property would then become subject to taxation.

Others are attached by a tribal sentiment and by the natural conservatism of the Indian to existing conditions. Still others are held to governmental control in part because of the entanglement of their tribal affairs. The government will not do its duty toward itself or toward these Indians until men of this class are fully released. There is a second class, made up of those willing to work but not

knowing how, and a third class, of those who know but have no tools. For these there is help—the teacher farmer for the one and a small loan in the form of tools for the other.*

There are those, too, for whom it is too great a jump to pass from hunting to farming, but who can herd cattle, and for these the government is providing herds for their ranges. Congress has been liberal in its appropriations for these things, and with a stable policy and administrative efficiency these Indians can be gradually lifted into usefulness, full self-support, and into entire independence.

THE ORATOR AND THE LOAFER

Then there is the "proud" red man who idly clings to the traditions of his race and talks of its past with such dignified eloquence, declaring in one glowing moment against the injustice of requiring service from those who once owned the continent and in the next sentence pleading for rations. This man is half brother to him who has degenerated under the orphan-asylum system into a loafer. My confidence is that for all these there is some hope, for most of them much.

But from what has been already said it will be perceived that in the direction of Indian affairs I believe it wisest to give our chief concern to those who are willing to work, who show evidence of a rudimentary ambition, and to convert the Bureau of Indian Affairs into a great cöoperative educational institution for young and old, reducing to the minimum the eleemosynary side of its work and its trust functions. It sounds trite, but it has its significance here, that it is not so important to conserve the wealth of a people as to develop their capacity for independence.

For the young the schools* are doing much, especially the day schools on the reservations. By way of answer to those who are troubled at the neglect of the Indian, it may be noted that since 1863 we have expended $85,000,000 in the education of the Indian. Beginning with $20,000 a year, the annual appropriation for this purpose now reaches nearly $4,500,000. Those schools are most useful in which emphasis is laid upon the industrial side of life. There are no better schools, I am well advised, than many of our reservation schools, where each child is taught the rudiments of learning and to be useful in practical things—reading, writing, and arithmetic; how to plow and sow, hoe and harvest; how to build a house and shoe a horse, or cook a meal,

* EXTRACTS FROM TYPICAL LETTERS FROM INDIANS

"You can't make the Indian independent by doing his business for him."—*A Kickapoo Indian.*

"Indians ought to live like men—not like boys."—*A Colorado Ute.*

"We will never better our condition while we are wards of the nation."—*A Yakima Indian.*

"As long as we have money in the U. S. Treasury we will not do much work, and work is our salvation."—*An Oklahoma Kiowa.*

"Government should not listen to the plea of a few backward Indians who are opposed to progress and are contented to live at the expense of government and of industrious Indians."—*An Iowa Sac and Fox.*

"My children attend public schools; I pay taxes; why should I be under government supervision?"—*An Oregon Indian.*

"The government cannot all the time take care of the Indians."—*A Wisconsin Indian.*

"Indians now hampered by delays, regulations, and red tape . . . and these things have made them discouraged."—*A Tulalip Indian.*

"No greater blessing could come to the Indian than to be compelled to think for himself."—*An Oklahoma Seminole.*

* It is reported that there are 84,229 Indian children of school age. Of these 6,428 are ineligible for school, leaving 77,801 eligible for school. Of this number 22,775 children are in government schools, as follows: In the 37 nonreservation boarding schools conducted outside of the Indian country there are enrolled 10,857 children. In the reservation boarding schools situated on the various reservations there are 9,700, and in the government day schools on the reservations, which resemble closely the ordinary district schools of the States, except that they offer industrial training, there are 7,218 children. Of the children enrolled in mission schools there are 1,379 in mission boarding schools under contract with the government and 3,450 in mission schools without contract. There are enrolled in the public and private schools 25,924 Indian pupils of which the Indian Office has record. This would leave 15,906 Indian children eligible for school privileges, but not reported as being in school. Of this number probably 6,000 in the Navajo and Papago country are without school facilities, but the greater part of the remainder are enrolled undoubtedly in public schools, but not reported.

Photo from N. H. Darton

THE APACHE AND THE CACTUS: ARIZONA'S PIONEERS

For centuries the Indians of the Papago country, in southern Arizona, lived in a semi-arid region, eking out a scant existence from lands covered with cacti and sage-brush. It has been discovered that under those lands lies a rich supply of water in an underground stratum, which, brought to the surface and used for irrigation, will make their country flow with milk and honey. It is the intention of the government to sink wells and use this water for the benefit of the ten thousand or more Indians who live in that region.

Photo from George R. King

A SHEEP CORRAL: HOPI LAND, ORAIBI, ARIZONA

"To teach the Indian that he must work his way, that the government will no longer play the part of Elijah's raven; to convert the young to our civilization through the creation of ambitions and desires which the blanket life cannot satisfy; to organize each group of Indians into a community of sanely guided coöperators, who shall be told and taught that this government is not to continue as an indulgent father, but as a helpful, experienced, and solicitous elder brother—this program we are adventuring upon" (see text, page 87).

make a dress, and nurse a sick man or animal.

SOWING SEEDS OF AMBITION

In one thing we are short—the art of inducing ambition. This largely depends upon the genius of the teacher to fire the imagination of the pupil, for, after all, the true teacher is an inspirer, and the only thing he teaches his people is to want something. That is the first step in all civilization.

We need teachers in the Indian Service, men and women with enthusiasm and with sympathy, not learned, but wise. We are to control less and to help more. Paternalism is to give way to fraternalism. The teachers we need are helpers, farmers, and nurses, who may not know how to write ideal reports, but do know how to trust and secure trust. There is no way by which an Indian can be made to do anything, but experience justifies the belief that there are many ways by which he can be led.

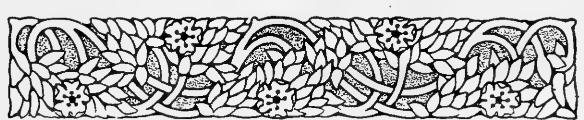
To turn the Indian loose from the bonds of governmental control, not in great masses, but individually, basing this action upon his ability to watch his steps and make his way, not in any fool's dream that he will advance without tripping, but in the reasonable hope that he will develop self-confidence as he goes along; to destroy utterly the orphan-asylum idea, giving charity only to the helpless and in gravest emergencies; to teach the Indian that he must work his way, that the government will no longer play the part of Elijah's raven; to convert the young to our civilization through the creation of ambitions and desires which the blanket life cannot satisfy; to organize each group of Indians into a community of sanely guided coöperators, who shall be told and taught that this government is not to continue as an indulgent father, but as a helpful, experienced, and solicitous elder brother—this program we are adventuring upon. It may be inadequate, but it is surely a long step on the road which the Cherokees took.

PROTECTING THE INDIAN FROM HIS ENEMIES

To carry out this policy there should be continuity of purpose within Congress and within the Department of the Interior. The strength of the Administration should be turned against the two enemies of the Indian—those who, out of sentiment or for financial reasons, keep the Indian's mind turned backward upon the alleged glories of other days and the injustices that have been done him, and those who would unjustly take from him the heritage that is his.

The demands now being urged that reservations shall be broken up to make way for white men who can use the lands to better advantage should be resisted, unless it can be shown that the Indians under proper stimulus will not use these lands, or that by the sale of a portion the Indians would be enabled to make greater use of the remainder. The Indian is no more entitled to idle land than a white man.

But speculation is not use; and the Indian must be regarded as having the first call upon the lands now his, at least until white men are willing to surrender their lands when not used. Idle Indians upon idle lands, however, must lead to the sale of the lands, for the pressing populations of the West will not long look upon resources unused without strenuous and effective protest, and the friend of the Indian who would give him his chance and would save for him his property is he who keeps in mind the thought of his future instead of his past, and that future depends upon his willingness to work.



PARTITIONED POLAND

By William Joseph Showalter

IT WAS four years before the United States was born into the family of nations that Poland saw the beginning of her end as a member of that family; and it was two years before Washington had completed his great task of blazing the way for the young nation his sword had founded that Poland's name as an independent country was erased, perhaps forever, from the list of sovereign States of the earth.

And yet the hundred and seventeen years that have sufficed to transform the United States from a little country on the middle eastern seaboard of North America into one of the wealthiest and most influential nations of the world have not served to quench the national spirt of the Polish people, nor to end their dream of a rehabilitated and reunited Poland.

Generations of the sternest repression ever practiced upon any people have still left the Pole with his heart set on the one desire of his life—Poland restored. In spite of the efforts of three of the world's most powerful governments to assimilate them and to incorporate them into their own bodies politic, 20 million Poles have hoped and longed for and dreamed of the day when their country shall resurrect itself and make itself a vital force in the civilization of the future.

Efforts at assimilation have been met by struggles against it, and after nearly a century and a quarter of trying to quench the fire of fervor for their beloved Poland from the hearts of the Poles they still stood at the beginning of the present war, with hearts aflame and souls afire, hoping in the face of despair, that somehow, somewhere, some time, the ashes of captivity might be replaced with the garlands of liberty.

THEIR FERVENT LOVE

The fervent love of the Pole for all things Polish is borne witness to by all who travel that way. He will tell you that their cooking is better than that of Paris; that their scenery is more beautiful than that of any other country; that their language is the most melodious that falls from human lips; that there is no dance in the world to be compared with the mazurka; that the most beautiful women on the face of the earth and the bravest men who ever lived are to be found among them; that the Poles are a cheerful, hospitable, easily pleased, and an imaginative race; and that yet, in spite of and notwithstanding all this, they are the most unhappy people and theirs the most hapless nation in history. Krasveski once exclaimed during his exile:

"Oh, thou beautiful land, our mother! When we say farewell to friends we have the hope of meeting them in heaven; but never again shall we see thy loved landscapes, thy linden avenues, thy villages, thy brooks, and thy rivers. Can heaven really be so beautiful that it makes us forget all this, or does a river of Lethe flow before the gate of Paradise?"

Some one has said that there is perhaps after all no condition more elevating for a race than one in which no distinguished man has any external distinction, title, or decoration, and where the official tinsel of honor is regarded as a disgrace. In Poland such a condition has prevailed since her partition, for the honor of overlord governments is despised. A poor but distinguished teacher in Warsaw received from the government the decoration of the Order of Stanislaus. He never wore it, but when his children were naughty pinned it on their breasts as punishment for their misdeeds. And it is said that never a dunce-cap was more effective.

THE POLAND OF YESTERDAY

Poland, before Maria Theresa of Austria found cause to remark that she had been a party to an outrage upon geography and to an act of violence against the laws of ethnology, had been one of the leading nations of Europe. It was the Poles who successfully stayed the march of the triumphant Turk across the continent and mayhap saved the West from the fate that came upon the Near East.

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THE HORSE MARKET: WARSAW

The horse market of Warsaw is one of the most important in Europe. Situated in one of the richest grazing regions of the Old World, with the added advantage of being close to the horse-using centers of western Europe, Warsaw's market has long been sought by the buyers of the continent. Some famous stock farms are to be found among the holdings of the noblemen of Russian Poland, as well as among the possessions of nobles of German and Austrian Poland.

In size she outranked nearly every nation of the continent. Even now Russia alone of the European nations is larger than Poland was at her greatest. In population she stood at the forefront of Europe; only Russia and Germany today have greater populations than are to be found in the lands that once were Poland; for unpartitioned Poland had an area of 282,000 square miles, and the lands that once lay within her boundaries now support a population of approximately 50 million. In area she was as large as the German Empire, Switzerland, Belgium, Holland, and Denmark together; larger than Great Britain, Italy, and Greece combined; larger than Austria-Hungary and Servia in one. Within what were her boundaries there dwells a present population larger than the combined populations of Great Britain and Belgium; larger than those of France, Belgium, and Holland together; and matching that of Austria-Hungary.

Poland was three times partitioned, and these partitionings were readjusted between the partitioners by the Congress of Vienna in 1815. Where the original partitions had given Russia 181,000 square miles, Prussia 54,000 square miles, and Austria 45,000 square miles, the reapportionment of the Vienna Congress gave Russia 220,500, Prussia, 26,000, and Austria 35,000 square miles

THE HUCKSTERS OF ORTELSBURG

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In spite of war conditions, trade frequently goes on in frontier territory. After Ortelsburg, a frontier city of southern East Prussia, had been bombarded by the Germans, and the Russians had retired, the Russian tradesmen came in with food supplies just as though peace still reigned in Europe.

Much of the land which Russia secured, and particularly Kiev, had been identified with Russia generations before.

Poland, in the days of her greatest area, extended from a point within 50 miles of Berlin, on the west, to the meridian of the Sea of Azov on the east; on the north it reached nearly to the Gulf of Finland and on the south down to the Khanate of Crimea.

The plan of the Congress of Vienna was to let Prussia have Posen and the districts of East and West Prussia that were Polish, and to give Austria Galicia and Bukovina, while the Kingdom of Poland was to be continued and Russia's Tsar was to be its king—the two governments to be entirely separate except for the union of tsar and king in one person; but revolts in Poland led to the complete absorption of the Kingdom into the Russian Empire.

RUSSIAN POLAND PROPER

What we now know as Russian Poland is that neck of territory stretching westward between the Prussias and Galicia. This territory has an area almost exactly equal to that of New York, yet, in spite of the fact that its extreme southern boundary lies north of the latitude of Winnipeg, its population is as great as those of New York and New Jersey combined.

Russian Poland, in this limited sense, consists of a great plain, somewhat undulating, with an average elevation of about 400 feet, sloping upward toward the highlands of Galicia on the south and toward the swelling ground paralleling the Baltic on the north. It joins the lowlands of western Germany with the great plain of western Russia. Its rivers are slow and sluggish, with their mouths often but a few dozen feet below their sources and seldom more than a few hundred feet below. Their basins intricately interpenetrate one another, and the frequent inundations of these basins have covered them with a very rich alluvial soil.

Russian Poland usually has a winter somewhat similar to that of New England. There is an even cold, with not a great deal of snow, but often with razor-edged winds from the northward. The rivers of this region usually freeze over about the middle of December, and the Vistula is under ice for approximately 80 days during the average winter.

In the eighteenth century, when the city of Warsaw, next to Paris, was the most brilliant city in Europe, this flat plain was unusually rich in herds and in geese flocks, though almost bare of manufactures.

THE CITY OF WARSAW

Warsaw has never been able to forget that it was the capital of the Kingdom of Poland, and it still conscientiously maintains the vivacious gayety for which it was famed during the days of its highest fortunes. It is still Russian Poland, but instead of a native king and court it has a Russian governor general and a Russian army corps. The gayety of the city, long ago modeled upon that of Paris, is one of the few distinctive characteristics which it has been able to retain from the past.

The city is well situated. It is built in the midst of a fertile, rolling plain, mostly upon the left bank of the Vistula, which is navigable here for large river boats. The main part of the city lies close to the river and is compact and massive. Its streets are very narrow and very crooked, wriggling in and out regardless of all logic of direction. The more modern parts of the city, on the other hand, are laid out in broad, straight streets. In these parts one occasionally finds bathtubs, steam-heating, and various devices of sanitary plumbing in the private homes.

There are many magnificent palaces of the old Polish nobility in the city. A number of these sumptuous buildings are being put to public use, such as the renowned Casimir Palace, which now houses the university. Other palaces are being made to serve the needs of municipal and garrison administration.

Warsaw has become under Russian rule a great industrial and commercial center. It manufactures machinery, carriages, and woven goods, and it trades in these things and in the animal and food products of Russian Poland. A large export of leather and coal to Russia passes through Warsaw. A great deal of the

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THE CLOTH MARKET IN WARSAW

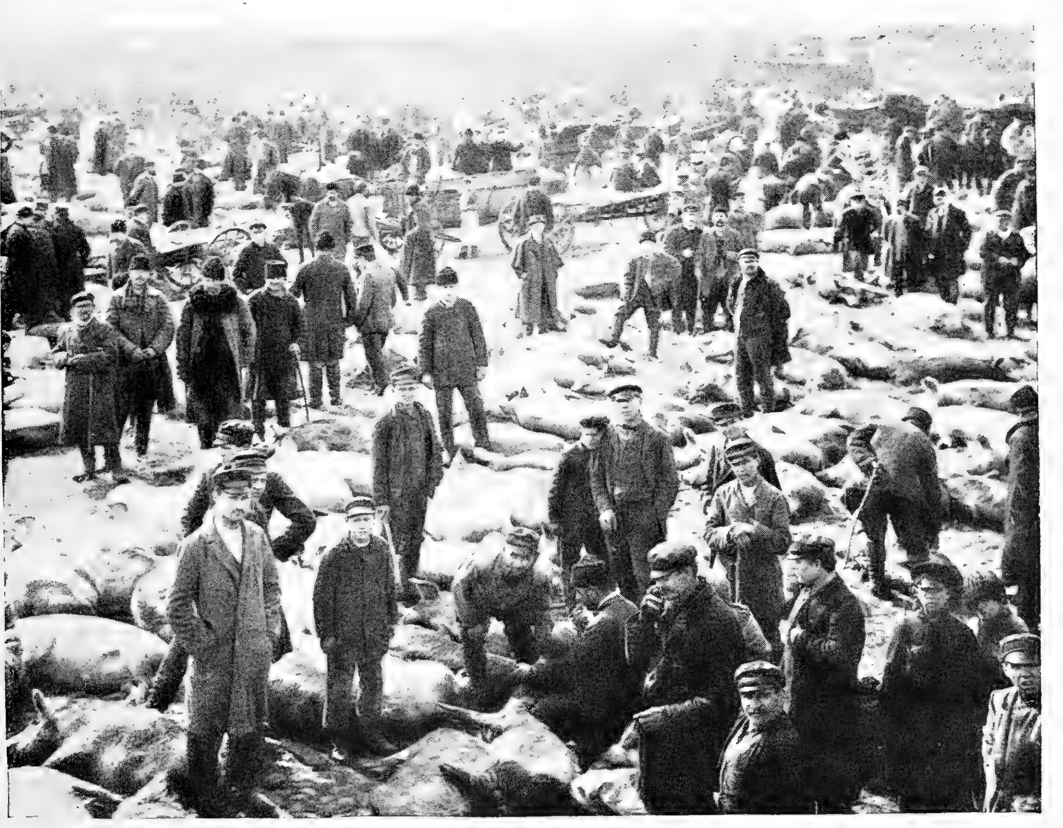
"Warsaw has become under Russian rule a great industrial and commercial center. It manufactures machinery, carriages, and woven goods, and it trades in these things and in the animal and food products of Russian Poland. A large export of leather and coal to Russia passes through Warsaw" (see text, page 91).

city's production is the output of handwork, and here are to be found some of the poorest, most patient, and persistent artificers of the western world. There are 50 book-printing establishments in the city, most of them engagd in the labor of promoting the supremacy of the Russian language.

Russian is the language of instruction in nearly all of the Warsaw schools. It is also the language of the government and of polite and learned society. This currency of the conquerors' tongue has deeply tinged the life of old Warsaw, and the Polish spirit of proud, ostentatious frolic has taken on a color of melancholy and meditative reflection. The Warsaw medical school is famous, as is also its school of art. Its musical conservatory is modeled upon those of Petrograd and Moscow, and the un-Polish music of Rimsky-Korsakov, Balakirev, Cæsar Cui, and Chaikovsky has replaced the lighter of native fancy.

RUSSIA'S TROUBLES

If Russia got the bulk of Poland's territory and the major portion of the Polish population, she also got by far the larger part of the Polish problem. Russian Poland was the cradle of the Polish race—a land in which both ruling aristocrat and serving peasant were Poles. The result was that Poland became a thorn in the side of Russia, causing the Empire no end of trouble and bringing upon the heads of the Poles in turn no end of repressive measures. Indeed, at



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THE SWINE MARKET: WARSAW

"Russian Poland usually has a winter somewhat similar to that of New England. There is an even cold, with not a great deal of snow, but often with razor-edged winds from the northward. The rivers of this region usually freeze over about the middle of December, and the Vistula is under ice for approximately 80 days during the average winter" (see text, page 91). In the eighteenth century Warsaw, next to Paris, was the most brilliant city in Europe.

times this became so great that more than one Russian statesman came to advocate turning Russian Poland over to Germany.

METHODS OF REPRESSION

For a long time the Poles were forbidden even to use their native tongue. Even the railway employees could not answer questions asked in Polish. The word "Polish" itself could not be used in the newspapers. For a while no letter could be addressed in Polish. Outside of what is now known as Russian Poland, in the provinces acquired before the final partition, one still encounters notices in and on all public buildings reading: "The speaking of Polish is forbidden." In one of these provinces street-car conductors were fined because they answered questions asked in Polish.

The national dress was forbidden, even as a carnival costume or in historical dramas in the theater. The coat of arms of Poland had to be erased from every old house and from the frame of every old picture. The singing of the national songs was strictly taboo.

Yet with all the efforts at repression, and with all the resistance made against that repression, when the present war broke out the Russian Pole seems to have been as loyal to his government as the German Pole was to Germany or the Austrian Pole to Austria. The whole war in the eastern theater has been fought in territory which once belonged to Poland, territory largely peopled by Poles, and yet there is no evidence that any of them have betrayed their respective flags.

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WAR TIME IN WARSAW

"The whole war in the eastern theater has been fought in territory which once belonged to Poland, territory largely peopled by Poles, and yet there is no evidence that any of them have betrayed their respective flags" (see text, page 93)

AUSTRIAN POLAND

Austrian Poland is practically embraced by the crownland of Galicia. This crownland is almost exactly the size of the State of South Carolina, but it has a population six times as great. If continental United States, exclusive of Alaska, were as densely populated as Galicia, we would boast of a population four times as great as that of Russia.

And yet Galicia is the poorest of all the provinces of Austria. It lies outside the ramparts of the Carpathians, which turn a cold and unfriendly back to it, the while they cast a protecting shelter around the northern side of that great oval basin known to geography as Hungary.

Where Hungary is protected by these mountains from the cold winds that sweep down from the Baltic, they rob Galicia of the warm winds that sweep up from the Mediterranean. And where they help to form that great ring of natural defense around Hungary which is pierced only by the Iron Gate of the Danube on the east and by the gateway of Porto Hungarica on the west, they turn away from Galicia, occupying nearly a third of her territory, but running away from the protection they might have afforded her flanks.

This inhospitality of the Carpathians toward Galicia leaves her with her back turned against steep and forbidding mountain sides that bend away from her, exposes her sides to hostile attack, and allows her to sit with her feet buried in the Russian plain.

Robbing Galicia of the warm winds that otherwise would come to her from the south, they also turn back upon her the cold winds of the north, which otherwise would sweep over Hungary. Thus they give her long, cold winters; short, wet springs; hot, blistering summers, and dreary, chilly autumns.

CRACOW AND LEMBERG

The glory of her past and the hope of her future are Cracow and Lemberg to Poland, for it was the former that was her capital in the yesterday of history and the latter that is her capital today and which would be her capital tomorrow were Polish dreams to come true.

In Cracow, the great city of Poland's past, the royal palace still stands; but it is used as a barracks and not as the home of a king. The cathedral, from which Poland's heart arose to its God, is now the Valhalla of its departed greatness; for there sleep the kings and the heroes from the Jagellons to Kosciuszko. Not far away is Kosciuszkoberg, one of the most remarkable memorials ever reared by the hand of man—a huge mound of earth brought by loyal Poles from every battle-field in the world consecrated with Polish blood. After the annexation of Cracow by Austria this great mound was transformed into a fort; but with all that, it still stands as a tribute to the great hero whose sword was drawn in behalf of freedom both in Poland and in America.

The country around Cracow is flat and is devoted almost wholly to small farming and trucking. The peasants dress in white jackets and blue breeches, and wear jack-boots; their women folk, with large bright shawls and picturesque head-dress, brighten and give spirit to the countryside.

From Cracow to Lemberg the traveler encounters good land; it is fairly level and entirely innocent of fences, boundary stones marking party lines and tethers or herdsmen keeping livestock where it belongs. The same methods of agriculture that we used in the United States before the days of the self-binder and the grain drill are still in force in that region.

It is in Lemberg that the only Polish-dominated legislative assembly in existence holds its sessions; for Lemberg is the capital of Galicia, and the Poles, both because of their shrewd political ability and their numerical weight, control the Galician legislature in the face of their rivals, the Ruthenians of East Galicia. The city of Lemberg is largely modern—a compact nucleus surrounded by scattering suburbs.

GALICIAN INDUSTRIES

While Galicia is almost wholly an agricultural region, and while a large per-

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A SCENE IN WARSAW: RUSSIAN POLAND

"If Russia got the bulk of Poland's territory and the major portion of the Polish population, she also got by far the larger part of the Polish problem. Russian Poland was the cradle of the Polish race, a land in which both ruling aristocrat and serving peasant were Poles. The result was that Poland became a thorn in the side of Russia" (see text, page 92).

centage of that agriculture is carried on in the old-time way, there are some few manufacturing neighborhoods and industrial districts. Distilleries occupy first place among the industries, and there are many beet-sugar and tobacco factories. Petroleum springs abound along the Carpathians, and some of the towns in this region grow from small villages to modern Beaumonts between New Year and Christmas.

Galicia has many of the world's most famous salt mines. Those at Wieliczka have been worked for nearly seven centuries, at one time being a principal source of revenue for the Polish kings. Railroads are not permitted to run near them lest their vibrations result in cave-ins. Within these mines are a labyrinth of salt-hewn streets and alleys, lined with pillared churches, staircases, restaurants, shrines, and monuments.

Nearly 2,000 workmen are employed in the salt mines, working in eight-hour shifts. The damp, salty atmosphere seems to shorten their days; but even at that they do not appear unhappy, in spite of the small wage of 20 cents a day they are paid. There are little lakes in the mines, sometimes 30 feet deep, which are navigated by ferry-boats. Many of the little ponies which draw the cars over the tiny salt railway have not seen the light of day for generations and are born blind.

Access to these salt mines has always been difficult, for the government is watchful lest alien hands destroy some

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CATACOMBS IN WARSAW

In Poland and other countries large structures are built to take the place of subterranean catacombs. At Panama the Chinese have one of these structures, and at Cartago, Costa Rica, the earthquake of a few years ago demolished one of them. There is nearly always an attractive colonnade where relatives and friends of the departed may gather.

of their works. The workmen are searched almost as carefully as the men who work in the diamond mines in South Africa.

AUSTRIA AND HER POLES

Austria has never treated her Poles as the Russians and the Prussians have treated theirs. Where those countries have sought to destroy the spirit of Polish nationalism, holding it to be a perpetual menace to Russian and Prussian institutions, Austria has proceeded upon the theory that this spirit, carefully directed, becomes more a source of strength to the government than a source of weakness. So the Poles of Austria are as free to sing their national songs as the people of our own South are free to sing Dixie. They are as much at liberty to glorify their past and to speak their native tongue as though they were free and independent. Except that they must pay their taxes to Austria and serve in Austria's army, they are practically self-governing.

And well may this be, for all the world knows that it was Sobieski and his fellow-Poles who saved Vienna and rescued Europe from the Turks.

Not only does Austria allow her Poles local self-government, but she also gives them representation in the Austrian Reichsrath. The result has been a comparative degree of satisfactory relations between the Poles and the Austrians; so much so, in fact, that the Russian and German Poles have for years felt rather

THE GRAY SENTINEL OF CRACOW

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The glories of the citadel of Cracow are a common heritage of all Poles, whether they be Russian, German, or Austrian. Here linger memories of Casimir the Great, the Sigismunds, father and son, and Sobieski. "Poland was a republic of landowners, in which the serf did not count. The man who owned land or whose ancestors owned land was a noble. He might match poverty for poorness, he might not have a single sole between his feet and the ground, he might have only a rusty old sword to tie to his girdle, and only a piebald blind horse to drive, and that a hired one, but he still was a noble, if ownership of land had ever set its approving stamp upon him or his family" (see text, page 103).

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ANOTHER VIEW OF THE CITADEL AT CRACOW: THE MECCA OF POLISH HEARTS

After Cracow lost its independence and became an Austrian city, the citadel was used as a barracks. This profanation of the holy of holies of Polish history grieved the Poles as few acts have ever hurt them. They begged to have the shrine of their aspirations restored. The Austrian government agreed that if Cracow would provide other barracks the wishes of the Poles would be met. Today the restoration is a fact accomplished, and the citadel is a museum and memorial of the Polish people. The huge mound towering over the citadel, in the background of the picture, is a tribute of the Polish people to Kosciuszko, hero alike of Poland and of America, whose sword was drawn for freedom in the Old World and the New. Loyal Poles brought to this mound of earth soil from every battle-field on the face of the globe consecrated by Polish blood.

bitter toward their Austrian compatriots, claiming that they are neglectful of their brethren who are less fortunately circumstanced than they are. Some one has observed that the Poles of Austria are like the French in Canada; that their nationalism is religious and literary and not anti-governmental.

RELATIONS WITH THE RUTHENIANS

As western Galicia is the stronghold of the Austrian Pole, so eastern Galicia is the main dwelling-place of the Austrian Ruthenian. The two races never get along very well together. About 45 per cent of the population of Galicia is Polish and about 42 per cent is Ruthenian. Outside races hold the balance of power, and it is only by playing good politics that the Poles dominate Galicia. Since the Ruthenians got universal suffrage they have been sending large numbers of their representatives to the Galician Diet. The conflict is a racial one, and the Poles are probably not as considerate of Ruthenian rights as they would like Austria, Russia, and Prussia to be of theirs.

PEASANT LIFE IN GALICIA

The peasant population of Austrian Poland eke out a hard existence. In many parts of the country the peasant lives in a log hut covered with straw; he breakfasts, dines, and makes his supper of porridge, washing it down with bad brandy; and in general leads a life full of want and empty of pleasure. The peasants who farm for the nobles receive no money in payment, but only a share of the crop.

The usual division, all over Europe, ranges between a half and a fourth, and even in Russian Poland it never goes below the latter proportion. In Galicia the peasant now receives no such proportion. The nobles' estates are either owned outright by absentees or are controlled by them through full-value mortgages, and they have combined to force down the peasant-farmer's share, with the result that it now frequently goes down to one-twelfth, a wage of slow starvation and a wage largely responsible for a disease known as "Plica Polonica" among the peasants, which arises from a lack of nourishment.

THE GERMAN POLES

In the partition of Poland, Prussia got the smallest share when the redivision was made by the Congress of Vienna, although she had participated in the three partitions and had drawn 56,000 square miles of territory in those partitions. The Congress of Vienna reduced this to 26,000 square miles, taking the other 30,000 square miles and adding it, along with a part of Austria's holdings, to the Kingdom of Poland, which was to be ruled by the Russian Tsar, but was to be independent of and on a parity with Russia.

The 26,000 square miles of Prussian territory which once belonged to Poland is made up of Posen, most of West Prussia, and several districts in East Prussia. Posen is slightly smaller than Maryland, but has a population of approximately two million. West Prussia is a little larger than New Hampshire, but has a population nearly four times as great. East Prussia is about one-third as large as Virginia, but it possesses a population approximately equal to that of the Old Dominion.

Posen is largely Polish, the Poles constituting more than half of the population of the province, in spite of the large German immigration, aided and encouraged by the government. It is largely devoted to agriculture, though there are many important manufacturing industries. For a long time it was one of the worst educated provinces of Germany, but that time is now past. In 1901 the percentage of illiterate recruits in Posen was nearly one out of every ten; today it is only one out of four hundred. Posen is a part of the north German plain, and 61 per cent of its acreage is under tillage.

GERMANIZING THE POLE

West Prussia and East Prussia are the coldest provinces of Germany. They are cold and bleak in winter and hot in summer. East Prussia is the Kentucky of Germany in many ways. It contains the great government stud of Trakehnen, where some of the best horses in Europe are to be found. Both of the Prussias are famous for their great estates, many of them held by men prominent in the affairs of the Empire.

MAGNIFICENT CHOIR STALLS IN CRACOW

The wondrous luxuriance of these choir stalls is reminiscent of the time when sacred art was more a matter of love than of material profit. The superb canopy above the back stalls, filled with a multiplicity of symbolic detail and suggesting the guidance of an angelic choir, frames the composition with an exquisite embroidery much more rich and much more tedious in accomplishment than any which could be worked in fabric. This canopy consists of cathedral towers, each tower surmounted by a heavenly chorister or an accompanist. Between the cathedral detail and surmounting the pillars of the stalls are figures of the church's historic nobility.

SIBERIAN INFANTRY IN WARSAW

Photo and copyright by Underwood & Underwood

"Poland disappeared from the family of nations a victim of her own individualism. Although they constituted only one-twentieth of the population, the nobles arrogated to themselves the right of ruling everything. Granting no form of freedom to the peasantry, they yet loved their own freedom so excessively that nothing could be done without the unanimous consent of the nobles. There was no such a thing as the

Germany has tried in every possible way to transform her Poles into Germans. It has used the Russian tactics in quenching the fire of their nationalism, but with no better success than Russia had. Heretofore Poles were not appointed to office; letters addressed in Polish went undelivered. Marriages between German men and Polish women were discouraged, for Bismarck had not let it escape his notice that "a Polish wife makes a Polish patriot out of her husband in the twinkling of an eye."

There were laws forbidding the use of Polish in public meetings, and Polish children who refused to answer the catechism in German were punished.

In the hope of making Germans out of the Poles, the Prussian government decided to colonize German settlers among them. First this was undertaken by private enterprise, but the Poles boycotted the settlers, and their lands finally were bought back. Then a law was enacted that no Pole could build upon lands acquired after a certain date. The result is that one who travels through Polish Germany today occasionally will see farmhouses, barns, dairies, stables, and even chicken-coops on wheels. The people live, move, and have their being in glorified wagons.

When private enterprise failed to Germanize Prussian Poland the government made appropriations, which up to the present time have amounted to a hundred million dollars, to acquire Polish lands and turn them over to German settlers; but with all that was done, the Poles are still Poles, and in spite of the law forcing some to sell their lands and preventing others from buying, the German settler has not succeeded in getting much of a foothold on Polish lands; and Germany has about four million Poles in her population.

POLISH PEASANTS

The lot of the Polish peasant is always a hard one, whether he live in Russia, Germany, or Austria. His food is simple, if not poor. His whole family must toil from the hour that the sun peeps over the eastern horizon to the hour when twilight falls into dusk. If he can say that his wife works like a horse, he has bestowed the acme of praise upon her. Hard work, many cares, and much childbearing makes a combination that takes all pride out of the wife's heart and gives to the women of peasant Poland a haggard look, even before the third decade of their lives is closed.

You may even see them working as section hands on many of the railroads, and they are reputed to make good ones. It is not exceptional to see them carrying mortar for bricklayers and plasterers or to find them painting or paper-hanging in the cities.

Every peasant wants his daughters married off as soon as they reach womanhood, and little hands are drawn upon the lintel of the door to indicate to the world that there is a marriageable daughter inside the house. And the wedding day among the peasants is about the one bright spot in a girl's life. Where the children of the United States roll eggs on Easter Monday, those of peasant Poland pour water over one another in a spirit of fun.

THE POLISH NOBLEMAN

Poland was a republic of landowners, in which the serf did not count. The man who owned land, or whose ancestors owned land, was a noble. He might match poverty for poorness, he might not have a single sole between his feet and the ground, he might have only a rusty old sword to tie to his girdle, and only a piebald blind horse to drive, and that a hired one, but he still was a noble if ownership of land had ever set its approving stamp upon him or his family.

With him the peasants were as but worms of the dust. The Russian noble is proud of his peasants, the German noble was proud of his, and the Austrian noble had nought but words of praise for his; but the Polish noble was not proud of his.

Nothing illustrates better how the Polish peasant felt toward the Polish noble than the insurrection of the Poles of Austria in 1846. That was a movement of the nobles. The government did nothing to check the outburst, and it is said that the loyalty of the peasants to the

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THE MILKMAIDS OF KIEV

While Kiev is a part of what once was Poland, the bulk of its population is not Polish, but Russian Slavs

government and their hatred of their aristocratic brethren caused the insurrection to die aborning.

SINCERE HOSPITALITY

Whatever may be said about the relations between the Polish aristocrat and the Polish peasant, however, the hospitality of the former has always been whole-hearted and sincere. Tactfulness is as natural with them as taking to the water is natural with a duck. They like company and love entertainment, and are as fond of dancing as any other people in the world. It takes vigorous men to stand all the liquor that is provided by the Polish host.

The journal of the Countess Francoise Krasinska, who afterward married a son of Augustus III, written between the years of 1759 and 1761, is an interesting picture of Polish life just before the partition. "There are two classes of courtiers," she writes in describing her own home, "the honorary and the salaried ones, all alike nobles, with the sword at their side. The first are about twenty in number; their duties are to wait in the morning for the Count's (her father) entrance, to be ready for any service he may require, to accompany him when visiting or riding, to defend him in case of need, to give him their voice at the Diet,

and to play cards and amuse him and his guests. This last duty is best performed by our Matenko, the fool or court jester, as the other courtiers call him. Of all the courtiers he is the most privileged, being allowed to speak whenever he chooses and to tell the truth frankly.

"The honorary courtiers receive no pay, almost all of them being the sons and daughters of rather wealthy parents, who send them to our castle for training in courtly etiquette. The men receive, nevertheless, provisions for two horses, and two florins (about 40 cents) weekly for their valets. These servants are dressed, some as Cossacks, some as Hungarians, and stand behind their masters' chairs at meals. There is no special table for them; but they must be satisfied with what their masters leave upon their plates, and you should see how they follow with a covetous eye each morsel on the way from the plate to the master's mouth.

"I do not care to look at them, partly from fear of laughing and partly out of pity. To tell the truth, those who sit at our table have more honor than profit; for they do not always have the same kind of food that we have, although it comes from the same dish. For instance, when the meats are brought in, there will be on the dish game or domestic fowl on the top and plain roast beef or roast pork underneath.

"The salaried courtiers are much more numerous. They do not come to our table, except the chaplain, the physician, and the secretary. As for other people belonging to our retinue, it would be difficult to enumerate them; I am sure I do not know how many there are of musicians, cooks, link-boys, Cossacks, hostlers, valets, chamberlains, and boy and girl servants. I know only there are five different dinner tables, and two stewards are busy from morning till night giving out provisions for the meals."

POLISH WOMEN

Polish women are among the most beautiful in the world. The perfect shape of their hands and feet is commented upon by every visitor to the home of the Polish aristocracy. When they visit the shoe stores in Vienna, it is averred that the shopkeeper exclaims: "We know those are Polish feet," and proceeds to go to cases that are not drawn upon except when Polish women come into his store.

With their beauty they combine unusual linguistic abilities and almost unprecedented devotion to the lost cause of their fair Poland. It has frequently been asserted by those who know the Poles from intimate social relations with them, that but for the women the national spirit of the Pole would long since have succumbed to the wound-healing processes of time. As it is, there is a proverb that while there is a single Polish woman left the cause of Poland is not lost. "Four ladies do not meet on a charity committee without promoting the national cause under its cover," is the way one writer shows their devotion to the cause of Poland.

SOME NOTED POLES

Poland has contributed a long list of great and near great to civilization. It was Copernicus, a Pole, who first taught that the sun is the center of the solar system and laid the foundations of modern astronomy. It was John Sobieski who saved Europe from the Turks as Charles Martel hammered it out of the grasp of the Saracens. Kosciuszko and Pulaski served the cause of freedom both in Europe and America. The "Quo Vadis" of Sienkiewicz will never be forgotten as long as literature and history are appreciated by man. The music of Paderewski entitles him to a place among the immortals, and the histrionic art of Modjeska gave her a foremost place in the history of the stage. The compositions of Chopin, a Pole by birth, though a Frenchman by education, will float down through the corridors of time along with those of Wagner, Beethoven, Handel, Verdi, and the other masters.

POLES IN AMERICA

From the days of Kosciuszko down to the present, Poles have been no mean contributors to American civilization. Leopold Julian Boeck is credited with having led the movement for the establishment of the first polytechnic institution in the United States. Four million Poles

have come to the shores of America, and our Polish immigrant population living today ranges around three million. It is said that if the people of Polish ancestry in the United States were massed together they could practically duplicate the population of New England. In Pennsylvania one inhabitant out of every twelve has Polish blood in his veins; in New York one out of fourteen, and in Massachusetts one out of ten. In Wisconsin and Michigan every eighth person is of Polish descent.

POLISH IMMIGRANTS

Chicago is said to have more Poles in it than any other city in the world except Warsaw and possibly Lodz. Cleveland has more than 40,000 Polish residents, yet New York Pittsburgh, Philadelphia, Buffalo, Milwaukee, and Detroit all have Polish colonies larger than Cleveland's.

Home-ownership seems to be an aspiration of the American Pole; many of them start to buy houses on the instalment plan before they begin to speak English. With large families and small incomes, they are yet more frequently home-buyers than native-born Americans with smaller families and larger incomes.

Reared in regions where the battle of life is less one for comfort than one for existence, what seems a bare necessity to the American laboring man may appear a great luxury to the immigrant Polish peasant; consequently they can save on small wages.

Although in Europe by far the majority of the Poles are engaged in agriculture, in America they generally settle in the cities. However, many small Polish colonies have been started in New England and elsewhere. Most of the colonists buy abandoned farming lands, and not only manage to coax a living out of the soil where Americans before them could not get it, but they actually, in many instances, succeed in converting the waste place of yesterday into fields of plenty.

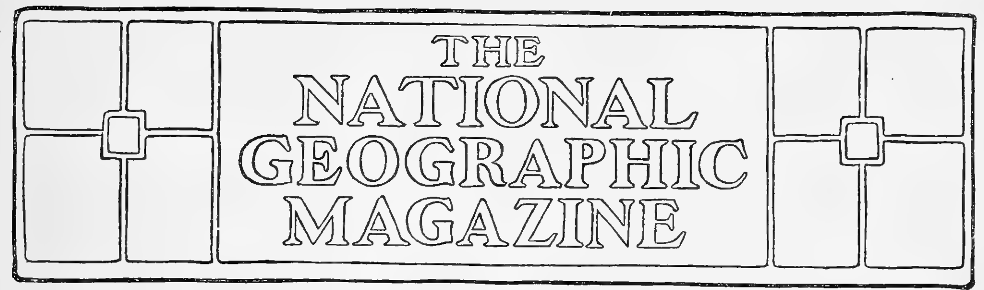
A VICTIM OF INDIVIDUALISM

Poland disappeared from the family of nations a victim of her own individualism. Although they constituted only one-twentieth of the population, the nobles arrogated to themselves the right of ruling everything. Granting no form of freedom to the peasantry, they yet loved their own freedom so excessively that nothing could be done without the unanimous consent of the nobles. There was no such a thing as the rule of the majority.

A single one of a thousand nobles might set at nought the will of the other 999. Unanimous consent could seldom be obtained for any vital proposition, and so Poland grew weak while Russia and Prussia and Austria were growing strong. In an age when international law was writ in the one phrase, "Let him take who has the power, and let him keep who can," the growing weakness of Poland and the growing strength of the other countries very naturally resulted in Poland's fall.

Having lost her all, Poland hailed the rise of Napoleon as an opportunity to regain it. Tens of thousands of her people enlisted under the banner of the great Corsican, and Poland poured out unstintedly of her resources of men, money, and munitions to aid the cause of the France that they hoped would deliver her. But when Napoleon retreated from Moscow the hopes of Poland declined, and Waterloo finally replaced tangible hope with an intangible dream.

The Indexes for Volumes XXV and XXVI of the NATIONAL GEOGRAPHIC MAGAZINE may be secured by any member of the Society desiring them.



THE TOWN OF MANY GABLES

BY FLORENCE CRAIG ALBRECHT

Illustrations from Photographs by Emil Poole Albrecht

Stolz im Aussern, rein im Innern Daran soll dies Haus erinnern. Gott mag immerdar hier schalten Denn kann hier nur Segen walten.	Proud without and pure within, May this house in memory seem. May God here forever rule; Then can only blessing reign.

THE memory of its winding streets, its ancient houses, gabled, arcaded, mottoed, had lingered with us since opportunity, one long-ago winter day, gave us two or three unexpected hours in the quiet city. We had thought it charming, even in its snow-mantle; unpretentious yet unmistakably prosperous; gravely contented and dignified; self-absorbed, yet not self-conscious; and we had always meant to see it again, and more thoroughly. When, then, an ankle painfully twisted upon a steep Malines stairway made our projected walking tour in the Harz Mountains very dubious, Münster appealed at once as a convenient and alluring half-way house in which to rest.

It is an eight-hour railway journey from Malines to Münster, with two customs-houses to pass *en route*. It must be stated promptly that neither Dutch nor German inspectors made any trouble for us, and the scenes in the examining rooms were rather entertaining than tiresome; but after one "passes customs" four or five times within a week, the funniest bilingual discussions lose flavor. The scenery through which one rides is entertaining, but not striking. Much of it is rich farm land, and farm land in June is lovely, wherever one may be; and we had seen this particular stretch of the Netherlands many times before. There was no novelty, which justifies our being very tired when we drove through Münster in the dusk one Saturday evening.

MERRY-MAKING IN MÜNSTER

June dusk in northern Germany, where the space between twilight and dawn is in summer so brief, means bedtime for early risers, and we were thinking drowsily of a dark, quiet room when our carriage turned into the Prinzipal Markt and stopped in a blaze of light. Münster was celebrating Jahrmarkt (annual market or fair)—the German version of the Dutch Kermis—and although the trinket booths and "shows" were clustered in the Dom Platz, the crowd of merrymakers, furnished with noise-producing implements, overflowed into all the adjacent streets.

We had no reason to be ruffled. We had chosen that hotel for its situation upon the Prinzipal Markt, so that, seated comfortably at our windows, we could lazily watch the ebb and flow of the town's life here at its heart. If the town chose to be especially lively during our stay, we should have been all the more

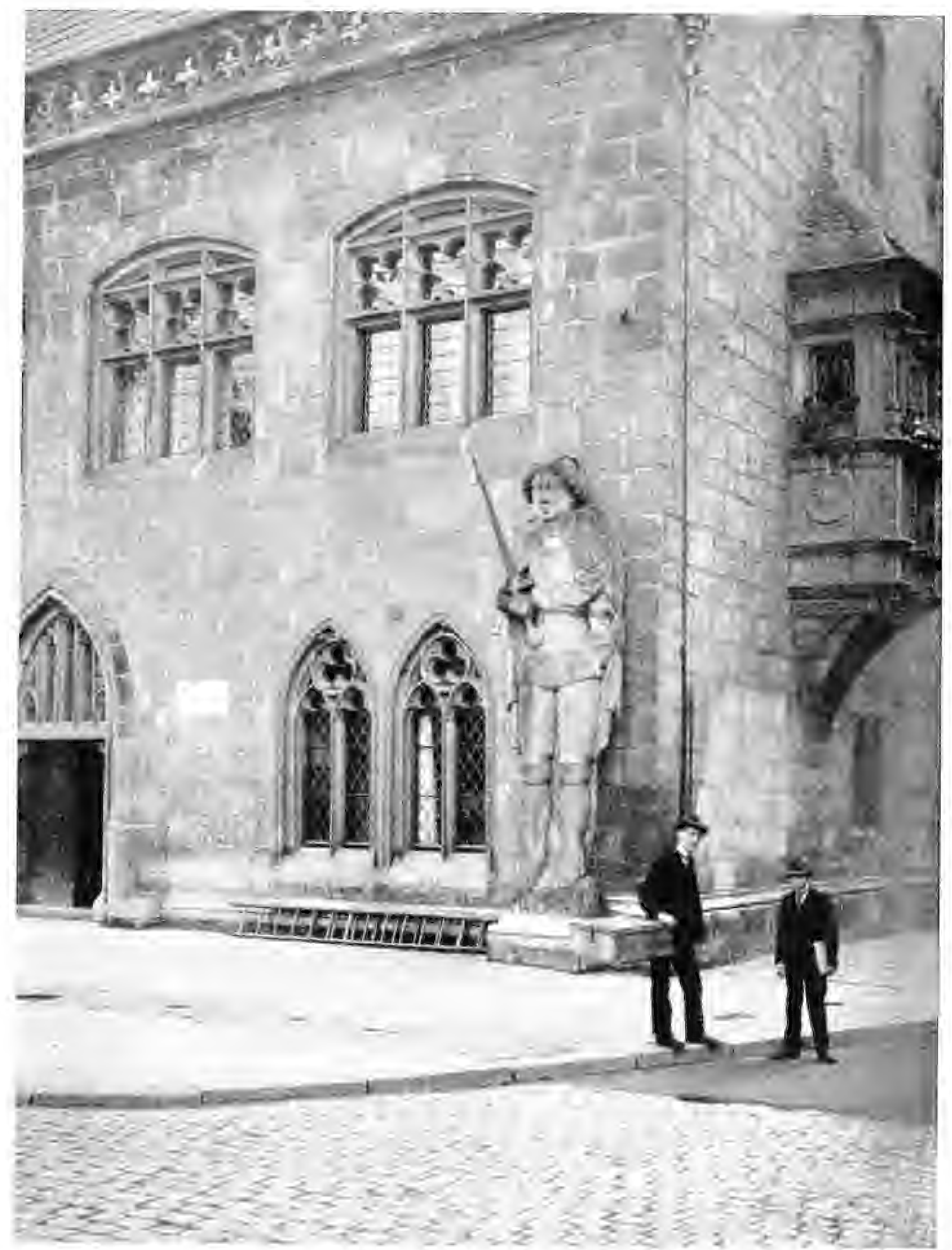


Photo by Emil P. Albrecht

THE ROLAND OF HALBERSTADT

This figure, which dates from 1433, is the symbol of municipal jurisdiction and the palladium of civic liberty. Similar figures are to be found in Bremen, Magdeburg, Hildesheim, Quedlinburg, Göttingen, Erfurt, Brandenburg, Haldensleben, Halle an der Saale, and perhaps other towns. It is usually placed against the Rathhaus or stands prominently in the market-place.

grateful; but I am not sure that we were. Did we think longingly of the quiet, luxurious caravansary at the station? Perhaps so. One always has to choose, in the smaller European towns at least, between the luxuries of the "best" hotel, with remoteness from the *Schenswürdigkeiten* (objects of interest), and the quaintness in situation or structure of its older inns, with a walk to the station.

NEW HOTELS AND OLD ONES

Of course, there are usually omnibusses, carriages, even occasionally motor-busses and taxicabs, to bridge the distances. The newest and finest hotels are usually built close to the station, upon that ring promenade, very likely, where once was the city's wall and beyond which the railroads never intrude; but the older inns cluster in the center about the market-places; old guild-houses sometimes, occasionally ancient palaces, oftener yet the town's ancient hospice, entertaining travelers since the days of pilgrimage and crusade.

While less luxurious than the newer houses, they are in themselves vastly more interesting, while their windows, small though they may be, look down upon livelier scenes than even the path to a railway station may offer. No elemental quaintness nor fragrant history lingers, however, about this particular hostelry upon Münster's Markt; neither does it house any of the discomforts of primitive times or inns. Less picturesque than many an other, it compensates with great comfort, and perhaps that noisy evening we were more pleased to observe its thoroughly modern furnishings than disappointed in its lack of "medieval atmosphere."

So comfortable were we that, in spite of noise from steam-piano, carrousel, horn, whistle, and drum; in spite of the glare of thousands of lights just beyond our broad windows, we soon fell asleep.

STREET-CLEANING DONE PROMPTLY

Sunday morning dawned with wet streets and threatening skies. We went out upon our balcony and looked up and down the silent street. Had we dreamt all the noise and gaiety of the night? The pavements, shining with wet reflections, were clean; no trace of litter, no peanut shells, no fruit rinds, no tattered ribbons or crushed flowers, such as usually remain for hours upon home streets after an outdoor festival, were anywhere visible. Either Münster does its street-cleaning promptly or keeps its streets clean.

The Prinzipal Markt, upon which our windows opened, is not, as its name suggests, a great open square, but an arcaded street, one link in a chain of curving streets and markets, which incloses the cathedral, the university, and other ancient buildings.

To the right we see the tall, delicate tower of the Lamberti Kirche thrust forward where the Roggenmarkt turns out of sight behind the tall gables. To the left, beyond the jutting balcony of the ancient weigh-house, the Rotenburg curves from view—a jumble of steep gray gables and scarlet roofs. We cannot decide which way lies the lovlier picture.

SUNDAY MORNING STILLNESS

The city is very quiet. A few early church-goers hurry under cover of the arcades to the cathedral or to St. Lambert's. A little girl trips by, in her arms a loaf of bread almost as long as herself. A small detachment of soldiers go down the center of the street with long, quick strides, turn a corner, and are gone. In the middle of the open space before the church a dog sits, yawning dismally. Is this all the "liveliness of the market-place" that we came to see? Münster sleeps late after its revels of the night, just gone.

Across the way are some charming houses, four or five stories tall, gray and gabled; some frankly old, other manifestly "restored." The ground floor is a shop, but the upper stories of the house extend above the pavement, resting upon pillars and arches; the effect is very pleasing to the eye, and in stormy weather the arcade is, for foot-farers, a great comfort. Watching one's neighbors is deplorable; only a showery morning in a strange town can pardon such lapse of good manners; any one too sensitive about such matters must not read the next lines.

As we looked over the rims of our coffee-cups at the delightful sky-line made by those curving, leaping gables, as we puzzled over the quaint text of the mottoes beneath them, we became aware that other eyes were looking over other cups toward our own. Münster, like us, was taking its morning coffee, and a little later Münster began, in spite of promised rain, to water its flowers.

FLOWER-BOXES AT EVERY WINDOW

All German towns can boast charming window gardens, but none—and saying it I recall very well the magnificent cacti of Rotenburg, Braunschweig's luxuriant geraniums (although that is not what she calls them), Quedlinburg's roses—are so lovely, so rich in bloom, as those of Münster.

Fancy a high, narrow façade of smooth, cool gray stucco dripping with purple blossoms from attic window to arched ground floor. The vine is apparently our large-flowered purple clematis; at least, seen from our window, color and flower shape are the same. Every window is massed with it, the long tendrils swinging and swaying in the light wind, the greenery almost hidden by the mass of bloom. Beside it a gayer building, gleaming with new paint and "restorations," finds its fresh colors rivaled by the pink blossoms in its window gardens, and beyond it a structure of dark gray stone makes a delightful background for a wealth of scarlet flowers.

And here and there behind each flowery screen one catches a glimpse of moving hands, of shining watering-cans, and sharp pruning-shears, sometimes of a friendly face. Usually the face is masculine; the master cultivates the flowers while the mistress is busy in the kitchen. Sunday dinner is too important to be left in a maid's incompetent hands.

Here and there are little blond childish heads bobbing behind the flower screen, and as the morning grows there are more and more of them peering down at the street, now filling with a gay throng. Does not every city have its "church promenade?" New York still throngs Fifth avenue after service, and Philadelphia once walked sedately to and fro upon Walnut street between Holy Trinity and the Philadelphia Club; Münster crowds the short space of its Prinzipal Markt of a Sunday morn, exchanging greetings and salutations.

READY FOR THE PARADE

But upon this Sunday of our story something more exciting was in prospect than the ordinary "church promenade." In spite of frequent vicious showers throughout the morning, carriages containing remarkably costumed young men rolled past our door, too swiftly for more than a glimpse of a white feather or the flash of gold lace, but frequently enough to keep our curiosity very high. Long before service was over people began to gather in the shelter of the arcades—people with arm-loads of flowers, who stood patiently, but persistently, holding their vantage ground in the front ranks, in spite of the increasing crush behind them.

Then bands of young students commenced to pass up and down the market, each group wearing its own peculiar *mütze,* signifying to the initiated the wearer's school and class. Müutzen are military-looking caps of odd shape, black visored, most of them; but the cloth crowns of every conceivable color—pale blue, scarlet, sea-green, yellow; or, when dark, with a vivid band. Each class of a gymnasium (secondary or higher school and each university student organization) has its peculiar cap. In a university town, where also are several gymnasia or preparatory schools, the rainbow scarcely furnishes enough variety of shades for all the caps, and where a group gathers together the bobbing heads look like grotesque flowers.

OUT OF THE CHURCH INTO THE RAIN

When the church doors opened after the last mass—Münster is devoutly Roman Catholic, her harrowing experience under John of Leyden having given her apparently more than enough of Protestantism—and the congregations poured out from the cathedral and St. Lambertus into the already crowded street, every vestige of pavement was lost from sight in the swaying sea of heads. Up and down the laughing, chattering crowd

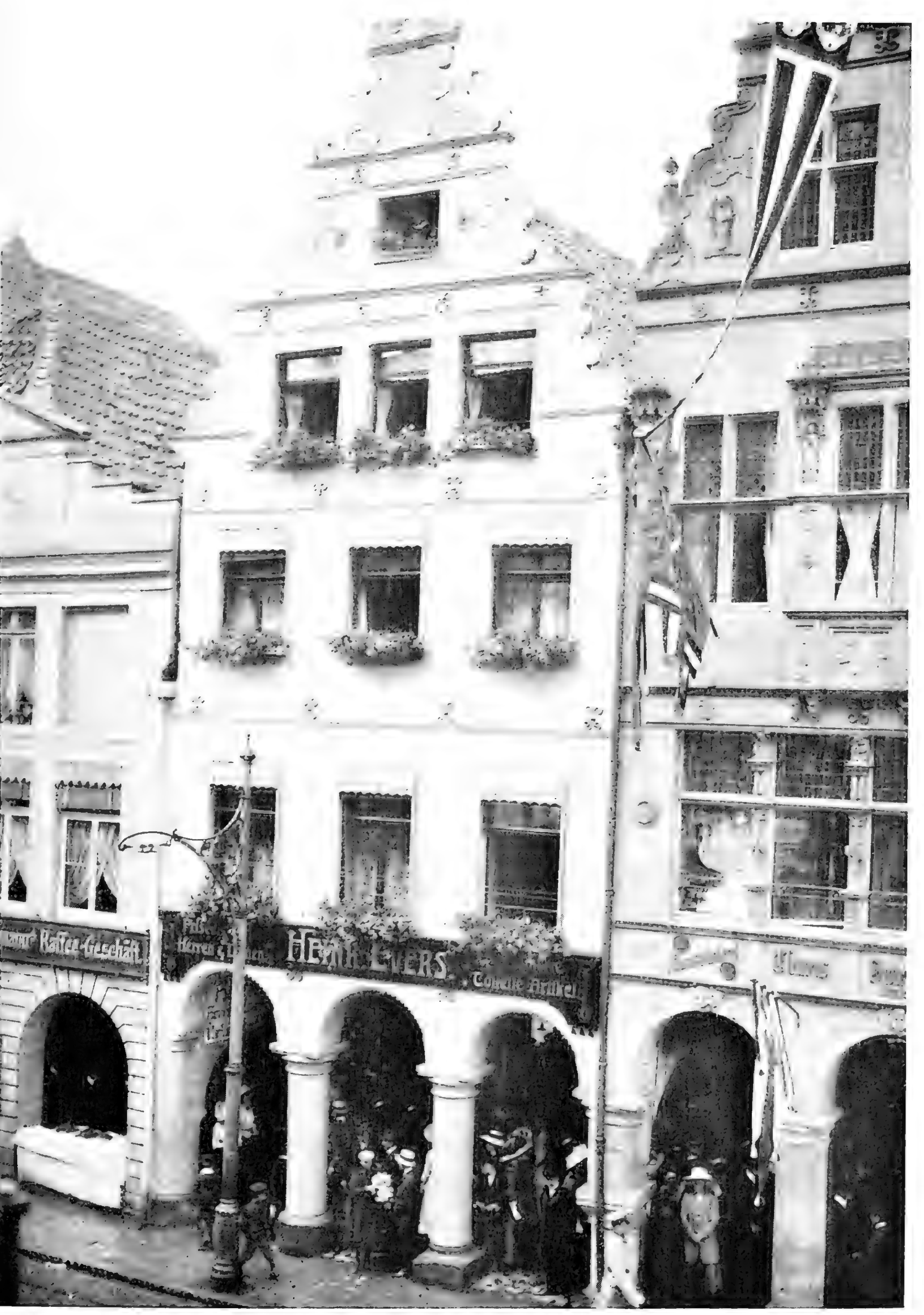


Photo by Emil P. Albrecht

THE GABLED HOUSES AND ARCADES WHICH BORDER THE PRINZIPAL MARKT: MÜNSTER

"Across the way are some charming houses, gray and gabled. Fancy a high, narrow façade of smooth, cool gray stucco, dripping with purple blossoms from attic window to arched ground floor" (see text, page 109).

surged, in spite of occasional rain, until music heard in the distance drew nearer and a narrow lane opened with difficulty in the center of the street.

Just then my chambermaid came into the room upon some errand and said that the "Veterans" of '70-'71 were parading that day, and that the student corps had joined the parade. "Will the procession pass here?" we asked eagerly. "Certainly," answered Gretchen with emphasis; "all parades pass here!" How stupid of us, to be sure. "And why do the students parade with the veterans?" we ask timidly. We are feeling a little ashamed of our ignorance now. "Don't know," says Gretchen; "they just like to! They are always parading!" Plainly, Gretchen doesn't think much of students. Probably her sweetheart is a soldier or policeman.

ALL HONOR TO THE BAND!

A blare of trumpets and the band appears curving in from the Rotenburg past the old Rathaus, just beyond us—a civilian band, attired in frock coats and high hats and mounted. Fancy playing a trombone, the reins of a restive horse, one's music card, and the heavy instrument in one's hands, and a gusty wind whirling around unexpected corners of a winding street! All honor to that band! It played well; no German band would dare do otherwise. Audiences are critical, and not a man lost his hat or his dignity.

Although it was the veterans' parade, the students appeared first, riding each in solitary state in an open landau drawn usually by two, occasionally by four, horses. Each wore a medieval costume, velvet apparently, and a soft velvet cap decorated with a long white plume, and each bore the banner of his corps, gorgeous affairs of silk, satin, velvet, gold lace, and embroidery. As the long line of carriages slowly passed, the meaning of the arm-loads of flowers became apparent (see page 114).

Very few large bunches or tied bouquets were presented, but each student received from his friends along the line some floral token—here a single rose, there a handful of carnations, then a tiny bunch of sweet peas or pansies or a couple of stately lilies. The students thanked each giver with a more or less gracious and graceful bow—as the banners were very heavy and awkward to manage, one must not be too critical—and laid the blossoms in the open top of his carriage. There were favorites in the university as elsewhere; one man had his carriage heaped with flowers, while another would have scarcely half a dozen tokens of good-will and popularity.

THE VETERANS ARE MARCHING BY

Long before the last gay carriage passed, the rain fell in torrents, velvet and feathers were draggled, summer frocks drenched; but neither paraders nor observers flinched. After the students came the veterans, a little somber group, passing along on foot, quietly and slowly, pathetically, like other "veteran corps" we have seen at home. There were neither banners nor flowers for their share, although it was their parade. We were glad that they were not without friends, however, and that applause greeted them all along the line as they marched bravely by.

All the participants had shared in an especial service at the Dom before parading; that accounted for the hurrying carriages earlier in the morning. Now, after a circuit of the old town, the procession would break up in front of St. Lambertus and carriages and veterans find their way home through the crowded, dripping streets.

An hour later and the market was as quiet as in the early morning. Münster was dining. Then it would nap, and then drink coffee, after which it would be ready for church and amusement once more. Being merely Americans, we thought it best to use the sunshine which greeted us after dinner for a little sightseeing.

SURE SIGNS OF MARRIAGE

For an hour we had the streets quite to ourselves, but later smiling family groups began to pass us—father, mother, and a troup of chubby children; young couples arm-in-arm, newly engaged or married (one knows whether it is "en-

Photo by Emil P. Albrecht

THE RATHHAUS, IN THE PRINZIPAL MARKT, MÜNSTER

A beautiful Gothic structure of the fifteenth century, which contains the "Friedens-Saal," where the Peace of Westphalia was signed on October 24, 1648

Photo by Emil P. Albrecht

THE STUDENTS' PARADE: MÜNSTER

"Each sat in solitary state in an open landau. Each wore a medieval costume of velvet and a soft velvet cap decorated with a long white plume, and each bore the banner of his 'corps'—gorgeous affairs of silk, satin, velvet, gold lace, and embroidery" (see text, page 112).

Photo by Emil P. Albrecht

SCENE IN FRONT OF THE CATHEDRAL AFTER THE SUNDAY MORNING SERVICES IN MÜNSTER

When the doors of St. Lambertus opened after the last mass and the congregation poured out into the already crowded street, every vestige of pavement was lost from sight in the swaying sea of heads. In the window just above the clock face are the three long iron cages in which the bodies of John of Leyden and his associates were exposed (p. 117).

Photo by Emil P. Albrecht

A LAST RELIC OF THE ORIGINAL FORTIFICATIONS: MÜNSTER

Where the walls once stood is now a lovely promenade, and swans, with their growing family, swim placidly in what was the old moat (see page 117)

gaged" or "married" by observing if the girl leans upon the man's right or left arm)—going to the parents for the sociable coffee-drinking, an every-day function, which upon Sunday receives a pleasantly, leisurely, holiday flavor and offers convenient opportunity for offering light refreshment to one's family and friends.

From our vantage spot on the balcony we had noticed now and then some passer stop and gaze intently at St. Lambertus' tall tower. Several times our eyes swept its tall height; yes, it *was* undeniably lovely, graceful, altogether satisfactory, as it soared upward from the market, but these people who looked longest did not look like students of picturesque architecture.

Finally we discovered the objects their eyes were seeking—three long iron cages swinging just above the clock face on the tower. They recall Münster's most harrowing days, those when she went mad with frenzied religious zeal and followed blindly the vicious teachings of John of Leyden.

It is unjust to saddle upon a sect the evils practiced by its leaders, but all Anabaptists suffered in reputation and Münster in stern reality by reason of the vicious excesses there indulged in by this John of Leyden and his associates. The wild orgy ended with John's overthrow. He and his chief intimates, Knipperdollinck and Krechting, died by torture and their bodies were exposed in these iron cages upon the stump of St. Lambert's older tower, for this present graceful structure has scarcely been finished a decade.

A CITY WITHOUT A TOWER

In the brief period of John of Leyden's rule, all of Münster's church towers were demolished by his order, so it is said; only St. Lambert's was stout and strong and could not be entirely destroyed. Very recently some one spoke of Münster as the "city without a tower," and that may well have been the case in the years directly after this religious upheaval, but not today; Münster boasts many graceful towers and spires.

Beside St. Lambertus is a charming little fountain, a children's fountain, its basin carved with quaint nursery rhymes and a ring of chubby marble children, not cherubs, nor fairies, but lovable every-day children, frolicking around the splashing water. Usually it is encircled by living children as well, scrambling and clambering up the basin's sides, dabbling eager hands in the pool, or gazing open-mouthed at their marble representations. The Ludgerus fountain by the cathedral is more celebrated, but this one in the Lambertus Platz is our favorite.

Münster has several beautiful churches besides the Dom, the largest and finest church in Westphalia, notably Ludgeri-Kirche, older yet than the cathedral in part, and the beautiful Gothic Ueberwasser-Kirche, more rhythmically the Church of Our Lady. The cathedral (St. Paul) was built in the thirteenth century upon the site of an earlier church, traces of which may still be found by antiquaries; but the later additions made in the sixteenth century are far more apparent. From some corners of the great tree-shaded Domplatz the edifice is very beautiful, from others unimpressive; but the whole space about it was so crowded with booths that we scarcely saw it fairly.

MÜNSTER KEEPS THE SABBATH

The booths were all closed and the carrousels silent, for Münster keeps the Sabbath, so far as buying, selling, and noisy merry-making is concerned. A few fakirs plied their trade in the cathedral's shadow. The most popular was a man selling small flutes, upon which he played folk-songs to attract buyers. He drew a sweet, bird-like note from the tiny thing and with such ease that his wares found many sales. It was very amusing to watch the interested faces in the group about him and the sheepish glances buyers cast about them as they essayed to try the toy for themselves.

Münster's old walls and gates are all gone. One or two plain old towers alone remain of all her stout fortifications. Her "Rampart-promenade," a ring of small parks crossed at intervals by well-paved city streets, takes the place of walls and moat, and from it American cities could well learn the art of landscape gardening within narrow limits.

Nowhere are these parks of great

Photo by Emil P. Albrecht

AN OLD TIMBERED HOUSE, WITH ELABORATE CARVING AROUND THE DOORWAY: THE MÖNCHE-HAUS, GOSLAR

Note the figures of Adam and Eve. No street is without one or more of these quaint buildings

width, yet frequently they give the impression of distance, and beautiful breathing places they make for a population which has long since outgrown the town's ancient limits. Water fowl find homes in the rippling pools that adorn them, ducks and swans so entirely at home and unafraid that, after an inquiring glance up and down a street, they do not hesitate to cross it upon their way from pool to pool (see page 116).

A SUNDAY THRONG

Flowers and shrubbery, smooth green turf, and thick-foliaged trees lined the quiet walks; sweethearts and little romping children; old people, slow and patient of step; parents with growing families; soldiers; students, bold and assertive; coquettish nursery maids out for an airing; school girls, blushing and giggling—all to be met with on a holiday afternoon.

Adjoining the ring of promenades is a stately Schloss, once the residence of Münster's proud prince bishops, but now belonging to the crown, and beyond the promenades are Münster's most charming residences, each with its garden, large or small, but always flower-filled and always with a tiny veranda, or arbor, where the family are drinking coffee this sunny afternoon. Münster's merchant princes have always been well housed. In the older town are some very stately *höfe*—literally, courts or courtyards, but actually very handsome sixteenth-century residences built on three sides of a grilled court.

There is a museum with pictures, but Münster's best pictures are not in her gallery—they are in her streets and markets. Of course, it is not always fair time. There are not so many flags and flowers; very rarely one sees a costumed peasant or such lively crowded streets. The Westphalian costume is fast disappearing; it is remarkable rather than pretty, and will be no great loss save for the element of individuality and quaintness it gives to busy market-places. Very rarely one sees it in Münster, not frequently even in the villages.

On Monday morning market was in progress under the arcades and by the curbs of the Prinzipal Markt, but a drizzly rain was falling, the sky was murky gray, the flags were twisted and tangled, everybody wore their dull work-a-day clothes; the Jahrmarkt booths were deserted. Probably at night the fun and noise were renewed, but we did not wait for it. "Will it rain all day?" we asked the porter anxiously. "Surely," said that worthy positively. So we packed our bags, cast one lingering glance at the blossoms and mottoes across the way, and went on to Hildesheim, ere sober reality dulled the brightness of the holiday.

BEAUTIFUL HILDESHEIM

And Hildesheim is assuredly a jewel of a town, well calculated to make one forget another's charms. Who shall truly picture her delightfulness; her winding, narrow streets; her tall-timbered houses; her market-place, walled by stately dwellings, by Rathaus and Amthaus; her open places ringed by bewildering gables; her tall, grave churches and grim old towers. How many fascinating legends, churchly and pagan, one may hear there. Who can forget the rose bush of a thousand years or the bells of the Kehrwieder (turn again) tower? Who does not fear "the Huckup"? Admitted to intimate acquaintance with Hildesheim, it is indeed difficult to look equably on her rivals.

Yet there are a score of towns which might readily dispute with her the right to be remembered, and, with Münster, all claim to our title. Braunschweig, for instance, more of a city, more flagrantly modernized, has nevertheless had the grace to preserve much of her ancient splendor. For entirely personal reasons we love her better than any other gabled town, and, except when we are in Hildesheim, think her by far the loveliest; less of romance gilds her, perhaps, but much stately history clings to her old burg; while Till Eulenspiegel's merry pranks and incidentally his owls and monkeys, both gingerbread and bronze, still enliven his old neighborhood.

MODERNITY AND MEDIEVALISM

If the electric lights and very modern plumbing of Braunschweig's best hostelry inform you that the town is distinctly up to date, there are also, not five minutes

Photo by Emil P. Albrecht

A CORNER OF AN OLD GABLED TOWN IN GERMANY

Photo by Emil P. Albrecht

THE FINKENHERD IN QUEDLINBURG

It was in this open space that Henry the Fowler was found snaring finches, by the deputation come to announce his election as king—so it is said. Even if the story about Henry the Fowler cannot be substantiated, it is a pretty one, and there are still lots of finches here today, both in cages and making homes in the vines.

ANCIENT GUILD HOUSE OF THE BUTCHERS: HILDESHEIM

This remarkable old guild house, called "the Knochenhauer Amthaus," which, literally translated, means the "Bone-Hewers' Office House," is considered one of the finest timber structures in Germany. It was built in 1529, restored in 1884, and now serves as a museum of industrial art.

ROLAND HOSPITAL AT HILDESHEIM

Hildesheim is one of the few northern German towns that have steadfastly refused to grow young according to modern utilitarian methods. It has preserved its rare old timber structure, with their lavishly carved friezes, stanchions, and cornices, and their impractical, red-tiled gables. There is a modern, straight-front, brick-and-mortar, drably practical house beside the Roland Hospital, and the comparison between the old and the new thus afforded is the best excuse for Hildesheim's conservatism.

AN OLD CITY STREET IN HILDESHEIM

European city-builders in the Middle Ages considered matters of street construction to be of little importance; the municipalities laid out the fortifications and the moat, individual inspiration created the dwellings, and the streets took care of themselves—they were whatever lanes that happened to remain between any two lines of buildings. These medieval streets have no general direction, but just wander helplessly around until released from their suffering by the open fields, by an old-time market-place, or by some thoroughfare planned and carried out in modern times.

ON MARKET SQUARE IN BRAUNSCHWEIG (BRUNSWICK)

"Buttressed by hoary history, golden with romance, rich in beautiful architecture and in the wisdom to cherish it, what wonder that Hildesheim's jewel, the Knochenhauer Amthaus, Braunschweig's Burg, Wernigerode's Rathaus, are the traveler's familiar friends!" (see text, page 122).

distant, curving streets and dusky corners where one may readily walk hand-in-hand with the sixteenth century. Tall-timbered houses rise, one story over-stepping another, until scarcely a strip of blue shows between the gables. Small casement windows open in close lines above a frieze delicately carved, gorgeously painted; allegorical figures, imps, monsters, angels, and hobgoblins creep, crawl, or pose wherever they may find foothold. Look down from your window. In the square the bronze lion will recall that Henry the Lion whose town this was, and with the name more stirring history than one can well compress into a morning.

And after Hildesheim and Braunschweig there are Goslar and Halberstadt, Osterode, Quedlinburg, Wernigerode—all close neighbors, all many-gabled, to dispute Münster's claims. After these Harz towns, far to the southward, the unforgettable glories of Nürnberg and Rotenburg, of Wurzburg, Regensburg, and Ulm. Now, indeed, we feel that we have been overbold; in friendliness we have been unfriendly.

SMALL TOWN LIFE IN GERMANY

The small towns of Germany have their similarities, but they possess numerous peculiarities as well. For instance, the butchers who had the inspiration to advertise their slaughter-house by a recumbent statue of a German cousin of the Texas longhorn are not to be found everywhere. The clean appearance of the street is characteristic of German towns as well as of German cities.

IN THE BAVARIAN MOUNTAINS

The Bavarian Mountains, especially those lying immediately south of Munich, are used by the youth of Germany as a training grounds for Swiss Alpine climbing. These rock masses present most of the problems that meet the sportsman on a larger scale in the higher Alps, and a season's work among them is a good preparation for a Mont Blanc diploma.

OBERSTDORF, NEAR THE LAKE OF CONSTANCE, BAVARIA

Bavarian villages are a source of continual delight to the traveler in that country. They break upon the vision from the mountain brow, from an open interval on the forest path, and from around the curve on the broad country road, with their red and green gabled roofs and white-washed walls, and they are always so well placed amid the natural beauties of the landscape that the enveloping country seems to have been built around them and for them.

GARMISCH VILLAGE: BAVARIA, GERMANY

Farmers' homes in Germany are crowded closely together in village clusters. The land of each peasant proprietor lies somewhere in the surrounding country beyond the village, but seldom near at hand; in fact, "the farm" may consist of several plots of ground lying in as many different directions and each having as little relationship as possible to the convenience of the owner. The farm plots are of all conceivable shapes. A potato patch may be 20 feet wide and a quarter of a mile long, or it may be a squat, multi-sided figure cut out of the midst of the open field. These fanciful farms are the outcome of a sense of justice of earlier generations of farmers, who sought fairly to apportion among themselves the good and the poor lands.

ONE OF GERMANY'S WORLD-FAMOUS WINE SALOONS, THE KAMMERZELL'SCHE HAUS: STRASSBURG

There is one at Leipzig, where Faust sat at table with the Devil and three jolly students; another in Göttingen, whose cellars are stored with wines generations old; a third in the town-hall of Bremen, whose vaults contain the most expensive wines to be found in the world; and the Kammerzell'sche Haus in Strassburg is the fourth. It is one of Germany's proudest examples of half-timber architecture. Within its walls one sips his wine and eats his game in the atmosphere of the Middle Ages.

Photo by Emil P. Albrecht

A TALL, OLD TIMBER STRUCTURE, WITH AS MANY STORIES IN ITS HIGH-PEAKED ROOF AS THERE ARE BELOW IT: HILDESHEIM

"And Hildesheim is assuredly a jewel of a town, well calculated to make one forget another's charms. Who shall truly picture her delightfulness; her winding, narrow streets; her tall-timbered houses; her market-place, walled by stately dwellings; her open places, ringed by bewildering gables; her tall, grave churches and grim old towers" (see text, page 119).

Photo by Emil P. Albrecht

NEAR SCHWABISCH HALL: THE ROAD THROUGH STEINBACH, KOMBURG

The northern part of Germany is a uniform plain. This comprises about three-sevenths of the Empire's total area. The central and southern sections consist of numerous rolling plateaus and fertile valleys, broken by low lying mountains, some in chains and some in isolated groups, but none so situated as seriously to interfere with road or railroad communication. The Bavarian Alps, the Black Forest region, and the Vosges are among the most picturesque sections of the Empire.

Photo by Emil P. Albrecht

A QUAINT OLD FOUNTAIN IN BRAUNSCHWEIG: GERMANY

Till Eulenspiegel, a famous German jester, who lived in the fourteenth century and whose jokes are now famous in every language, lived here as a boy. He is reputed to have worked in the bakeshop at No. 11, Backerklint. While working there he made little owls and monkeys out of gingerbread and gave them to the children. The building is still occupied as a bakery, and does a thriving business in gingerbread monkeys and owls. His humor and his love of children are commemorated by the fountain opposite the bakeshop. Note the owls and monkeys sitting around the fountain as if to drink in his wisdom and his fun. Nowhere in Germany is finer carving to be found than on the old houses in Braunschweig (Brunswick).

Photo by Emil P. Albrecht

ALL AROUND THE CITY OF QUEDLINBURG ARE VAST NURSERIES AND SEED FARMS

The line of the old walls is now a beautiful park, with tastefully arranged flower-beds running down to the river's edge

Photo by Emil P. Albrecht

A NOONTIME REST: QUEDLINBURG, GERMANY

Beautiful, sleek oxen are used on the farms, and after a hot morning's work are allowed to wander into the cool shadows of the trees, where they fall over the little clear stream

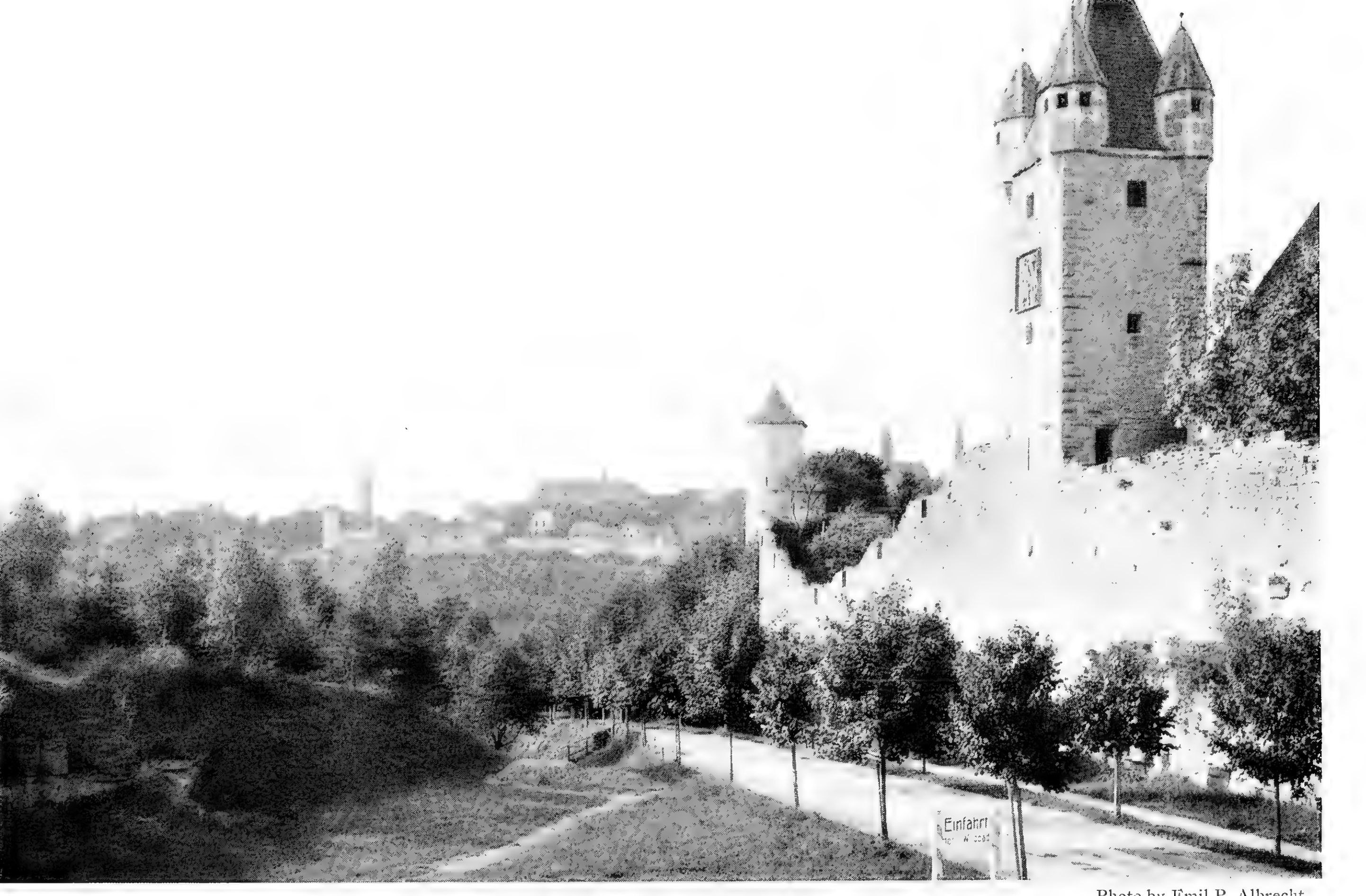


Photo by Emil P. Albrecht

ONE OF ROTHENBURG'S MOST BEAUTIFUL TOWERS: BAVARIA, GERMANY

Medæval Germany was a region of walled towns, and the inter-city wars of that period followed one another in almost unbroken regularity. Today the walled town has all but disappeared from the Empire. Expanding populations have grown past the walls, and they in turn have been leveled and converted into parks and promenades.

Photo by Emil P. Albrecht

THREE METHODS OF TRANSPORTATION IN ROTHENBURG: HORSES AND WAGON, OXEN AND CART, AND A MAN'S BACK

It is a long, steep climb up into Rothenburg, no matter which path one chooses, and he meets many of these hay-laden men upon the way

Photo by Emil P. Albrecht

OUTSIDE ONE OF THE GATES OF ROTHENBURG

The charming oriel of the house on the right is a favorite subject of the many artists who visit the picturesque old town

Photo by Emil P. Albrecht

THE LOFTY WALL OF ROTHENBURG SEEN FROM THE INSIDE

Note the covered walk with balustrade surmounting the wall. Once a place for defense, the gallery is now given over to the rope-makers. From it one has charming views over the town and the surrounding country. Upon it one can pass around at least two-thirds of the town. It is reached by steps at the various gates.

A ROOM IN ALBRECHT DÜRER'S HOME IN NUREMBERG, GERMANY

Dürer was one of Germany's greatest painters and engravers, and his artistic career stands out among those of his fellow great among the Germans by being marked with universal honor and recognition while still in his prime. His friendships reached to every land where Western habits of thought reached.

THE GABLED CITIES OF THE HARZ

Better known are all these cities to the average tourist than Münster. Either they lie upon traveled highroads or they make definite demand for attention, or they are set in a loveliness that will not be ignored. All about the green Harz Mountains lie these quaint old gabled cities, looking up to hills that afford such pleasant summer journeyings. Buttressed by hoary history, golden with romance, rich in beautiful architecture and in the wisdom to cherish it, readily reachable from Hannover or Berlin, what wonder that Hildesheim's jewel, the Knochenhauer Amthaus (p. 122), Braunschweig's Burg, Wernigerode's Rathaus, are the traveler's familiar friends!

More familiar still are Nuremberg's stately gables, the scarcely less pretentious ones of her neighbors. Rothenburg has become a show place, a museum; Nordlingen has been discovered; even Dinkelsbühl has its visitors, and its gables appear upon post-cards. I should have known better than to give the title to Münster; Münster, so off the beaten trail, so unbefriended by nature, so slighted by romance, so inconspicuous in history; Münster, which rarely sees the foreign traveler, never the tourist, and is profoundly indifferent about it.

Yet let her keep the title. Have we not already remembered her gray houses through a score of years? Even in Meinhardshof at Braunschweig, by the Tauber beneath Rothenburg's walls, on Wurzburg's stately bridge, in Nuremberg's market-place, we have recalled right pleasantly her dim, shadowy arches and tall gables. Yes, let her keep the name.

A FISH AUCTION IN NORTHERN FRANCE: FISHING BOATS NOW SWEEP THE SEAS FOR MINES INSTEAD OF SEINING IT FOR FISH

EUROPE'S ENDANGERED FISH SUPPLY: THE WAR AND THE NORTH SEA FISHERIES

WITH its war zones and counter war zones, its mined areas, its hostile fleets, and its heavily defended shores, the North Sea, in a few months, has been transformed from one of the richest food-producing areas in Christendom into a region upon whose mastery may depend the starvation of one or the other of two of the mightiest nations of the earth.

In times of peace no other like area in all the seas ever has given to humanity such rich supplies of food as this narrow strait separating Albion from the continent of Europe. More than in any other known region of the oceans, the food fishes of the marine world seem to love to congregate there, and to feel that it is home to them in spite of an age-long attack upon them by the greatest of all creatures of prey—man.

MILLIONS OF TONS OF FISH

Step by step every new idea of art and science has been brought to the aid of the fisherfolk of the North Sea, and by the same step-by-step process the annual drain on its resources has climbed higher and higher, until finally, during the year previous to the present war, it amounted to a million and a quarter tons of fish. Counting two tons to the truck-load and allowing 30 feet to the truck, this would make a procession of fish trucks reaching across the United States from New York to San Francisco via New Orleans.

Yet almost as rapidly as the demands of the world have risen, the supply has increased, and, except for a too heavy concentration of fishing forces on some individual bank now and then, there is no evidence of any serious depletion of the stock.

The lesson of the present war to the inhabitants of Neptune's kingdom is that it is an ill wind which blows nobody good. But yesterday thousands of steam trawlers pursued their way up and down the fishing grounds of the North Sea, gathering in with their vast nets untold millions of fish. Other thousands of drifters dropped down over the fishing banks and vied with the trawlers in the magnitude of their catch. Other thousands, and even tens of thousands, of boats equipped with a myriad of baited hooks aided in collecting the tremendous tax levied by the human appetite upon the sea.

Today a hundred thousand Englishmen who manned the steam trawl, the drifter, and the sailing boat; tens of thousands of Germans who vied with them in their work; Belgians, the French, the Dutch, the Danes, and the Scandinavians, who also helped exploit the North Sea fisheries—all of these are largely out of jobs. Fishing boats now sweep the sea for mines instead of seining it for fish.

THE SERIOUSNESS OF THE SHORTAGE

We in America, where fish forms such a minor part of our daily diet, and where so many of the fish that we eat are grown in our rivers and bays, under a great American-originated system of fish culture, find it hard to realize how serious in their proportions and how far-reaching in their consequences are the results of the practical closing down of the fisheries of the North Sea.

Europe has depended very much on these fisheries for fish supplies. More than half of all the fish produced on all the fishing grounds operated by Europeans are caught within the limited territory that constitutes the North Sea fishing grounds. How much they are depended upon is shown by the fact that Great Britain annually absorbs 500,000 tons of North Sea fish; that means 22 pounds per capita. And while this is small in proportion to her per capita meat consumption of 119 pounds, yet it is that margin which represents the difference between a bounteous plenty and positive hunger unless other foods can be secured to take its place.

The same condition applies to Germany. Not only has that country heretofore used all of its own catch, but has annually imported more than a million and a quarter barrels from other countries around the North Sea. The United Kingdom and Germany are the two greatest meat-eating nations of the six leading ones now at war, Germany's per capita consumption being 113 pounds. An investigation reveals the fact that as meat becomes less and less important in a nation's dietary, fish becomes more and more important. France has a per capita consumption of 80 pounds of meat, Belgium 70, Austria-Hungary 64, and Russia 50.

FEW FISH IN THE BALTIC

Germany cannot look to the Baltic for any large supply of fish to replace her former supplies from the North Sea, for the waters of that sea are poor producing grounds. The total annual yield there is only about a tenth as great as that of the North Sea, and Germany's share of this is, in normal times, very small.

Great Britain's North Sea fisheries represent nearly two-thirds of the total catch there, and are more than eight times as large as those of Germany.

In the North Sea three-fifths of the total catch are herring; haddock takes second place, constituting 11 per cent of the total; cod comes third, with 8.5 per cent, and the plaice fourth, with 4.3 per cent of the total catch. In the matter of values the ratio is somewhat different from that of weights. Constituting 62.7 per cent of the weight of the season's catch, the herring accounts for only 45.4 per cent of its value.

The vast proportion of the fish consumed in Europe is salt fish. The fresh fish go to the tables of the rich, while the herring and other salted varieties are consumed principally by the masses. The result is that when the pinch in the fish supply began to come it visited the homes of the well-to-do first. All of the countries at war probably have enough salt fish in their warehouses to tide over a considerable period, but if the war keeps up this reserve must disappear.

Not only do the nations at war feel the pinch of the fish shortage caused by the war, but neutral nations as well. Holland feels it sorely from a production

COAST FISHERMEN IN NORTHERN FRANCE

Since the European war has reached its present bitter stage most of the fishing done in the North Sea is by small boats, close to shore. The fish they catch are the ones usually sold fresh instead of being salted.

A NET-MAKER IN BRITTANY

"With its war zones and counter war zones, its mined areas, its hostile fleets, and its heavily defended shores, the North Sea, in a few months, has been transformed from one of the richest food-producing areas in Christendom into a region upon whose mastery may depend the starvation of one or the other of two of the mightiest nations of the earth" (see text, page 141).

Photo from Dr. Hugh M. Smith

A MILLION COD HEADS READY TO BE MADE INTO COMMERCIAL FERTILIZER

"Step by step every new idea of art and science has been brought to the aid of the fisherfolk of the North Sea, and by the same step-by-step process the annual drain on its resources has climbed higher and higher, until finally, during the year previous to the present war, it amounted to a million and a quarter tons of fish. Counting two tons to the truck-load and allowing 30 feet to the truck, this would make a procession of fish trucks reaching across the United States from New York to San Francisco via New Orleans. Yet almost as rapidly as the demands of the world have risen, the supply has increased, and, except for a too heavy concentration of fishing forces on some individual bank now and then, there is no evidence of any serious depletion of the stock" (see text, page 141).

standpoint, as do also Sweden, Norway, and Denmark. On the other hand, it hits Switzerland more from a consumption standpoint. That country normally buys nearly a million dollars' worth of fish from the countries that border the North Sea.

Many regions around the North Sea live almost entirely by their fishing industry. The Orkneys and the Shetland Islands have almost no other activities. Lerwick, the principal town of these islands, in winter has a population of 4,000. In summer this grows to 19,000 and everybody is busy with the fisheries. Where the little Scotch town of Buckie possessed three steam fishing boats in 1910, it possessed 150 in 1914. The port of Fraserburg annually handles 100,000 tons of fish, and Aberdeen has increased her fishing business sixtyfold in 14 years.

THE WORLD'S FISHING CAPITAL

In Great Britain the fishing industry is centralized in a few large ports; in France it is scattered among a great many small ports. Grimsby is the fishing capital of the world, with an annual output of perhaps 300,000 tons of fish. There one encounters a more feverish excitement than anything he may witness in the great stockyards district of Chicago. A hundred trawlers, their great bins full to overflowing with their latest catch, draw up to the fish dock in the order of their arrival in port, and a swarming army of fishermen, porters, criers, dockers, and packers set up an uproar which

Photo by A. B. Wilse

COD FISHERMEN AND THEIR CATCH

In the production of eggs the cod is one of the most prolific of all species of fish. It is estimated that the turbot spawns 9,000,000 eggs a season, the cod 6,000,000, the mackerel 700,000, and the herring 50,000. The young cod is about an inch in length at the end of spring and has to reach two years of age before being fit to market. They do not reach maturity until the end of their third year.

makes one think that some inferno has found an abiding place there.

Over 600 steam trawlers operate from this port in times of peace. A special harbor has been built for the fish trade. There are two entrances to it, an outer basin containing 12 acres, an inner basin of 15 acres, and two dry-docks. The market, built on the quay, is a vast shed nearly a mile and a half long and two stories high. The building is equipped with numerous unloading cranes and endless-chain elevators. On the farther side of the shed are the railway lines, and it is not an unusual sight to see four trains being loaded at a time.

There is always a race for position between the hundred or more trawlers that ascend the Humber as soon as the tidal gates are opened in the morning, for at Grimsby the parallel of "first come, first served" is "first at the dock, first unloaded"; and time is too precious in the fishing season to stay away from the fishing banks a minute longer than necessary.

BUSY DAYS IN GRIMSBY

The sale begins at the northern end of the shed, and never did a British admiral of the Royal Navy maneuver more dexterously for position than do the captains of Grimsby trawlers. A veritable scrimmage of hurrying vessels, every now and then bumping into one another by bow or beam, makes the onlooker wonder how serious collisions are averted; and yet there are few of these to record.

The trawlers tie up, bows to the quay, in closely packed ranks. Unloading begins at once. Great baskets are hoisted from the holds, laden with fish. Other baskets go down to take their places, and

Photo from Dr. Hugh M. Smith

A HERRING AUCTION IN GRIMSBY, ENGLAND

"We in America, where fish forms such a minor part of our daily diet, and where so many of the fish that we eat are grown in our rivers and bays, under a great American-originated system of fish culture, find it hard to realize how serious in their proportions and how far-reaching in their consequences are the results of the practical closing down of the fisheries of the North Sea" (see text, page 142).

so the endless chain of outgoing baskets laden to the rim and incoming empties keeps passing until the trawler's load is on the dock.

One sees the cod laid out in one, two, three, and four dozen lots. Here are the big halibut, with their white bellies turned up, still quivering with the life that has not entirely gone out of them. The smaller species, such as the whiting, plaice, and gurnards, are carefully washed and arranged in wooden boxes.

At 8 o'clock the auction begins. A big auctioneer bawls out the name of the fish he is offering for sale; a young laddie, scarcely in his teens, vigorously rings a hand-bell with a mastery that makes its clanging melodious, and the buyers approach. From early morning to late afternoon the sale continues. An army of jostling workmen labor as if their lives depended upon it—scrubbing, washing, packing fish, and loading the numerous trains that soon are hastening to all parts of Great Britain with their fishy freight. Sometimes men armed with long, forbidding-looking knives run along the dock, plunge their great daggers into each cod, grab out the liver, and hasten on to the next pile as if there were no time but the living moment to finish the job.

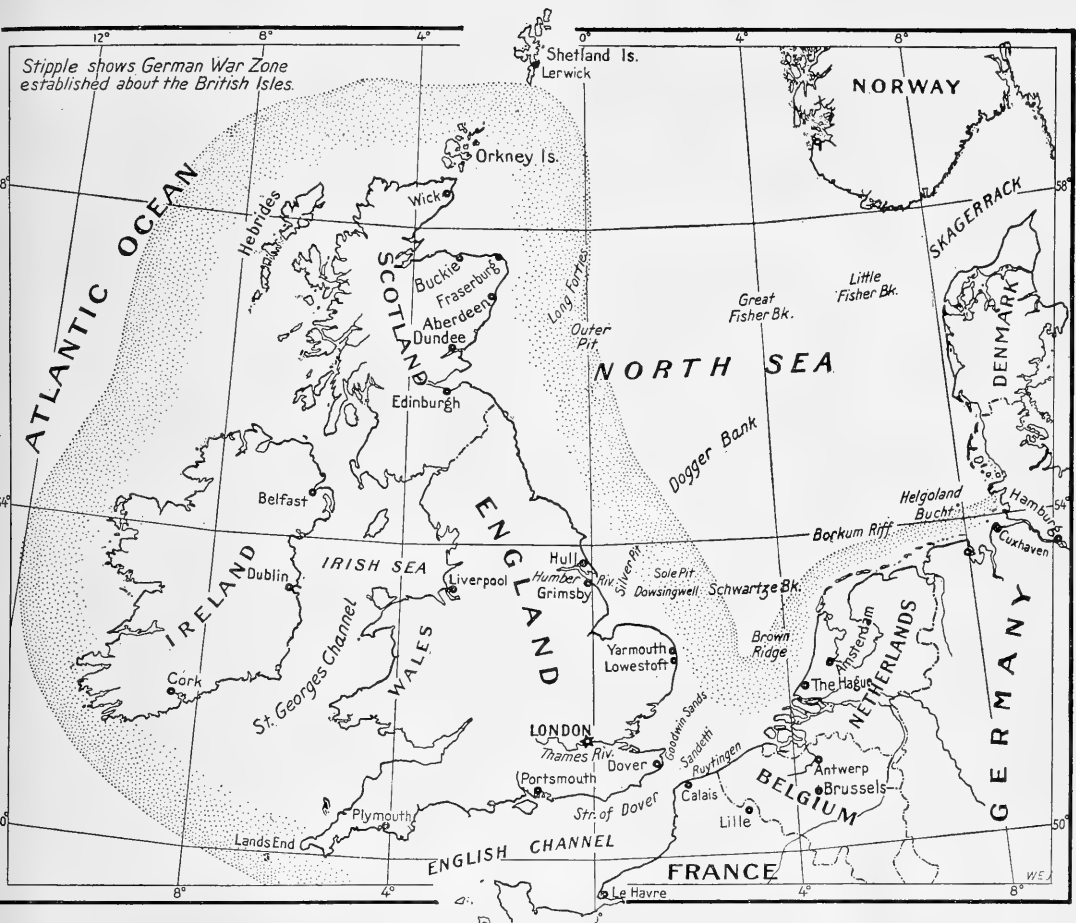
BACK TO THE FISHING BANKS

After a skipper's catch is sold he reverses his engines, backs out from the quay, goes to the ice dock, fills the hold of his vessel with ice, its bunkers with coal, and its larder with victuals, and hastens back to the fishing grounds; for there are too many fish on the banks awaiting his coming to permit of a picnic party ashore. Such functions are in order when the howling winter seas make trawling impossible.

For it can never be more important for a farmer to make hay while the sun shines than for the North Sea fisherman to keep busy while the sea is calm. The

THE PROMENADE OF A NORTH SEA RESORT: BORKUM, GERMANY

All along the North Sea from Ostend to the Danish coast there are seaside watering places where the European world has gone in times past to take the baths. Hard by are the fish wharves. These places have all been deserted. Mars rules today where Fashion held sway yesterday



MAP SHOWING THE FISHING BANKS OF THE NORTH SEA AND THE "WAR ZONE" ABOUT THE BRITISH ISLES

average English fisherman is responsible for a catch of nearly ten tons of fish a year, and its value is about $505.

The fish that come to Grimsby are mostly the food of the masses, for Grimsby is a port of trawlers. It is Lowestoft and Yarmouth that give to the epicure and the gourmet his supply of fish, for Lowestoft is the port of the graceful sailing vessel, with its lines of baited hooks, bringing in 12,000 tons of turbot, sole, and brill annually.

BILLINGSGATE FISH SALES

It is at Billingsgate that one encounters the world's greatest middleman's fish market. London devours over one and a half million pounds of fish every day in normal times—a quarter of a million tons a year that means. Eleven railroads bring about 550 tons a day and the remainder comes by water. Before being offered for sale, the fish at Billingsgate are inspected by a commission of the "Worshipful Company of Fishmongers," which holds letters patent granted it by King Edward I at the beginning of the thirteenth century. This ancient society represents, through the "North Sea Protective Association," more than fifty of the leading fishing companies of the United Kingdom.

Our great American fish culturist, Dr. Hugh M. Smith, in speaking of the herring industry, says: "A tale as stirring as any fiction could be based upon the part played by the sea-herring in the history of some of the principal countries. 'Its spawning and feeding grounds have determined the location of cities,' and in

Photo by Walter L. Beasley

A GIANT SUNFISH CAPTURED IN THE PACIFIC OCEAN OFF THE CALIFORNIA COAST

This huge monster of the sea, measuring 11 feet from fin tip to fin tip and 10 feet from head to tail, weighed nearly a ton. It looks to be all head and no body, and this condition is believed to be due to the fact that the sunfish spends much of its time in very deep water, where most fishes develop huge heads and very spindling trunks. The big fish has comparatively a small mouth, and, to provide for the enormous stomach, consumes thousands of small fish and various other marine creatures. The great fins are 3 feet long, and when swimming the upper one protrudes high out of the water. It is thought that the specimen had attained great age, although its age cannot be estimated definitely. It may have been nearly a hundred years.

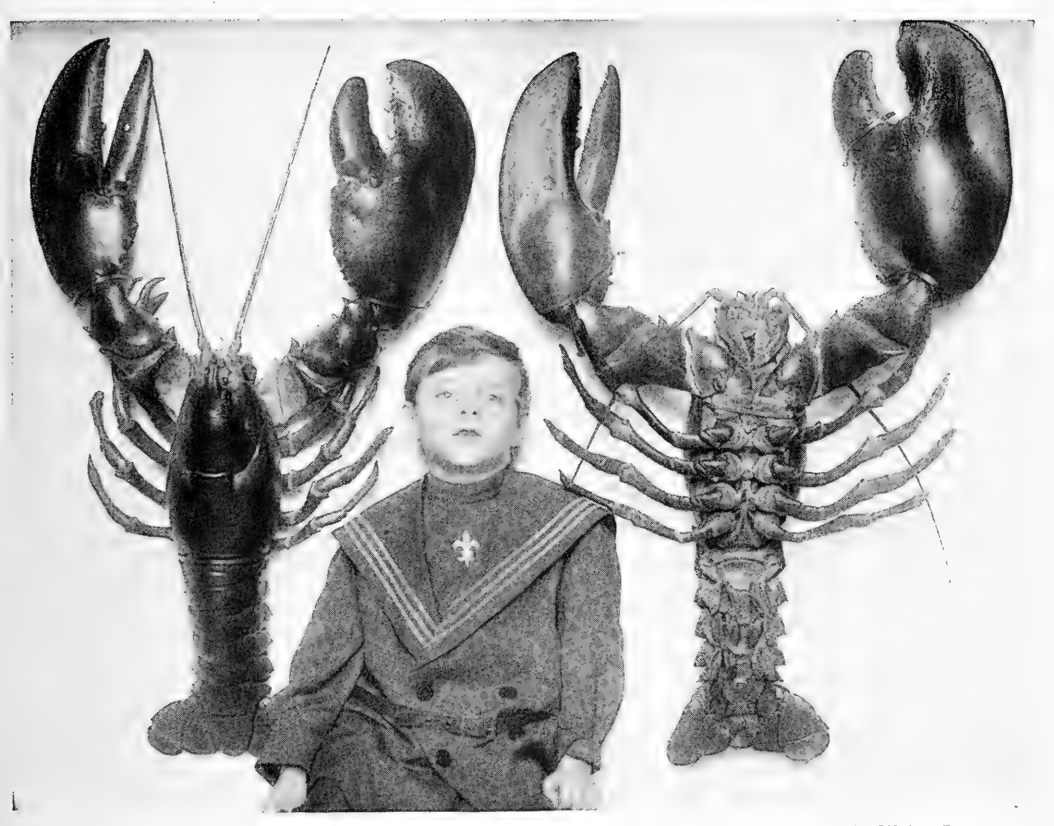


Photo by Walter L. Beasley

PROBABLY THE LARGEST LOBSTERS EVER CAUGHT

These two lobsters weighed, when caught, 28 and 34 pounds respectively. They were taken off the Highlands of New Jersey and are now mounted in the American Museum of Natural History. They utilized the enormous strength of their jaws and sawlike teeth in cutting holes and robbing the traps of all the bait, as their bodies were too large to get inside. Finally they were hauled up to the surface clinging to a trap. The giant specimen showed many scars, evidently from savage combats. The length of its life is estimated to have been fifty years, as the average age of a ten and twelve inch lobster is thirty years.

several instances the actual destiny of nations and the fate of their monarchs appear to have been involved in the herring fishery." (See NATIONAL GEOGRAPHIC MAGAZINE, pages 701-735, August, 1909.)

Dr. Smith reminds us that the foundations of Amsterdam were laid on herring bones, and that the prowess of the Dutch navy in the days when it triumphed over Britannia's banner was due directly to the herring fisheries and the herring fishers who manned it.

The annual catch of herring in the North Sea amounts to nearly 800,000 tons a year. That means the taking of some six billion herring alone from the comparatively small area of its fishing grounds. Yet in spite of this terrific toll they still come in undiminished number. In the matter of solid formations, unbroken phalanxes, and inexhaustible numbers, the herrings have no rival.

It is conservatively estimated that each mature female herring lays 20,000 eggs. Of these, 19,998 must never produce spawning females; for if any more of them did, speaking in averages, the North Sea itself would become a solid mass of herring in a comparatively few years. Huxley once observed that man is but one of a vast society of herring-catchers, of which a thousand enemies in the sea are the other members. If man took none at all, he would simply swell the dividends of the other members, and the herring would fare no better thereby.

NORTH SEA AREA LIMITED

The territory which constitutes the North Sea fishing grounds is strikingly limited in area compared to its importance. Its total area is less than 130,000 square miles, only a little larger than the State of New Mexico. The Dogger Bank is the center of it all—the Charing Cross of the sea, so to speak. To the south of Dogger Bank is Silver Pit, Sole Pit, Dowsingwell, Brown Ridge, Goowin Sands, the Sandetti, the Ruytingen, the Schwartzebank Borkum-Riff, and Helgoland-Bucht. To the north are Great Fisher Bank, Little Fisher Bank, the Long Forties, and Outer Pit—all famous fishing grounds.

Many conditions conspire to make the North Sea the favorite ground of food fishes. Through the submarine channel passing between the Shetland and the Faroe Islands it receives the warm waters of the Atlantic. A strong current of warm Mediterranean water sweeps out through the Strait of Gibraltar, curves around to the north, and finally, in part at least, joins the current that passes into the North Sea above the Shetland Islands. A current also comes down from the north, giving cooler surface water, and the brackish, slow-flowing German rivers bring down a wealth of food. Coming in from the channel end of the North Sea are other warm waters, and the two tidal waves, the one from the north and the other from the south, meet off the Dogger Bank and before the Thames, creating vast eddies and backwashes, which deposit immense quantities of fish food for food fishes.

A HOME-LOVING CREATURE

The strong influences of heredity upon fish make them stick to the habitats and habits of their progenitors with the utmost fidelity, and the development of the most highly organized fisheries industry in the world has not sufficed to change their homes or their habits. How closely they adhere to the habits of their ancestors is strikingly shown by a Canadian experiment. Salmon were accustomed to ascend the Nicola River to spawn, and it was noted that they always followed the one channel around a midstream island on their upward trip. A dam was built across this channel, while the other was left free. When the fish came to this point they would not take the other channel at all; they seemed to conclude that if they could not swim exactly where their ancestors had swam there was no use of their trying to go farther, and so they turned back.

It has been estimated that there are some 19,000 species of fish in the world, and some of the food fishes found in the North Sea are among the most prolific of them all. For instance, the turbot sometimes spawns 9,000,000 eggs a season, the codfish 6,000,000, the mackerel 700,000, the red gurnard 400,000, and the brill 200,000. The sole spawns 85,000 eggs and the herring as high as 50,000. Furthermore, petticoat government seems to rule in fish-land, for investigation shows that among the food fishes of the North Sea the females are in the vast majority. In the case of the conger they are 19 to 1, while in the case of herring there are three females for every male.

FISH CULTURE'S ADVANTAGES

The marine fisheries of Europe are vastly more important to European countries than those in United States waters ever can be to the American people. This is so in the first place because we have no fishing grounds in the Atlantic Ocean comparable to those of the North Sea in richness. It is so in the second place because the time when the per capita consumption of fish in the United States will equal that of Europe lies in that remote future when the population of North America shall equal that of Europe in density; but it is also true because no other nation on earth has had the foresight to stock its inland waters as the United States has done.

Last year the United States Bureau of Fisheries distributed more than three and a half billion baby fish in the inland waters of the country and half a billion eggs. This great work of artificial fish culture has been carried forward for years in such a way that our fish supply now comes in no mean proportion from our rivers, bays, and lakes. Europe has neglected fish culture; consequently, when her outlying waters are cut off from the fisherfolk, the supply is at an end.

Photo from Bureau of Standards

A BALANCE SO DELICATE THAT THE EXPERT MUST OPERATE IT FROM A DISTANCE LEST THE HEAT OF HIS BODY SHOULD CAUSE A DISTURBANCE

The series of control rods and the telescope for reading the scale of this ingenious kilogram balance is also shown. The balance stands on a pedestal independent of the building, whereby freedom from vibration is secured.

A WONDERLAND OF SCIENCE

STANDING on one of the many high hills that fringe the Nation's Capital is a group of buildings that house one of the greatest aggregations of wonder workers in the New World. In their enchanted chambers truth makes fiction seem tame and commonplace; men make fairies appear weak, insipid, and impotent as doers of strange things.

Entering there, one may see a grain of sand become a mountain, an inch become a mile, an unappreciable zephyr become a howling storm, the footfall of a fly the thundering tread of a draft-horse upon a threshing floor, the heat of a candle a roaring furnace, the unperceived warmth of a star a cheering fireside, and the pressure of a finger the force of a thousand giants in one.

These enchanted chambers are the creation of the United States Bureau of Standards, which not only stands between the American people and the short weight and false measure, but also is laboring day in and day out to promote all branches of science. Some philosopher has recently declared that the science of tomorrow will have to be largely based upon investigations that carry the investigator beyond the sixth decimal place; in other words, the truths upon which our scientists will base tomorrow's progress

Photo from Bureau of Standards

THE STANDARD KILOGRAM FROM WHICH ARE DERIVED ALL OTHER WEIGHTS, SUCH AS THE POUND TROY AND AVOIRDUPOIS

The standard of mass, which is popularly called weight, is the kilogram. The one shown here is made of platinum-iridium and is a copy of the original kilogram, which is preserved near Paris, France. This copy is one of a number made and presented by France to the different governments of the world, and is No. 4 of the series. It is always kept under the double glass covers shown above, and is used only to check the working standards.

in the adaptation of scientific fact to human need lie beyond a millionth of an inch, beyond the millionth part of an ounce, beyond the millionth part of a degree of temperature.

Just as James Watt could not make a steam-engine until men were able to take measurements so exact that a cylinder and piston could be built which were steam-tight and yet allowed free play, so the perfect automobile of today had to wait until men could measure the five-thousandth part of an inch, and the perfect ship's chronometer until he could measure distance five times more minute than that. As the carpenter seldom finds it necessary to consider anything less than the thirty-second of an inch, and the automobile builder the five-thousandth of an inch, each trade and profession up the scale demands greater refinement, until it reaches limits inconceivable to the lay-

Photo from Bureau of Standards

PART OF THE TESTING TUNNEL

Here is the five-meter bar in place in its ice bath and mounted on its traveling carriage. The picture also shows two of the piers on which the observing microscopes are mounted, and on the opposite side part of the 164-foot comparing bar (see page 158).

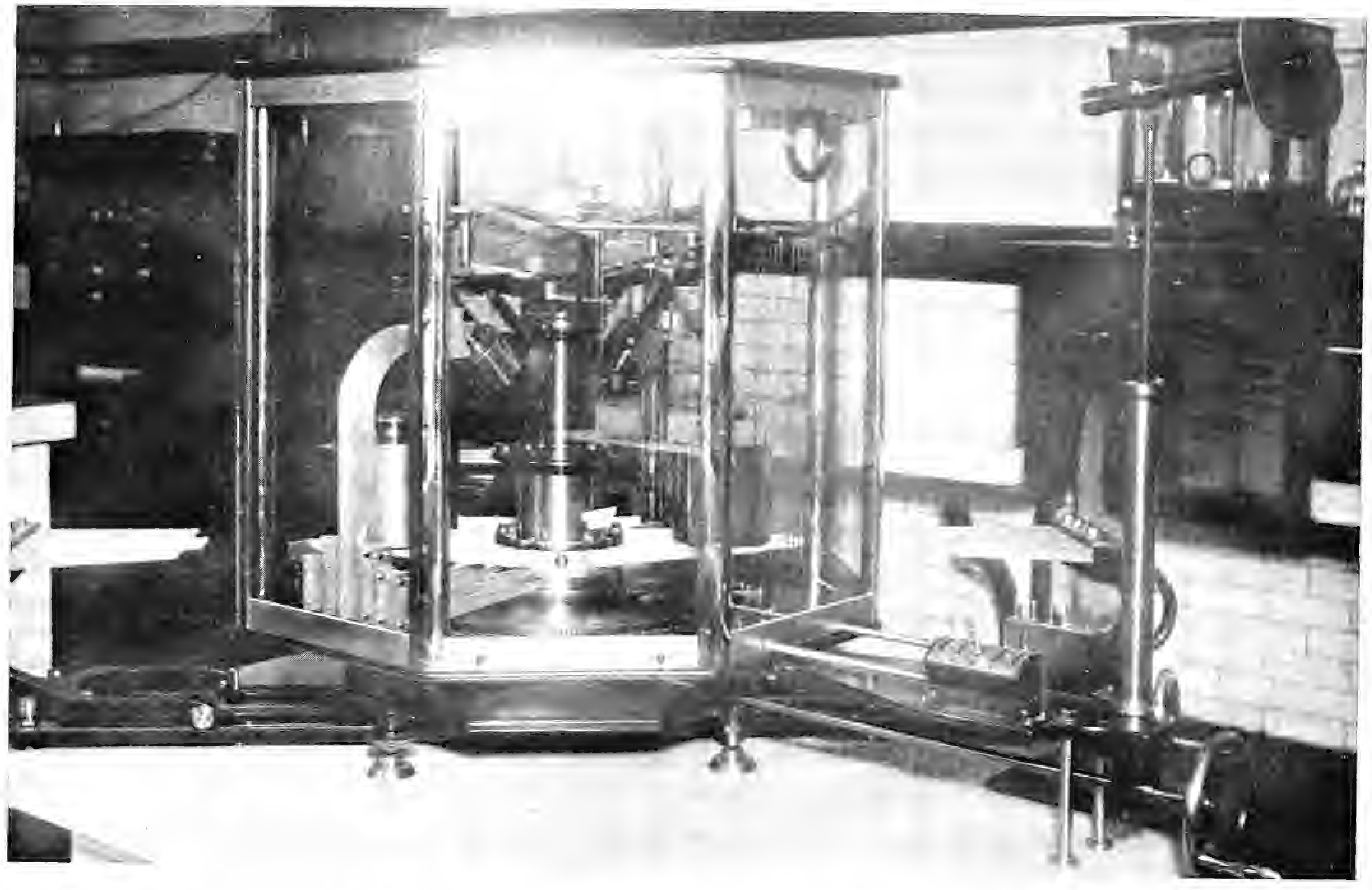


Photo from Bureau of Standards

This large balance is so accurate in its work that it can tell the exact weight of the object tested down to 1/100,000,000th part. It is operated in a glass case lest the unnoticeable air currents of the room interfere with its precision (see text, page 161)

man, and yet in the end as important to him as any of lower limits.

In short, then, the work of the Bureau of Standards, aside from the protection of the whole people from false measures, may be said to be that of refining the yardsticks of science.

Here can be seen instruments of such delicacy and precision that the mind at first fails to grasp the full significance of what they can accomplish.

In one room is a balance so sensitive that the mere presence of the operator's body generates an amount of heat sufficient to disturb its accuracy (see p. 153).

In another there is one so delicately adjusted that it shows the loss of weight due to the reduction of the earth's attraction when two pieces of metal are weighed one upon another instead of side by side (see page 161).

Remarkable beyond the imagination are the heat-measuring instruments which register infinitesimal fluctuations of temperature. A ray of light may have started ten years ago from some distant star, and may have spent all of those ten years hurtling earthward-bound through space at a gait so astounding that it could girdle the globe in far less time than it takes to blink the eye; and yet when it falls upon the sensitive bolometers at the Bureau of Standards they will tell the observer how much heat that ray brought with it from the star to the earth.

Such are a few of the most delicate instruments. But there are others which are as powerful as they are sensitive.

In the engineering laboratory there is a huge testing machine which can tear apart the strongest steel girders used in building great sky-scrapers, while on the floor above are little electrical furnaces capable of generating a heat intense enough to melt the most refractory materials. The Bureau can measure accurately cold great enough to liquefy the very air we breathe, and heat which can melt solid rocks (see also page 165).

SUGAR COSTING $15 PER POUND

This is a commercial age, and even this institution, so eminently scientific, has something to sell. For example, it will supply pure—absolutely pure—sugar for the trifling sum of $15 per pound—under cost price, in fact; and yet, surprising as it may seem, there is a ready sale.

THIS MEASURES THE QUALITY OF A STAR'S HEAT

This instrument, which is called a thermopile, is here shown mounted so as to fit into the eyepiece of a telescope. Its effective part is the little black spot in the center, smaller than the average pin-head; yet with its assistance not only the quantity, but also the quality, of the heat given off by a selected star can be ascertained. The picture is enlarged to three times the natural size of the instrument.

But the average man may very well say, "I can buy all the sugar I want at 6 cents a pound, and I have no earthly interest in the quality of a star's heat; how does this Bureau affect me?"

Directly it affects him not at all; indirectly it touches him at almost every hour of the day. Though he may not know it, he probably pays for his gas by the heat value fixed by that high-priced sugar, his electric-light bulbs by the candle-power determined here, his meats by the weights, and his wines by the measures the Bureau has standardized. The imported sugar at his breakfast table, the rails over which he traveled to the city, the concrete flooring in his fireproof office building, the steel girder supporting the roof above his head, all owe a debt to the researches conducted by the Bureau.

NEW MEASURES CONSTANTLY COMING INTO USE

Formerly weights and measures were restricted to length, area, volume, and

weight; but now the scope of weights and measures is immensely broadened, for many new commodities are in the market which were formerly unknown, such as electric current, light, heat, refrigeration, and services of other kinds. The term "measures" now includes the measurement of energy, velocity, power, illumination, and electricity.

The standardization of these new and often intricate measures requires very elaborate equipment and a high standard of scientific attainment in the worker.

THE SORT OF PEOPLE WHO NEED THE BUREAU

Perhaps the best idea of the far-reaching work of the Bureau may be gained by glancing over the mail arriving any morning at the Director's office. Here are letters from iron-founders, tanners, iron-pipe makers, textile engineers, optical instrument makers, dyers, photographers, universities, well-sinkers, Chicago meat-packers, glass-makers, municipalities, manufacturers of refrigerating plants, contractors in concrete, railroad officials, lamp-makers, boiler-makers, chemical manufacturers, railroad commissioners, glass-blowers, paper-makers, officials of international scientific commissions, makers of fine-mesh cloth for sieves, engineering firms, dry-goods houses, officials of almost every department of the federal government, makers of oleomargarine, carpets, water-meters, gas-meters, and watches, and, finally, officials of foreign governments.

Thus the Bureau does for the manufacturer something of what the Department of Agriculture is doing for the farmer.

THE STANDARDS OF ALL MEASURES OF WEIGHT AND LENGTH

Perhaps the division of weights and measures has a greater interest for the layman than any other division of the Bureau. Here are preserved the fundamental standards on which all measures of weight and length depend. These are kept under double glass cases in a fire-proof safety vault and are never used except to check the copies that have been adopted as working standards.

The unit of length is the meter, which is defined as the distance, at the temperature of melting ice, between two fine lines ruled on a bar of platinum-iridium, which is kept at the International Bureau of Weights and Measures at Breteuil, near Paris, France. Accurate copies of this bar have been made and distributed to the various governments of the world; that preserved at the Bureau is No. 27.

In shape it resembles the letter H, with the uprights bent slightly outward. The scale marked upon it is so fine as to be almost invisible to the naked eye. When this prototype is to be compared with any other meter, both bars are placed side by side in a receptacle, which is then placed in an oil bath in a trough-like comparator, which is kept at an even temperature. Microscopes are mounted on an invar-steel bar, and with the most delicate micrometer screws are adjusted to the prototype; the standard to be compared is then brought beneath them and the difference, if any, is recorded. Observations are made to the 1/254,000th of an inch (see page 155).

Measures of considerable length—as, for example, the invar tapes used in the United States Coast and Geodetic and the Geological Survey—which are tested by the Bureau before and after each expedition, are compared in a long tunnel in the basement of the main building. This tunnel is kept at an even temperature by means of a series of hot and cold pipes, and a five-meter bar, packed in ice and mounted on a movable carriage, together with microscopes mounted on independent piers at fixed intervals, is used to test any bar or tape up to 50 meters in length. On the other side of the tunnel is an iron bar 164 feet long, in which platinum-iridium plugs are inserted at intervals. This also is used for testing tapes and similar measures requiring less exact determination.

The standard of mass, which most people call weight, is the kilogram (see page 154), also of platinum-iridium, and comes, like the meter, from France. The Bureau possesses the two copies of the original kilogram numbered 4 and 20. From this prototype all other weights, such as the pounds avoirdupois and Troy, are derived.

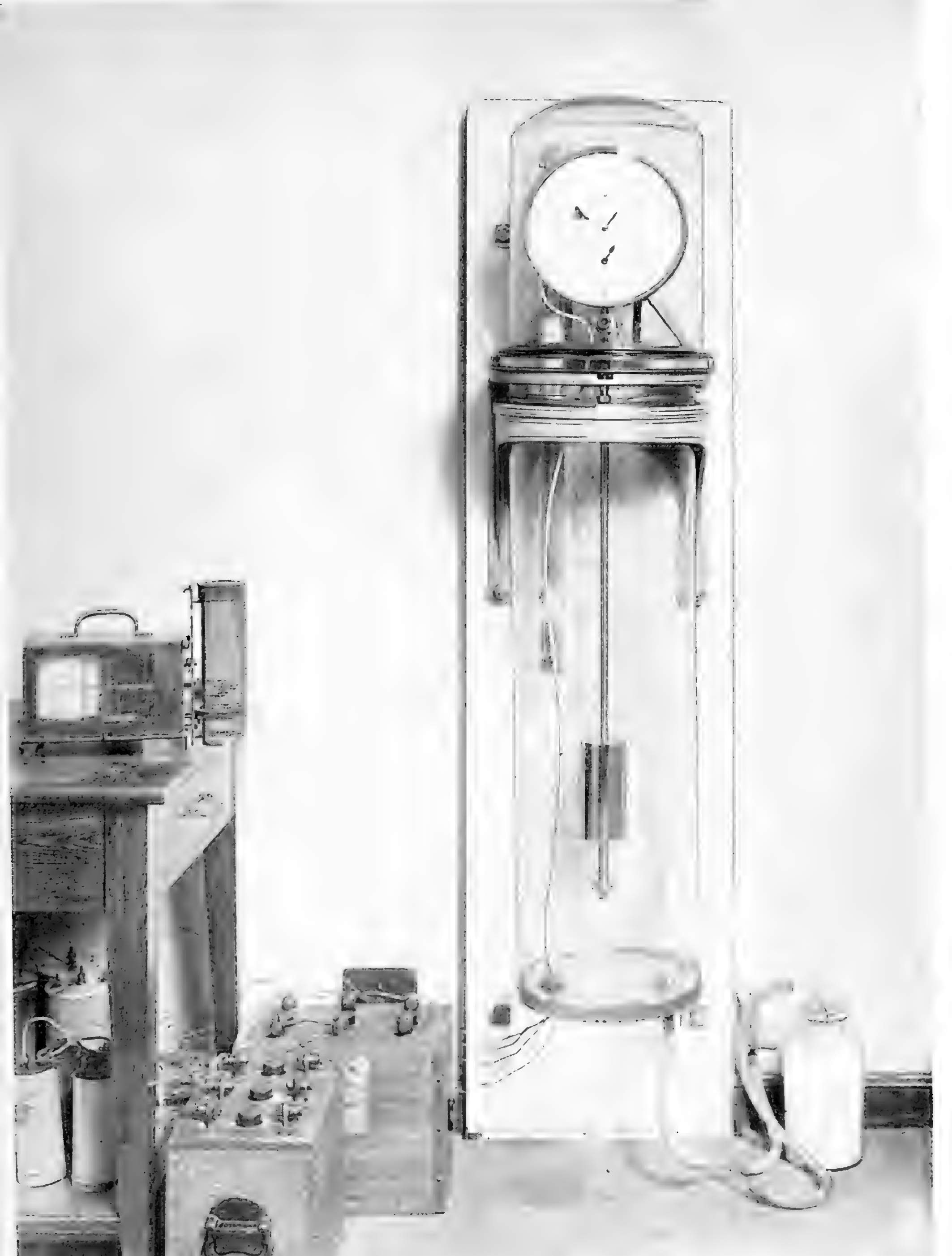


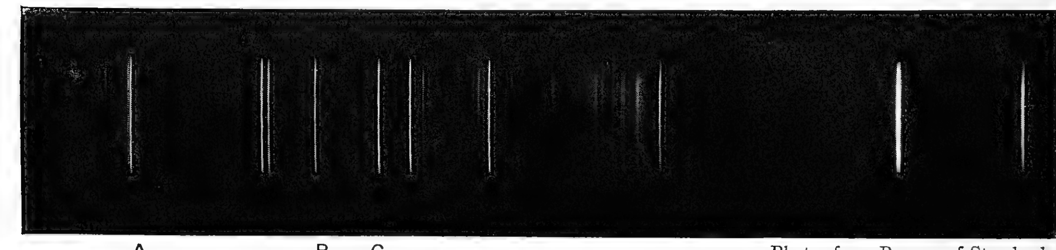
Photo from Bureau of Standards

A MARVEL OF PRECISION: THE RIEFLER CLOCK

This is the most accurate type of clock made and will keep time to within a variation of half a second a month. Its pendulum is of nickel steel, so that the expansion is negligible. It is self-winding and runs in a partial vacuum. It is regulated by admitting more or less air into the partial vacuum, and it is kept in a constant temperature vault, every precaution being taken to free the atmosphere from moisture. It is checked every day by observations taken at the U. S. Naval Observatory.

A REMARKABLE SCIENTIFIC APPARATUS, WITH WHICH THE VISITOR CAN SEE THE BENDING OF A HEAVY STEEL BAR BENEATH THE PRESSURE OF ONE FINGER

This bar is supported at each end and a small mirror is fixed at the center. Above it is a frame bearing another partially silvered mirror, both of which reflect the light of a sodium burner, the lower mirror showing a series of purple and yellow concentric rings. The slightest pressure on the bar—even the weight of a visiting card or a pin—causes these circles to expand outward, forming, as it were, a series of ripples like those made when a stone is dropped into the center of a still pond. The pressure of one finger on the bar causes the formation of five or six new circles, showing that the bar has been bent about one twenty-thousandth of an inch, as each new circle means a movement of one hundred-thousandth of an inch (see illustrations, page 161).



Photos from Bureau of Standards

THE LIGHT WAVES ARE USED AS UNITS OF MEASURE

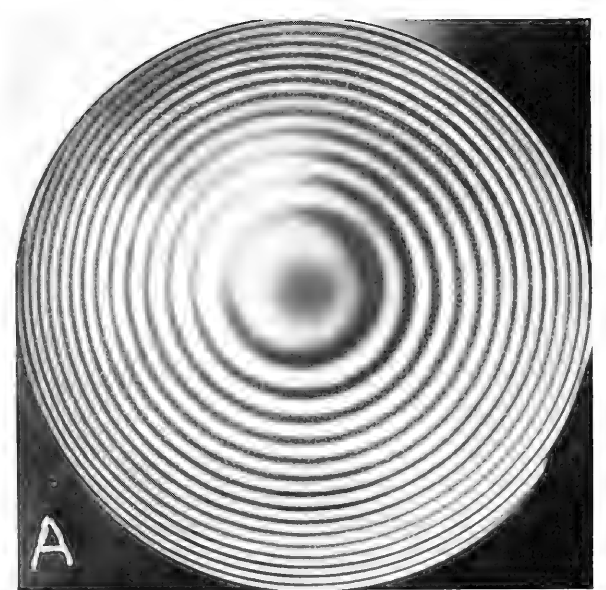
If all the standards of length in the entire world were by some accident destroyed, the meter could be exactly reproduced from the red line in the spectrum of cadmium, as it is invariable (see page 165). This illustration is a photograph of the spectrum of cadmium vapor, showing the three lines (marked A, B, and C) used to determine the international meter, the world's standard of length. These lines never vary and are exactly 64,384,696, 50,858,219, and 47,999,087 millimicrons long respectively. A millimicron is a thousandth part of a micron; a micron is a millionth part of a meter.

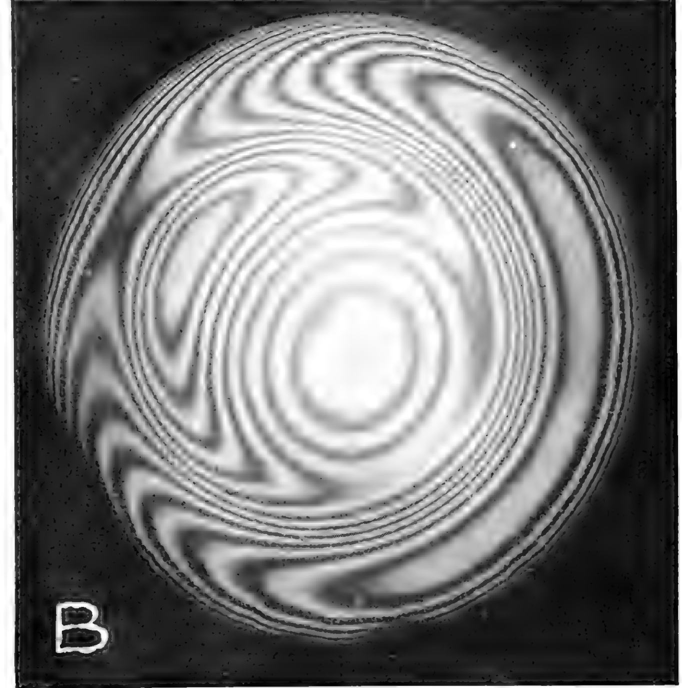
The weights tested by the Bureau range from those used by city and State scalers in testing the weights and measures of commerce down to those used by scientists in most precise and exacting work. To do such testing as this the very finest instruments are required, and weights which vary from great masses as big as a steamer trunk down to tiny atoms which would look lonely on a pin's head. The smallest of these is the 1/20th milligram, or 1/600,000th of an ounce. Though made of the lightest metal known, aluminum, when set on a balance one has to look carefully in order to be sure that it is not a mere scratch on the surface of the weighing pan. The balance on which this weight is used can weigh with accuracy down to 1/50,000,000th of an ounce.

On one of the balances the weighing is made in a vacuum, so that the weight and buoyancy of the air does not interfere with the result.

Another balance is so sensitive that it can detect the difference due to the diminution of the earth's attraction. To prove this, an experiment was specially made for the purposes of this article. Two kilograms were weighed side by side, then one kilogram was placed on top of the other, and was thus elevated 5 centimeters (about 2 inches). It was found that the weight was 0.016 milligrams less than when they were side by side. The precision of this instrument can be appreciated by this experiment, for it shows that it can weigh down to 1/100,000,000th of the whole. This balance is shown on p. 156.

Some of these bal-





Photos from Bureau of Standards

TESTING A GLASS SURFACE FOR SUBMARINES (SEE P. 165)

Figure A shows the concentric rings which appear on a true surface when tested by the interferometer (see page 160). In this figure the surface is very nearly, but not quite, true; so that the rings are not perfectly regular. Figure B shows how an untrue surface responds to the interferometer. This instrument is a very valuable one and upon it the lives of men can depend, as, for example, those of the sailors in a submarine who depend entirely upon the periscope for guidance. Should the surfaces in the periscope be untrue, the pilot may easily be led into a situation in which the lives of the crew may be jeopardized.

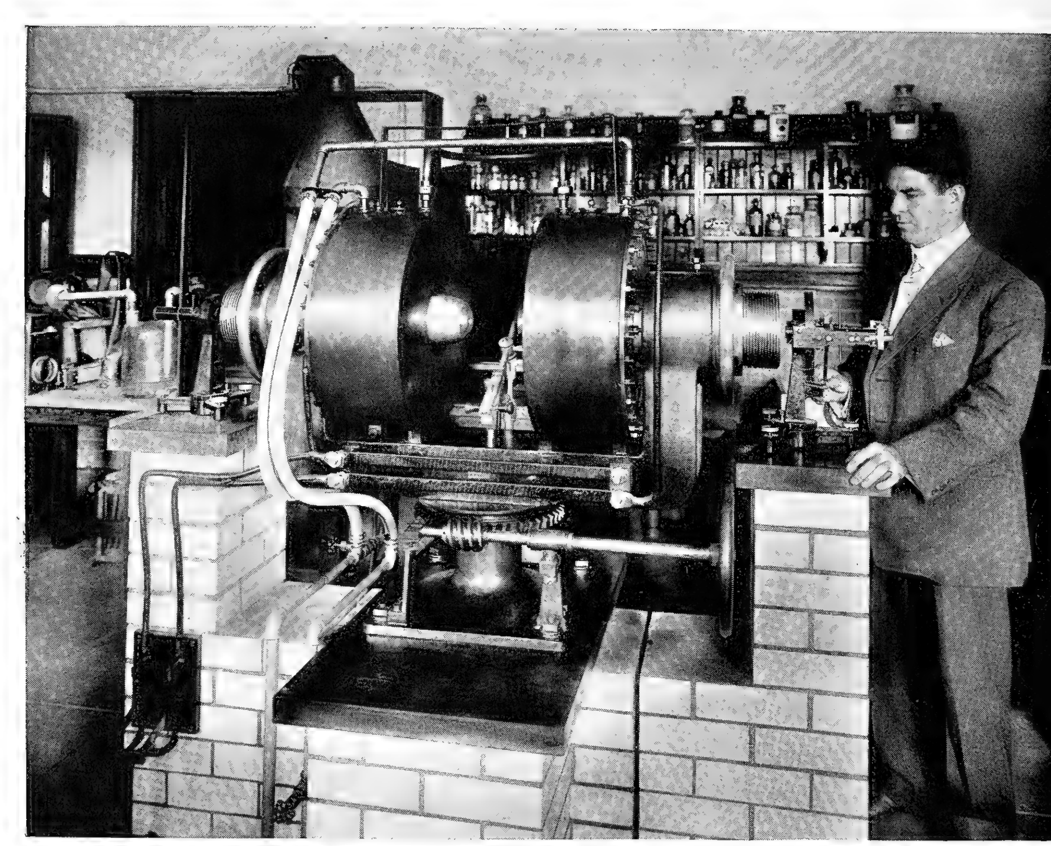


Photo from Bureau of Standards

THE MOST POWERFUL MAGNET IN THE WORLD

This magnet is so powerful that it will draw nails resting on the palm of a hand from a considerable distance; or, if the nail is placed in the closed fist, the attraction of the magnet is so great that the hand can be turned with only great effort. The magnet is used to study the strange effect of magnetism on light waves.

ances are so delicate that the heat of the operator's body near them would cause a disturbance, and the adjustment is effected by rods and other ingenious mechanisms, which change the weights from pan to pan or add the finer V-shaped weights to the cross-beam to effect a perfect balance. The operator stands at a distance of 10 feet (see page 153) and reads the result through a telescope.

One of the balances used in the voltameter work is so delicately adjusted and sensitive to changes of temperature that the operator cannot even remain in the same room with it. It is kept in a room guarded by double doors, in which a constant temperature is preserved. The rods by which it is controlled reach through double glass panels into a second room, which is also at an even temperature and guarded, too, by double doors. In fact, to approach this balance is a ceremony. One descends into the crypt; four doors have to be unlocked in turn; lights have to be lit; and, finally, if one is specially favored, the glass case which envelops it may be opened for a brief inspection. One feels that the poor thing suffers physically when subjected to morbid curiosity.

Every precaution is taken that the weights are not touched. They are kept in glass cases and dusted with camel's-hair brushes. Forceps are used to handle the smaller weights, and lifters covered with chamois leather for the larger ones, as the deposits from even the cleanest hands would render them inaccurate.

One division is conducting a series of very important investigations upon the

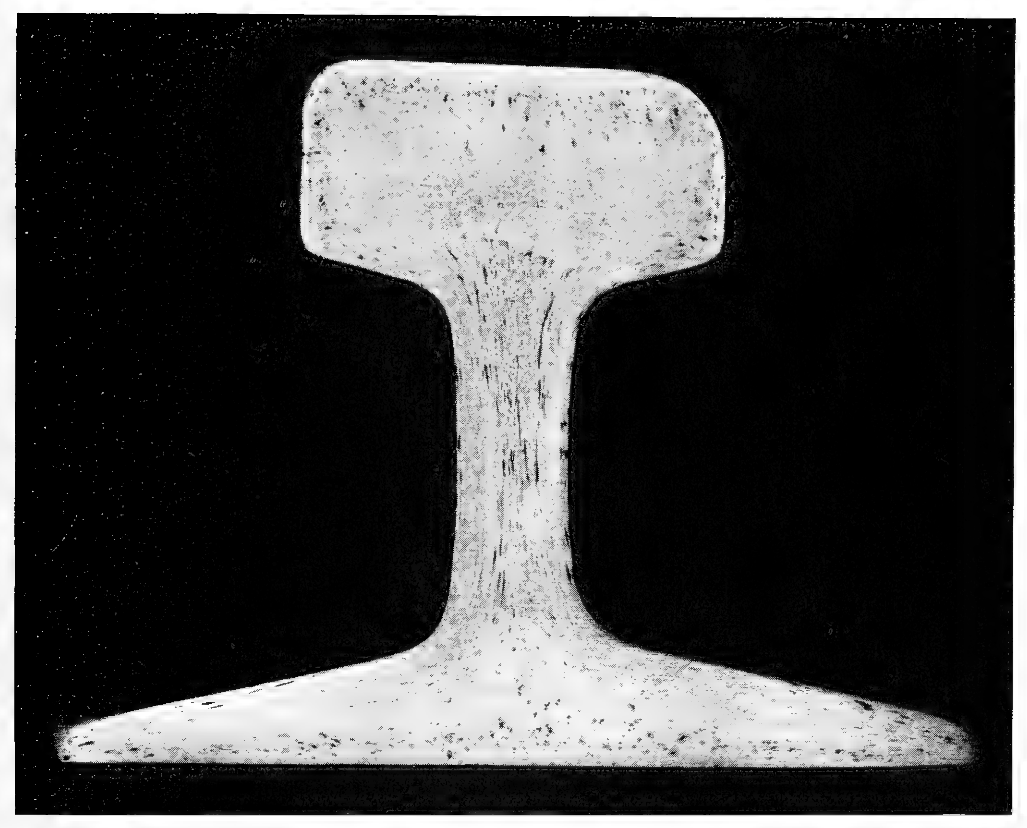


Photo from Bureau of Standards

A RAIL THAT FAILED

This cross-section of a rail which failed under the pressure of a passing train shows numerous flaws in the steel. At present there is no certain means of ascertaining if such flaws exist without cutting into the rail, and thereby rendering it useless. The Bureau of Standards is working to discover tests which will be both accurate and applicable to the rails actually to be used on the permanent way.

behavior of aneroid barometers, which are of the greatest interest to the geographer, to the explorer, the surveyor, the mountaineer, and the aviator, for the aneroid is an instrument of the highest importance in their work.

WHY AVIATORS' FIGURES ARE UNRELIABLE

Experiments show that the effect of temperature is usually negligible compared with the mechanical and elastic errors to which even instruments by the very best makers are liable. It has been found that an aneroid carried slowly up the side of a mountain will give an entirely different reading to that given when taken rapidly up the same mountain in an electric railway.

As an instrument for measuring height it has been proved very unreliable unless thoroughly studied; so that when an aviator announces from the readings of his instrument that he has made an ascent of 15,748 feet his figures may be promptly discounted, the real truth being that the ascent was probably about 15,000 feet or even less, or that it might have been over 16,000 feet, depending upon the method of making the instrument.

To show how unreliable such figures are when uncorrected, seven aneroids of the best-known make, each of them as fine an instrument as could be procured on the market, were taken up together in the same aëroplane. The ascent was made, the height recorded, and the machine descended. Then the readings of the seven aneroids were examined, and it was impossible to find out how high

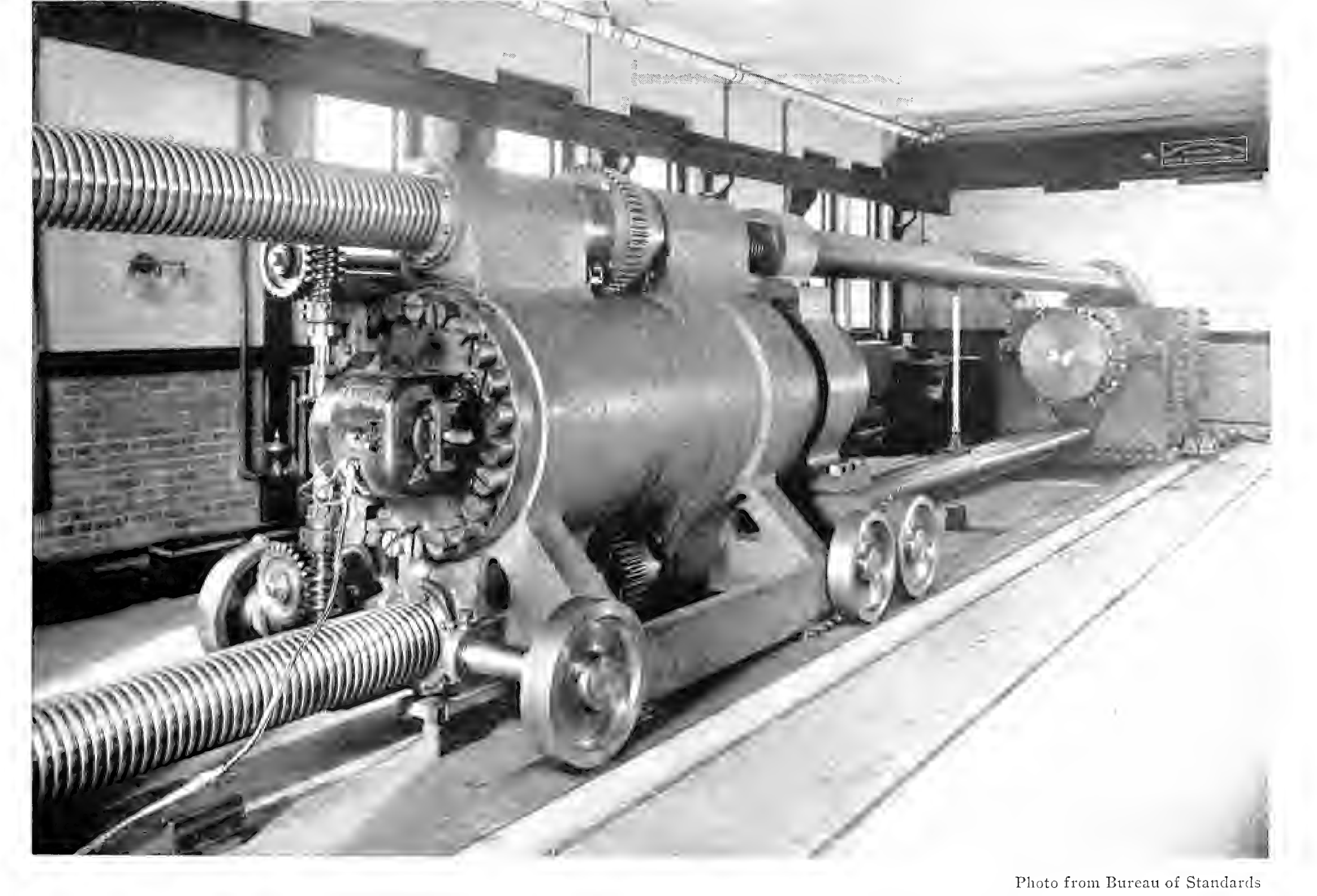


Photo from Bureau of Standards

THE GIANT TESTING MACHINE WHICH CAN REGISTER WITH EQUAL ACCURACY THE POWER NECESSARY TO CRUSH AN EGG-SHELL OR TO TEAR APART THE STRONGEST STEEL GIRDER

This machine will test any piece of iron, steel, or other material from a few inches in length up to 35 feet. It can exert a pulling strength of 1,150,000 pounds and a crushing power of 2,300,000 pounds. The great screws are 40 feet long and 1 foot in diameter. Oil is used in the cylinders instead of water to furnish the

the aëroplane had ascended without a careful study of each instrument; for one instrument recorded a height of over 2,000 feet, the highest reading, while the lowest reading was 670 feet less, or something under 1,400 feet.

MEASURING HEAT BY LOOKING AT IT

In the division charged with the standards of heat, researches are being conducted which it is hoped will lead to international agreement as to the standard scale of temperature; for, strange as it may appear, only two points are at present standardized, namely, the freezing and boiling points of water; above and below these nothing is fixed.

Here the clinical thermometers used by the medical profession are tested and their accuracy to the tenth of a degree certified, upward of 20,000 being handled in the course of a year. Here are tested the delicate Beckman thermometers, which are used by chemists and engineers in the trials on which the award of large fuel contracts are based. The high-temperature thermometers, reading up to 1,000° Fahrenheit, and the low-temperature pentane thermometers, used for temperatures as low as 300° below zero Fahrenheit, also receive their share of attention.

In another room is to be found apparatus by which such intense cold can be produced that even the air we breathe becomes liquefied, and can be handled as so much water. Put a bar of steel into it and it will burn as if it were tinder, in spite of the fact that the steel and the air have been intensely cold.

Hard by is another room where they go to the opposite extreme, to the point where we begin to realize the meaning of the expression "fervent heat." Here the hardest metals that exist melt as a pile of snow before an April sun; and yet they have to devise heat-measuring instruments as sturdy as the bolometer is delicate, so that they can endure it and register its temperature.

In high-temperature work the Bureau measures accurately heat up to the temperature of the sun by means of complicated and delicate instruments known as pyrometers. These instruments are used in many industries; for example, in the hardening, annealing, and tempering of steel, the melting and pouring of molten metals in foundries, the burning of ceramics, the melting and annealing of glass, etc., and many are tested and standardized by the Bureau.

High temperatures emitted by bodies when they are incandescent or at red or white heat are measured by optical or electrical means. Thus, for example, the bolometer measures by optical methods very small amounts of radiant heat and can record accurately changes of temperature of less than a millionth of a degree Fahrenheit.

BENDING A STEEL BAR WITH ONE FINGER

In the division of optics many tests are made for the government and the general public of telescopic and photographic lenses, prisms, samples of glass, and optical instruments and accessories. Work has been planned which will lead to the standardization of the colors of textiles, papers, tobaccos, butter, dyes, liquors, and many other commodities.

The fundamental basis of the work of this section is the light wave. If all the standards of length in the whole world were by some accident destroyed, the meter could be exactly reproduced from the red line in the spectrum of cadmium, as it is invariable, exactly 1,553,163.5 of these wave-lengths forming the length of a meter (see picture, page 160).

Light waves form the unit of measurement in one of the most precise instruments known to science. This is the interferometer, which can accurately determine differences in length as small as two-millionths of an inch, or measurements so minute as to be beyond the range of the microscope.

To show the delicacy of this method, the Bureau has evolved a remarkable scientific device (see p. 160), with which the visitor can see the bending of a steel bar 3 feet long and 3½ inches in diameter beneath the pressure of one finger. This bar is supported at each end and a small mirror is fixed at the center; above it is a frame bearing another partially silvered mirror, both of which reflect the light of a sodium burner, the lower mirror showing a series of black and yellow concentric rings (see Fig. A, page 161). The

slightest pressure on the bar—even the weight of a visiting card or a pin—causes these circles to expand outward, forming, as it were, a series of ripples like those made when a stone is dropped into the center of a still pond. The pressure of one finger on the bar causes the formation of five or six new circles, showing that the bar has been bent about 1/20,000th of an inch, as each new circle means a movement of 1/100,000th of an inch.

At first sight the testing of sugar would seem, to the lay mind at least, to belong to the department of chemistry rather than optics; but it has been found that the most perfect test of sugar is an optical one. The amount of impurity is found by watching the twist of a light wave passing through a sugar solution of a certain strength. This is effected in an instrument known as a saccharimeter, and on these tests the import duty is based. Samples of sugar are sent daily by the customs service at the various ports of entry for check analysis, and in this way uniformity of analysis at the custom-houses all over the country is secured.

In the division of chemistry nearly 9,000 tests are made in a year and almost all of them for the government. Commissions are only accepted from private bodies when such work cannot be done anywhere else, for the Bureau declines to enter into competition with private laboratories; under exceptional circumstances, however, umpire testing or analysis is undertaken.

TESTS THAT INSURE THE SAFETY OF SKY-SCRAPERS

In the engineering division the most impressive feature to the layman is the huge Emery testing machines; the larger one has a 2,300,000 pounds compressive power and a pulling power of 1,150,000 (see page 164), while the smaller one has a tension and compression strength of 230,000 pounds.

These great machines are of wonderful delicacy and power; for, after exerting and accurately registering a pressure sufficient to break a huge steel girder, an egg-shell can be crushed and the force exerted recorded with equal accuracy.

In the branch of the Bureau at Pittsburgh a still more powerful machine has been installed — the great 10-million-pound Olsen testing machine (see page 167). These machines are used in a series of investigations conducted jointly by the Bureau and the American Society of Civil Engineers to check and correct the formulas for computing column strength, the formulas upon which the efficiency and safety of building construction depend.

Another very interesting series of researches is in progress, which may have the effect of saving many valuable human lives. Railroad companies send to the Bureau rails that have failed, and efforts are being made to discover a new method of testing them. At present when a rail (or any other piece of iron or steel) is tested it is destroyed in the process and becomes useless. Often a rail is full of flaws, like that shown on page 163, but at present there are no means of discovering this until the rail fails beneath the pressure of the express that thunders over it.

For the last six years the experts of the Bureau have been seeking for a method of testing the rails that will actually be used, and have conducted a series of mechanical and magnetic tests to discover some mechanical properties which can be proved always to accompany certain magnetic properties.

The results of the work are so hopeful that those engaged upon these researches are justified in believing that further studies along these lines will eventually lead to success.

WHAT IS THE STRENGTH OF RED TAPE?

In another division are tested a bewildering variety of commodities used by the government—ink, paper, rubber, clay, bricks, oils, ropes, leather, cloth, silk, sealing wax, mucilage, paint, and a hundred and one other things. Everything handled by the Federal government is tested here, from the steel for the locks on the Panama Canal down to the brushes used to sweep out departmental offices.

Photo from Bureau of Standards

THE MOST POWERFUL MACHINE IN THE WORLD

This great Olsen testing machine, located at the Pittsburgh laboratories of the Bureau of Standards, is used for determining the crushing (compressive) strength of materials and in testing great columns of steel or masonry. It can exert a pressure of 10,000,000 pounds, which is sufficient to break the steel shaft of the greatest war vessel afloat. The picture shows a 48-inch brick pier, 16 feet long, fitted into the machine and about to be tested.

Photo from Bureau of Standards

A BONFIRE OF SHORT MEASURES

This shows the destruction of a pile of short measures condemned and confiscated by the city sealer of one of our large cities. It has been found that dry measures are the most faulty, nearly 50 per cent of those tested by the Bureau of Standards being incorrect. When this institution began its investigations there were only four States which had efficient systems of inspecting weights and measures; now there are twenty-four (see page 169).

Even that well-known article, red tape, receives due attention; its material is examined; its color tested; its breaking strength established; its every property is determined, with the solitary exception of its obstructive force, as that is beyond the power even of the Bureau of Standards.

Nearly 30,000 samples of the cement bought by the government were tested last year, representing a purchase of more than 2 million barrels.

It has been found on submitting concrete to steam curing that in many cases the compressive strength per square inch may be increased as much as 500 per cent or more, while in other cases the concrete simply crumbled away. This striking difference is assumed to be due to presence of harmful material in the concrete that failed. Further experiments are being made, as it is hoped that this simple steam test will finally eliminate the tedious and costly tests now in use and that the composition of concrete may be in some measure standardized.

HOW MUCH SILK DOES A SILK DRESS CONTAIN?

In the textile division investigations are conducted into the physical properties of materials, from the raw fiber to the finished article, and it is interesting to note that many curious adulterants have been discovered. For instance, tin and tungsten salts are used to give brilliancy and "body" to silk, in some black silks as much as 40 per cent being used.

WHERE THE PUBLIC SUFFERS

The Bureau is endeavoring to secure throughout the States uniform legislation on the subject of our standards, and also the establishment of a nation-wide system of inspection. Such a system would be able to enforce the use of honest weights and measures in daily trade, the need for which is immediately apparent

when it is realized that considerably more than 100 million dollars is taken each year from the pocket of the ultimate consumer by the retailer who, often quite innocently, uses dishonest weights and measures.

During the period from 1909 to 1913 the Bureau undertook to test some of the commercial weights and measures of the country, and the revelations made thereby were startling. It was found that 44 out of every 100 scales tested were incorrect—nearly one-half of the dry measures and more than a fourth of the liquid measures. Some one has estimated that the total loss to the people as a result of this inaccuracy of weights and measures would be enough to build ten of the biggest battleships afloat every year.

When the investigation started there were only four States in the Union which had efficient systems of inspecting weights and measures. Such were the revelations that today 24 States and most of the important cities of the country have efficient inspection systems, and most of the other States are expected soon to fall into line.

The Bureau of Standards is striving to have uniform State laws for weights and measures enacted in all of the 48 States. It wants a pound to be a pound everywhere and a bushel a bushel. At present it is not always so. A bushel of potatoes may be more than a bushel in one State and less than a bushel in another, depending upon the number of pounds each State says shall constitute a bushel.

False measures have a habit of running away from progressive laws. Not long ago a hundred thousand milk jars were condemned for short measure by the sealers of a certain State. These jars were hastily collected and sent to another State, where the laws were more lax. Here they were soon overtaken by a similar fate and were hurried off to a new locality and are probably still on the move.

A CITY OF REALIZED DREAMS

By Franklin K. Lane

Secretary of the Interior

IN THE three days following April 18, 1906, the entire business and manufacturing portions of San Francisco and a large part of the residential section were swept by flames. Three hundred and fifty million dollars went up in smoke. February 20, 1915, saw that city rebuilt, more beautiful than ever, and its people demonstrating to the world their own courage and self-confidence by opening an International Exposition which, in point of situation and beauty, has had no equal.

When it was proposed some five years ago that such a fair should be held its promoters were divided as to the site. Some favored placing the fair within the grounds of that remarkable bit of landscape gardening the reclaimed sand-dunes of Golden Gate Park; but now all concede that there could have been no better site chosen than the stretch of sand which flanks the entrance to the Golden Gate, looks out across the bay and beyond to Mount Tamalpais, upon which the fair has been built. The Marin hills in their soft green coat, the red bluffs of the Golden Gate, the great vault of the sky, and the long sweep of the bay and ocean—these have made a setting worthy the foreground which man has made. The great buildings face an esplanade which runs for miles along the shore itself.

ONE BUILDING WORTH A TRIP ACROSS THE CONTINENT

It is worth a trip across the continent to spend a day looking at a single building—the Palace of Fine Arts. There is no other building like it that I know of. There is no single picture in Venice that I think so fine. You see it across a lagoon in which its colored pillars and its

many statues are reflected. It has grace, majesty, delicate coloring; and as you look upon it in early morning or at nightfall you cannot but say to yourself, "Can it be that the Taj Mahal is as beautiful as this?" Unlike most of the other buildings, its construction is of a permanent character, and it is built upon land belonging to the government so that it can be preserved.

The other architectural feature of the Exposition which made its strongest appeal to me was of a totally different kind — the monumental tower which fronts the Court of all Nations. How high it is I do not now recall. That is a matter of insignificance anyway. It is a mass of statues and sculpturing, carvings, arches, moldings, intaglios, mural paintings, and jewels. Seen by day, it is a monument of exquisite line and beautifully blended colors. Seen by night, it loses nothing in form or in color, but by the wizardry of art has been made to look as if all the Rajahs of India had poured out upon it their most splendid jewels.

It has been said that this is to be the last of the great international expositions. If so, these two architectural features make a fitting climax to all the beauties that have gone before.

There are doorways on the most ordinary of the Exposition palaces upon the sculpturing and coloring of which one could spend a day of artistic feasting. Groups of symbolic figures, great fountains, hanging lanterns, bell-towers, columns and courts, high arches, patios and splendid domes—these become almost commonplaces. And nothing looks naked or undressed, for the whole Fair City seems not to be a thing that was created for this purpose, but to have lived a long time. Lawns, flowers, eucalyptus and cypress trees, pepper and palm, orange and blossoming fruit trees surround the buildings, while the great wall which marks off the grounds is itself a hanging garden of growing flowers.

In looking upon these grounds I felt as if the artists of the earth—sculptors, architects, decorators, and landscape gardeners—had united to prove the beauty and the majesty of their own conceptions under the most kindly possible of skies.

A GREAT MOVING PICTURE

This fair, however, does not appeal merely to the esthetic sense. Its exhibits of what the world is doing are the best that can be found. One sees in walking through the buildings not piled pyramids of cans and bottles and masses of unrelated machines. It is a great moving picture.

You see the wheat itself turned into flour and made into biscuit. An automobile is constructed on a moving table before your eyes, and in two minutes the machine is constructed, the chauffeur mounts it, and rides away out of the grounds. You see the miner digging into the hillsides, sluicing the dirt, extracting the gold, the gold refined and cast into a bar. You see the great bureaus of the government in actual operation.

Life is given to the exhibits, and where it has been impossible to make exhibition of field or factory, moving army, or natural wonder the cinematograph has been brought into use most extensively. There are some sixty free moving-picture shows upon the grounds.

So much for this city of realized dreams. Now let me say a word as to its significance. It sits beside the Golden Gate. The pioneer has crossed the continent and placed there his outermost camp-fire. Here he has called his sons together and made an exhibition to the world—the new world of the Pacific—of what our civilization can do. He here makes tender to the nations across the Pacific of what is best in what we term Christian civilization, and the nations of the Orient have responded by crossing to this side of the Pacific and placing before us the best that their 10,000 years of civilization have produced.

THE NATION WILL BE PROUD OF THIS EXPOSITION

This is a true meeting of the East and the West, a friendly meeting, a meeting out of which must come better understanding of each other, a meeting from which each will materially and artistically profit, and a meeting, I believe, which will go far toward a fuller and better understanding of each other.

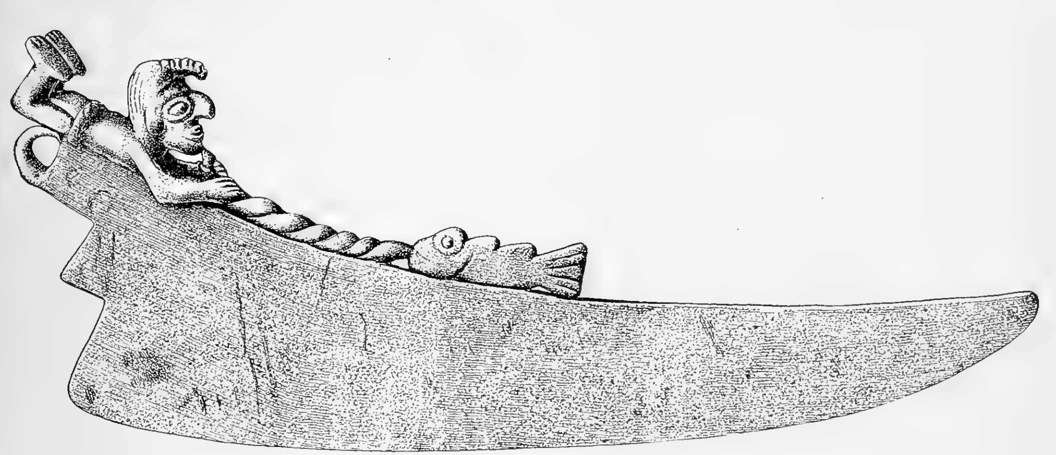
This nation should be extremely proud of this Exposition. It is in celebration of the greatest material achievement in the nation's history—the construction of the Panama Canal. The building of this canal is a proof that a democracy can be efficient, and that is something very well worth while—proving to a people who insist upon efficiency that their government may be a living and real expression of the spirit of the people who compose the nation.

Thus far in our one hundred and odd years of history we have given full bent to the strong strain of individualism that is in our blood. We have started out as a nation without national purpose or national design. We have had no policy of national aggression or acquisition. Our vigorous frontiersmen have pushed their way further and further west, to the edge of the western sea, and the government has followed lazily after, when providential circumstances opened a clear way.

When individuals have said "Let us make a highway, a canal, or a railroad" our States and our nation have given them countenance, encouragement, and rich bonuses. "Take this and let us have done with you," the nation has said. And so out of the personal initiative of the American pioneer, financier, farmer, engineer, and miner our land has been opened to the world.

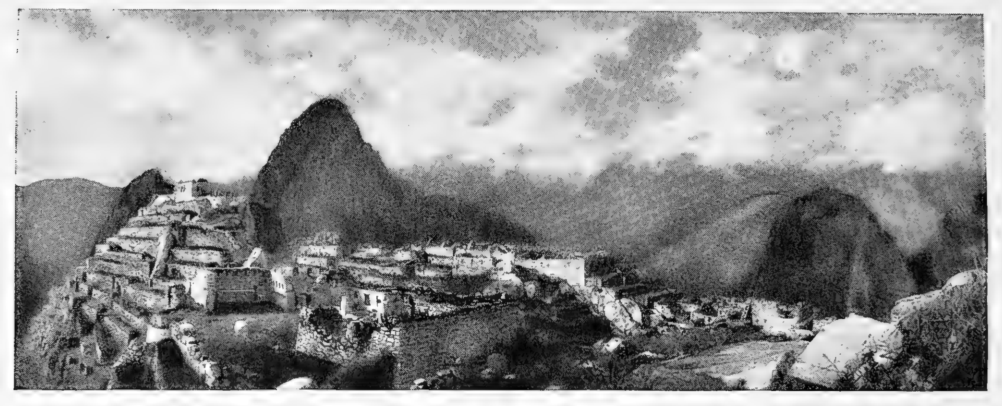
In three generations we have marched across a continent wider than Europe and crowned our achievement at our westernmost door with an exhibition of the worthiest products of our civilization. This we can say proudly is what a democracy can do.

We are coming to a fuller national consciousness not merely as a nation among the family of nations, but as a people who have common interests and can collectively do things for themselves which it would be too great a hazard to leave in private hands. The building of the Panama Canal is a long step in the making of this nation, for it has given us pride in our ability as a modern working machine.



A CHARMING BRONZE KNIFE FOUND AT MACHU PICCHU, PERU

This interesting instrument, pronounced by experts to be one of the finest examples of the ancient art of working in bronze ever found in South America, is one of the many exceedingly valuable discoveries made by the National Geographic Society-Yale University Expeditions to Peru (see article by Hiram Bingham, pages 172+).



THE LOST CITY OF THE INCAS: MACHU PICCHU

This city, probably built by the Incas 2,000 years ago, was uncovered and excavated by Prof. Hiram Bingham, under the auspices of the National Geographic Society and Yale University. Its beauty of situation and the mystery of its past make it one of the most interesting groups of ancient buildings in the world.

THE STORY OF MACHU PICCHU

The Peruvian Expeditions of the National Geographic Society and Yale University

By Hiram Bingham, Director

The Geographic Magazine *in April, 1913, printed an article, "The Wonderland of Peru," by Hiram Bingham, with 250 illustrations, describing the mysterious city of Machu Picchu, uncovered by the National Geographic Society-Yale University Peruvian Expedition of 1912, of which Dr. Bingham was the Director. Every one who read this article wanted to know when this marvelous city of refuge on the mountain top was built, for how many centuries people lived there amid the clouds, and how on the steep mountain sides they could grow enough to eat. That the researches of Dr. Bingham during the past two years have thrown much light on the puzzling history of this ancient and mysterious city discovered by him is attested by the following fascinating narrative.*

The discoveries by the expedition proved so increasingly valuable that when Dr. Bingham submitted plans for continuing explorations in Peru in 1914–1915 the Research Committee of the National Geographic Society subscribed for this purpose $12,000 from its research fund of 1914 and $20,000 from the research fund of 1915. Friends of Yale University have also generously contributed $20,000 for the Peruvian work of Dr. Bingham during 1914–1915.

Members of the National Geographic Society who have been elected since September, 1913, and who desire Professor Bingham's first report, "The Wonderland of Peru" (188 pages, 250 illustrations, and a panorama of Machu Picchu, 6½ x 18 inches), printed in the Geographic Magazine, *April, 1913, can secure copies from the Society at 25 cents each.*

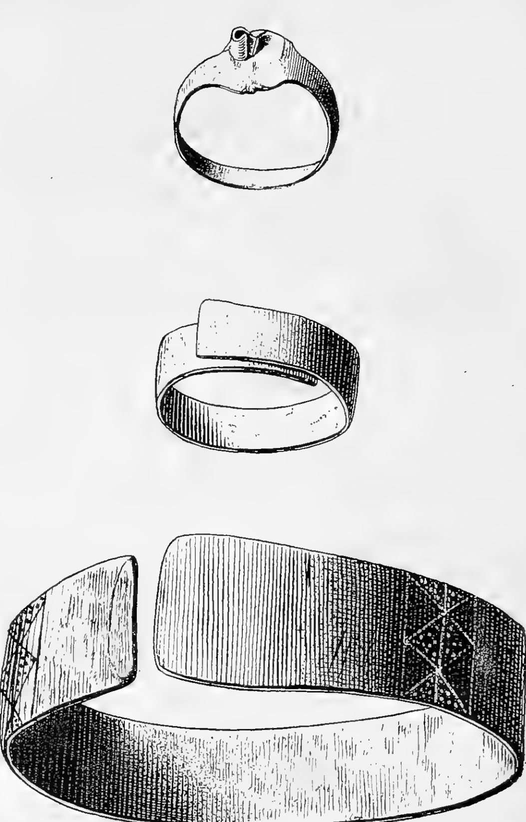
READERS of the account of the work accomplished by the Peruvian Expedition of 1912, published in the April, 1913, number of the National Geographic Magazine (pages 409-414) will remember that we felt that it was probable that the ruins now called Machu Picchu were those of the cradle of the Inca Empire, Tampu-tocco, or "Window Tavern."

During the past year and a half we have been making a thorough study of all the available ancient chronicles and of the bones, pots, and stones collected in 1912, in order to find out all we could about Tampu-tocco and see whether we

could secure any information that would lead us to confirm or abandon our first ideas in regard to the identity of Tampu-tocco and Machu Picchu. There is no reference to Machu Picchu in any of the chronicles.

The most satisfactory accounts of Tampu-tocco occur in the writings of Montesinos. Fernando Montesinos was an ecclesiastical lawyer, who appears to have gone to Peru in 1629 as a follower of that well-known viceroy, the Count of Chinchon, whose wife contracted malaria, was cured by the use of Peruvian bark, or quinine, and was instrumental in the introduction of this bark into Europe—a fact which is commemorated by the botanical name of the genus *cinchona*.

Montesinos appears to have given himself over entirely to historical research. He traveled extensively in Peru and wrote several books. His history of the Incas was spoiled by the introduction, in which he contended that Peru was peopled by Armenians under the leadership of Ophir, the great-grandson of Noah! More recently, however, Sir Clements Markham, the dean of Peruvian archeologists, and other students of the history of the Incas, have been inclined to place greater credence in the statements of Montesinos. His references to Tampu-tocco are of considerable value, because they seem to throw light on the former history of Machu Picchu.



SILVER RINGS AND A DECORATED BRONZE BRACELET OF PROBABLY THE INCA PERIOD

Found at Machu Picchu by the National Geographic Society-Yale University Expedition. 1¼ times natural size.

ANCIENT INVASIONS OF PERU

Montesinos states that during the rule of one of the Amautas, or kings, of those whom we refer to generally as the megalithic people, racial invasions took place. The invaders came to Peru from the regions south of Tucuman, in northwestern Argentina, and continued as far as the upper Vilcanota Valley. There also came over the Andes at that time large numbers of people seeking new lands, fleeing from a race of giants (possibly the Patagonians or Araucanians), who had expelled them from their own lands. On their journey they passed over plains, swamps, and jungles.

These racial migrations appear to have continued for some time. Montesinos tells us that in the reign of Pachacuti VI, the sixty-second Peruvian Amauta, who reigned about the time of Christ, there came from the Andes, as well as from Brazil and the north, large hordes of fierce people, who waged wars of long duration. During these wars the ancient or "megalithic" civilization that had existed up to that time was destroyed.

The king, Pachacuti VI, was more religious than warlike. His soothsayers and priests frightened him with many bad omens; so that, filled with anguish and melancholy, he did nothing but make sacrifices to the deities. Meanwhile he ordered his governors and captains to fortify the strategic points and make preparations for defense against the great hordes of invaders, the fiercest of which came from the south with large armies, laying waste the fields and capturing the cities and towns.

TO BATTLE ON A GOLDEN STRETCHER

The governors of the districts through which they passed were not able to resist them; so the king assembled the larger part of his army near La Raya Pass, between the basin of Lake Titicaca and the Urubamba Valley, and awaited the approach of the enemy. As soon as Pachacuti VI received word that they were near, he went out to battle and was carried about on a golden stretcher. Unfortunately he was killed by an arrow and his army was destroyed.

Montesinos quotes his authorities as stating that there were only 500 of the old army left. Leaving behind them many sick, they retired to the mountains, *going to Tampu-tocco, which was a healthy place, where they hid the body of their king in a cave.* The different provinces of the kingdom, upon learning of the death of Pachacuti VI, rose in rebellion and the people of Tampu-tocco had many disputes in respect to electing a new king.

At this time, says Montesinos, the power of the Peruvian monarchy was destroyed and did not return to its former state for over 500 years. *All record of it is lost.* In each of the provinces the people chose their own king. Those loyal to the old monarchy were very few in number and could not successfully oppose the rest of the people. *They made their capital at Tampu-tocco* and elected a king, Titi Truaman Quicho. On account of the general anarchy over all the kingdom, no one could live in Cuzco, and little by little men began to come to Tampu-tocco to live under the protection of the king, where they would be safe from the general chaos and disorder.

CUZCO DESERTED

Clearly, Tampu-tocco must have been a place well separated and set off by nature from the rest of the country, or it would not have been so easy for this disorganized remnant to have taken refuge there and set up their own king, with only 500 soldiers to support him. Machu Picchu is such a place. Paccari-tampu is not.

Cuzco was practically deserted. Apparently it had been sacked by the invaders, and the only people remaining there were the ministers of the temple.

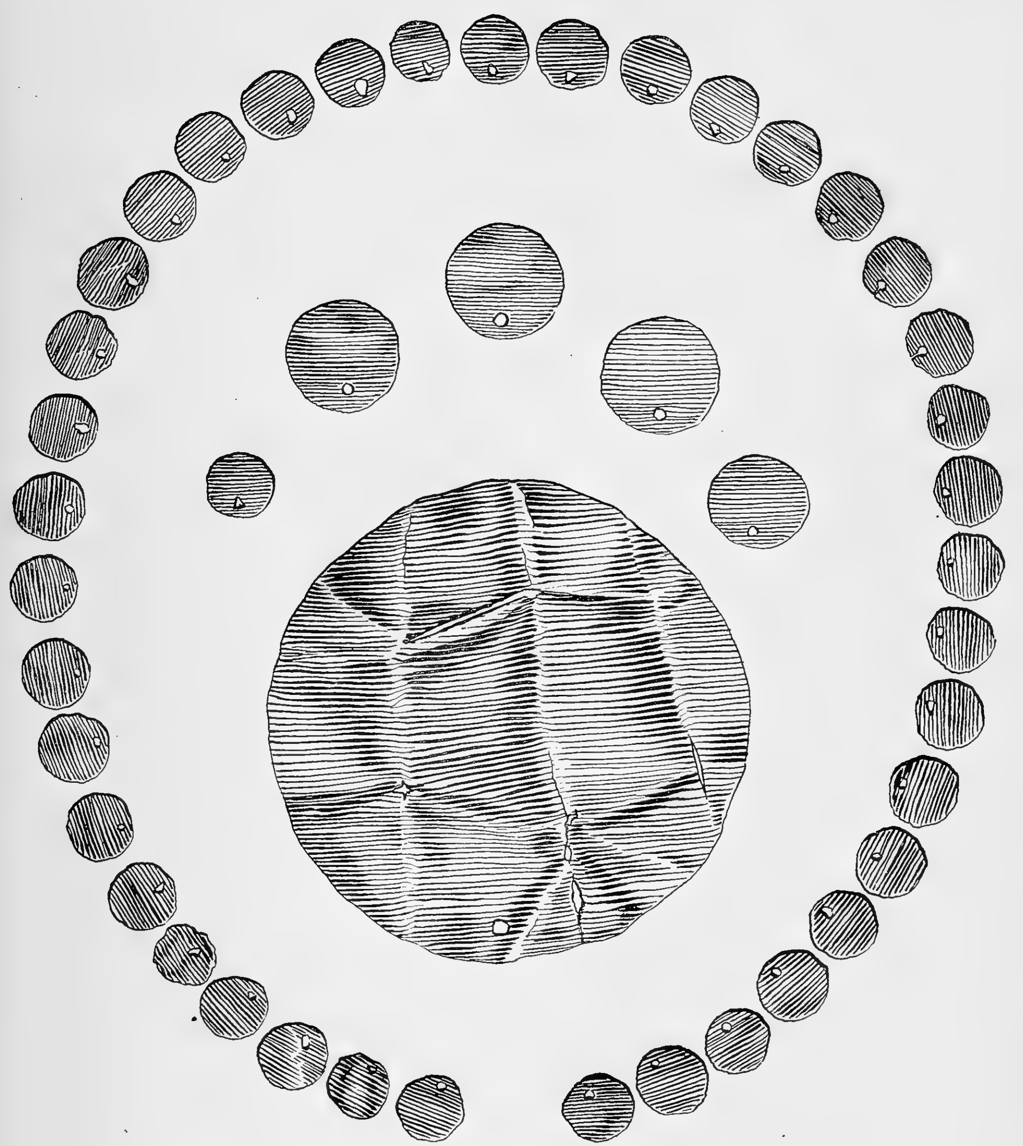
The remnants of the megalithic folk enjoyed living in Tampu-tocco, says Montesinos, because there is the very famous cave where the Incas, as the historians say, first originated, and where, they firmly assert, there never have existed such things as earthquakes, plagues, or tremblings; and because if fortune should turn against their new young king and he should be killed, they could bury him and hide him in this cave as in a very sacred place. Fortune was kind, however; they had chosen an excellent place of refuge, and their king grew up to be known as the king of Tampu-tocco. But to him and his successors nothing worth recording happened for many centuries until the reëstablishment of the kingdom in Cuzco.

It is well to remember at this point that there is no cave, large or small, at Paccari-tampu, which has for years been believed to be the site of Tampu-tocco, while at Machu Picchu there are several large caves, one of them lined with very beautiful masonry.

After about 500 years, during which time several of the kings had wished to reëstablish themselves in Cuzco, but had been obliged to give up the plan for one reason or another, a king called Tupac Cauri Pachacuti VII began to regain the power of the old kings and reconquer some of the cities and provinces. He attempted to abolish idolatry and the other heathenish practices which had become established and wide-spread since the overthrow of the old kingdom. He sent messengers to various parts of the former kingdom, asking the people to cease worshipping idols and animals and stop practicing evil customs, but his ambassadors were killed and very little reform took place.

WRITING IS FORBIDDEN

Montesinos informs us that the king consulted his soothsayers in regard to the causes of this failure in his attempts at reformation, and was told that one cause of the plague had been the use of letters. Thereupon the king ordered that under penalty of death nobody should use any kind of letters with which they had been



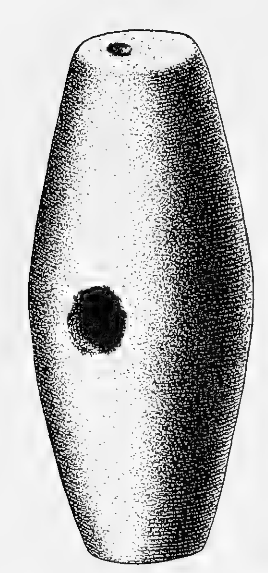
BRONZE AND SILVER DISKS USED BY THE INCAS IN NECKLACES

The large disk in the center, of pure silver, was found in excavating a house, three feet under the floor, carefully folded and hidden away by its former owner: Machu Picchu

accustomed to write upon parchment and the leaves of certain trees. This mandate was observed with such strictness that the Peruvians never again used letters until the time of the Spanish conquest. Instead they used threads, strings, and knots, as was the custom among the Incas.

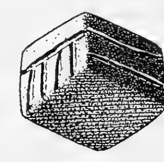
This tradition refers to an event which is supposed to have happened many centuries before the Spanish conquest. As a matter of fact, it is extremely doubtful whether the most ancient Peruvians used any kind of letters in our sense of the word; but it is quite probable that they had some method of keeping records which was lost during the dark ages, and this tradition may be an attempt to account for this loss.

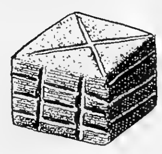
It is significant that in the oldest part of Machu Picchu we found large numbers of stone counters, like poker-chips,



A TERRA-COTTA FLUTE, OR WHISTLE, OF A RARE PATTERN

Found at Machu Picchu. Natural size





TERRA-COTTA DICE, OR TALLY PIECES

Not used by the Incas, so far as we know, but probably by the megalithic folk previous to the invention of the Inca *quipu*, or knotted string. Very little is known about these, and, while fairly common at Machu Picchu, few, if any, have found their way into the larger museums of the world. 1¼ times natural size.

and other stone tokens of a sort that were not used by the Incas, so far as we know. It is possible that these stone tokens and counters, together with certain stone slabs found near them, represent an ancient method of reckoning and keeping records before the invention of the knotted string, or *quipu*. For a further discussion of these record stones see pages 186 and 203-206.

In the more recently built parts of Machu Picchu, where we have evidence of late Inca architecture, practically none of these record stones were found; nor were any found in the graves which contained the more recent skeletal material and typical Inca pottery. The record stones may be the remains of the old system which was abandoned by the advice of the soothsayers, as Montesinos has it. As a matter of probability, it seems likely that the invention of the more convenient *quipu* caused the far more uncertain "record stone" to disappear.

A MILITARY SCHOOL

Montesinos, continuing his description of the Tampu-tocco kingdom, takes it for granted that Tampu-tocco was at Paccari Tampu, as all the other chroniclers have done, even though there is nothing there to fit into the traditions. He says that Pachacuti established there a kind of university, where the nobles were trained in military exercises and the boys were taught the method of counting on the *quipus*.

Finally, a few centuries later, when the loyalty and military efficiency of the little kingdom of Tampu-tocco was on a higher plane, the king and his council decided to attempt to reëstablish themselves near Cuzco; but an earthquake in the neighborhood of Cuzco, which ruined many buildings and caused the rivers to overflow their beds and to pass into new channels, followed by the destruction of towns, the killing of a large number of people and the outbreak of a plague, prevented the attempt from being successful. But in Tampu-tocco there was no pestilence, nor apparently did the earthquake affect that point.

It is worth remembering in this connection that a severe earthquake in Cuzco would do great damage in the village of Paccari-tampu, but might do none at Machu Picchu, built as it is in the middle of an intrusive granite formation, where, so far as one can judge from the effects on the ancient buildings, there have been no very severe earthquakes.

The inhabitants of Tampu-tocco became more and more restless, needed more arable land, and at length set out to

find it under the leadership of Manco Ccapac.

Finally, there is nothing in Montesinos' account of Tampu-tocco which calls for conditions or characteristics not found at Machu Picchu. Let us now look at another of the ancient chronicles.

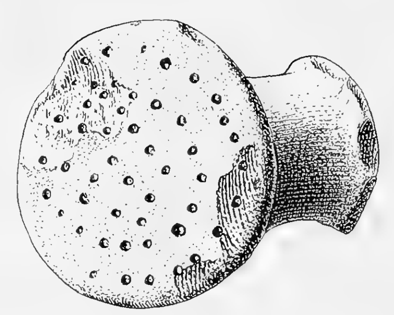
About 1620 an account of the antiquities of Peru was written by an Indian, a descendant of the Incas, whose great-grandparents were living at the time of the Spanish conquest, 80 years before he wrote his account. The original manuscript is in the National Library at Madrid. It is valuable because it gives in traditional form the history of the Incas as it was handed down at the time of the conquest to the grandchildren of the former rulers of Peru.

AN ACCOUNT OF THE INCAS

The account begins as follows:

"I, Don Juan de Santa Cruz Pachacuti-yamqui Salcamayhua, a Christian by the grace of God our Lord, am a native of the towns of Santiago of Hanalucayhua and Hurinhuayhuacanchi of Urco-suyu, between Canas and Canches of Colla-suyu, legitimate son of Don Diego Felipe Coudorcanqui and of Doña Maria Huayrotari, legitimate grandson of Don Baltasar Cacyaquivi and of Don Francisco Yamquihuanacu (whose wives, my grandmothers, are alive), great-grandson of Don Gaspar Apuquiricanqui, and of General Don Juan Apu Ynca Mayhua, great-great-grandson of Don Bernabe Apuhilas Urcuni the less, and of Don Gonzalo Pizarro Tintaya, and of Don Carlos Anco, all once principal chiefs in the said province, and professed Christians in the things of our holy Catholic faith. They were the first chiefs who came to the tambo of Caxamarca to be made Christians, renouncing all the errors, rites, and ceremonies of the time of heathenry, which were devised by the ancient enemies of the human race, namely, the demons and devils."

In this Indian's description of the founding of the Inca kingdom he relates the usual stories of the rise of Manco Ccapac, who, when he had grown to "man's estate, assembled his people to see what power be had to prosecute the new conquests which he meditated. Finding some difficulties, he agreed with his brothers to seek new lands, taking his rich clothes and arms and the staff which had been left by Tonapa. This staff was called Tupac-yauri. He also had two golden cups from which Tonapa had drunk, called Tupac-usi. Thus he set out, with his brothers, toward the hill over which the sun rose." From Machu Picchu that would be up the Urubamba Valley toward Cuzco.



A TERRA-COTTA EAR PLUG WITH SMALL HOLES IN WHICH POSSIBLY LITTLE FEATHERS HAD ONCE BEEN PLACED

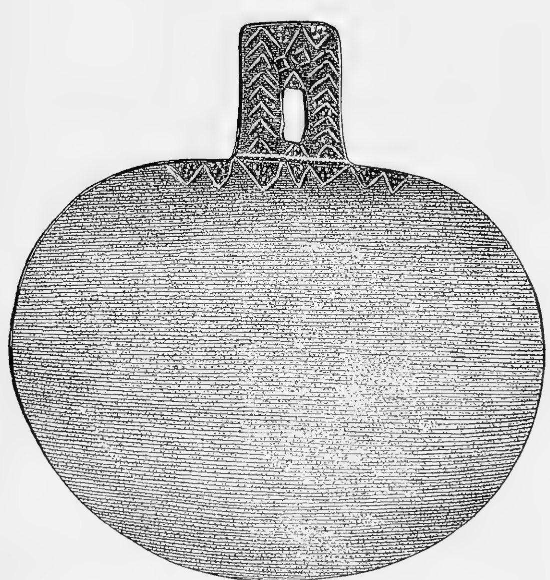
The Inca nobles were distinguished by the large size of their ear-rings, to receive which the lobe of the ear had been punctured and stretched. This was so conspicuous that the Spanish Conquerors gave the Inca nobles the title of *orejones,* or "big ears." 1¼ times natural size.

MARRIED HIS SISTER

After reaching Cuzco and settling there, this Inca, Apu Manco Ccapac, married one of his own sisters, named Mama Ocllo, this marriage being celebrated that they might have no equal, and that they might not lose caste. Then they began to enact good laws for the government of their people, conquering many provinces and nations of those that were disobedient.

The Ttahuantin-suyus, ancient name for the Peruvians of the Andes, came with a good grace and with rich presents. The tidings of a new Inca had spread widely. Some were joyful, others were afflicted, when they heard that the Inca was the most powerful chief, the most valiant, and the most fortunate in arms; that his captains and men of valor were better armed than other men, and that all his affairs were prosperous.

"Afterward he ordered works to be



A SMALL BRONZE MIRROR, SOMEWHAT RESEMBLING IN FORM THE MIRROR OF THE ANCIENT EGYPTIANS

Found at Machu Picchu. Natural size

executed at the place of his birth, consisting of a masonry wall with three windows, which were emblems of the house of his fathers whence he descended. The first window was called Tampu-toco, the second Maras-toco, and the third Sutic-toco, referring to his uncles and paternal and maternal grandparents." *

So far as we have been able to find out, there is no place in Peru or Bolivia where the ruins consist of "a masonry wall with three windows" *except* at Machu Picchu.

This is the only one of the ancient accounts of Inca history that gives the tradition of Manco Ccapac ordering such a wall to be built at the place of his birth. But the other ancient chroniclers nearly all give the story of this first Inca king coming from a place called Tampu-tocco, or Window Tavern, or Place of Temporary Abode Characterized by Windows. To be sure, most of them assign the location of Tampu-tocco to Paccari-tampu, or Tavern of the Dawn—a small, unimportant village, with an insignificant ruin, southwest of Cuzco. But there are no windows in this ruin, and the natural surroundings of Paccari-tampu do not lend themselves to the other requirements of the story, as was pointed out in the NATIONAL GEOGRAPHIC MAGAZINE for April, 1913, pages 413-414.

Other important references to the former home of Manco, the first Inca, are found in the results of the Viceroy Francisco de Toledo's investigations in 1572, when Tupac Amaru, the last Inca, was put to death.

TESTIMONY OF THE INDIANS

On the 21st day of January, 1572, 15 Indians, who were descended from the Guallas Indians who used to live near the salt terraces near Cuzco, and who said that their ancestors had lived here long before any Incas came to the site where at present is the city of Cuzco, on being questioned all together and individually, said they had heard their fathers and ancestors say that Manco Ccapac came from Tampu-tocco, lived on the site of Cuzco, and began to oppress their ancestors and take their lands away from them.

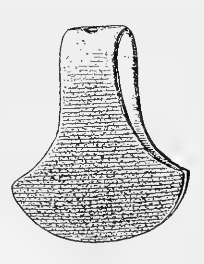
It seems to me significant that they did *not* say that Manco Ccapac came from Paccari-tampu, which would have been a natural thing for them to say, if true, as that was a well-known village in 1572.

Furthermore, in 1570, at a legal investigation made in Xauxa, one of the witnesses, who was 95 years old, said that Manco Ccapac, being lord of the town where he was born, had conquered little by little as far as Cuzco, but he did not know, nor did he remember, nor had he heard, what town was that of Manco. Evidently he was trained to keep the secret.

An Indian chief who followed him in testifying was 94 years old, and confirmed what had previously been stated, but said that he did not know where Manco Ccapac was born, although he knew he was the first Inca. Another Indian-chief witness, who was aged 92 or 93, said that Manco Ccapac came out of a cave called Tuco or Tocco; that he was lord of the town near that cave, and that he was the first of the Incas.

These investigations also were made during the reign of the Viceroy Toledo. In these legal examinations it is not once stated by an Indian under oath that Manco Ccapac came from Paccari-tampu, although it is difficult to imagine why

* Quoted from Sir Clements Markham's translation.



BRONZE TWEEZERS FOR EXTRACTING HAIR FOUND AT MACHU PICCHU. ALL 1¼ TIMES NATURAL SIZE

A BRONZE PENDANT OR EAR-RING

they should have overlooked that fact if, as the Spaniards believed, it was a fact.

I still feel that the ancient home of Manco Ccapac, which might be termed the cradle of the Incas, was not located at Paccari-tampu.

THE CRADLE OF THE INCAS

Whether or not it was located at Machu Picchu is another question.

I believe it was, for the following reasons:

Firstly, the requirements of Tampu-tocco as described in Montesinos are met at Machu Picchu and *not* at Paccari-tampu. The splendid natural defenses of the region around Machu Picchu made it an ideal refuge for the descendants of the megalithic folk in the five or six hundred years of anarchy that succeeded the barbarian invasions from the plains to the east and south, while at Paccari-tampu there is marked lack of natural defenses; the scarcity of violent earthquakes at Machu Picchu, and also its healthfulness, are both marked characteristics of Tampu-tocco, and here we find record stones and other pre-Inca material.

Secondly, because the distinct tradition recorded by the Indian Salcamayhua refers to the construction of a masonry wall with three windows at the place of Manco Ccapac's birth, and the first window was called Tampu-tocco; and at Machu Picchu we have what is clearly a ceremonial building, which may be described as a masonry wall with three windows, while at Paccari-tampu there are no such windows.

Thirdly, the early witnesses when asked, under oath, to tell where Tampu-tocco was, all dodged the question. None of them, however, declared it was at Paccari-tampu.

THE SACRED VIRGINS OF THE SUN

All these facts lead me to the belief that the original name of Machu Picchu was Tampu-tocco; that here the last megalithic king was buried, and that it was the capital of the little kingdom of his descendants during eight of ten centuries between the megalithic era and the Incas; that it was probably the birthplace of Manco Ccapac, and after he had achieved greatness he built a fine temple and palace here.

There is so little convenient arable land near Machu Picchu that when the people who occupied it once got control again of Cuzco and the rich valleys in that vicinity, there was no necessity for them to maintain a city at this spot under great difficulties. The original city may have been very small; but it was natually a sacred place, and its whereabouts were undoubtedly known to the priests and those who preserved the most sacred and secret traditions of the Incas. It *may* have been practically deserted for 300 years while the Inca Empire grew and flourished and its location entirely forgotten by the common people.

Then came the Spaniards, and, with their conquest, the necessity of saving what was possible of the ancient religion. The most precious objects were not the gold and silver images that the Spaniards craved, but the sacred Virgins of the Sun, who from their earliest childhood had been educated to the service of the temple and to ministering to the wants of the Inca. Some of these were undoubtedly captured, but many appear to have escaped. They naturally went

A BRONZE KNIFE OF THE MORE ORDINARY PATTERN FOUND AT MACHU PICCHU. NATURAL SIZE

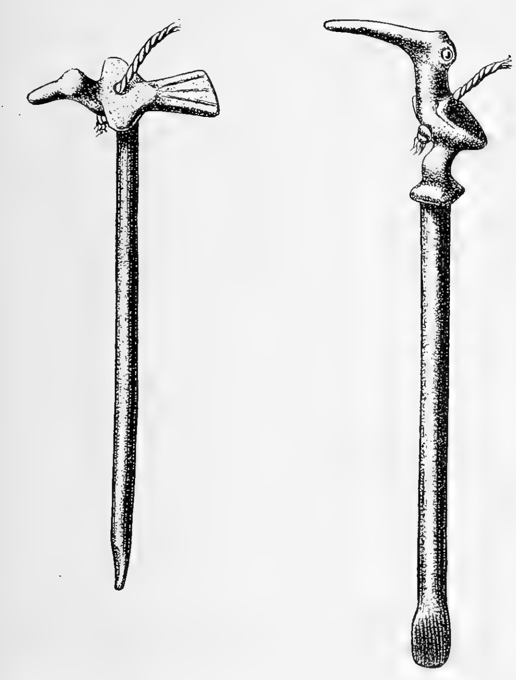
with the Inca, the young Manco, who had been set up by Pizarro to be a dummy Inca, but who rebelled and fled into the wilds of Vilcabamba.

FLED FROM THE CONQUERORS

He set up his own capital at Vitcos, where, as we were able to demonstrate in 1911, he was near an ancient shrine—a great white rock near a spring of water. Here he was surrounded by fertile valleys, at the same time difficult of access. He was, however, not too far removed from the great highway which the Spaniards had to use for their caravans in passing from Cuzco to Lima, so that he could readily attack them.

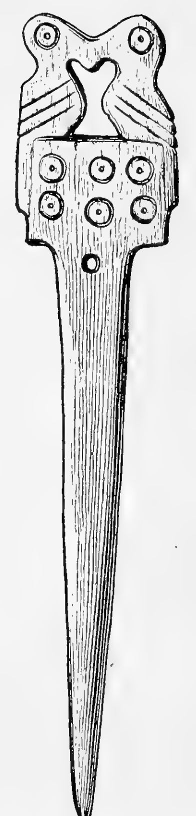
The only possible reference I can find to these Virgins of the Sun, or, as they have been called, Concubines of the Inca, is in the missionary chronicles of Father Calancha, an Augustinian. He relates the trials of two monks who, at the peril of their lives, entered the sequestered valleys near Vitcos and, after founding a convent at Puquiura, near Vitcos, asked the Inca to let them visit "Vilcabamba the Old." For a long time he refused; but finally he yielded to their urgent request and bade them prepare for the journey.

Calancha says that the Inca took the monks, with a small company of his captains and chieftains, over a very rough road. The Inca did not suffer, because he was carried in a litter, but the monks had to walk, and their robes hindered them. They arrived at a bad place in the road, called *Ungacacha,* where the trail was under water, as the river had risen. The monks thought it was as bad as being asked to wade through a lake. The water was very cold. But, because they so much desired to go to Vilcabamba to preach, "on account of its being the largest city, in which was the university of



SMALL BRONZE SPOONS WITH DECORATED HANDLES

They were probably intended for use in supplying the small quantity of lime needed in connection with chewing coca leaves. Found at Machu Picchu. 1¼ times natural size.



BONE NEEDLE, PROBABLY OF INCA ORIGIN, FOUND AT MACHU PICCHU

the idolatry, where lived the teachers who were wizards and masters of abomination," they persevered.

The followers of the Inca were much amused at the attempts of the monks to wade along the inundated trail, but the Fathers kept up their courage and helped each other through the water as best they might.

THE PRIESTS ARE TEMPTED

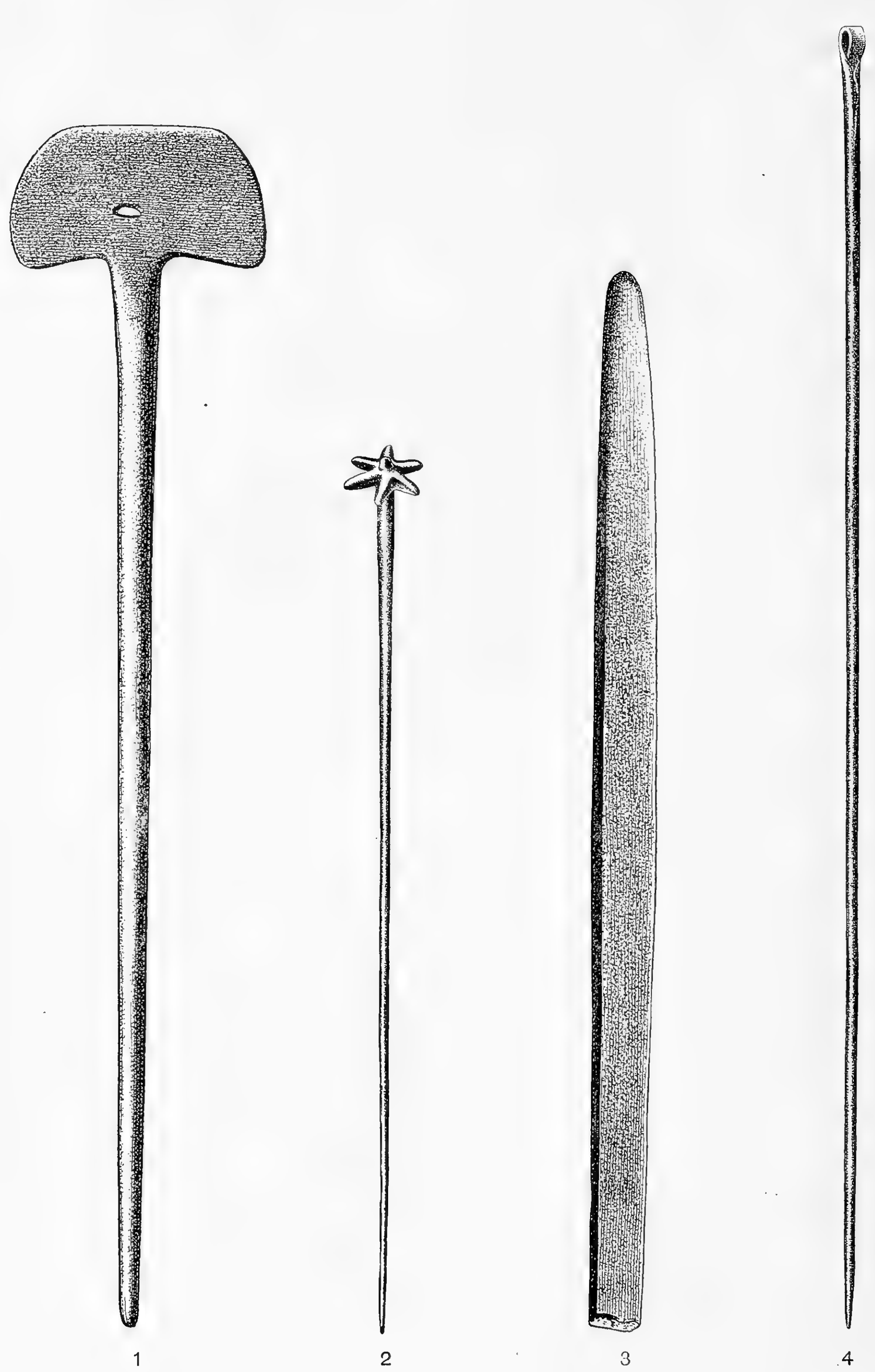
After a three days' journey over rough country, they arrived at Vilcabamba the Old. We know that Machu Picchu may be reached in a three days' journey over a rough road from Puquiura.

Calancha says that the Inca, unwilling that the Fathers should live in the city, ordered that they be given a dwelling outside, so that they might not witness the ceremonies and ancient rites which were practiced by the Inca and his captains and priests.

Nothing is said about the appearance of the city, and it is doubtful whether the monks were allowed to enter the gates or to know exactly where the city was located. They were bothered and tormented in various ways. Nevertheless they kept preaching and teaching during the three weeks of their stay in this vicinity, until they felt that it was time they got back to Puquiura, where they had established a mission school.

During their stay Calancha relates that the Inca used every means in his power to tempt and try the monks and to endeavor to make them break their vows of celibacy. After consultation with his priests and soothsayers, the Inca selected (says Calancha) some of the most beautiful Indian women not only of the mountainous districts, but from the tribes of the *coast valleys*, who were more attractive than those of the mountains.

It is evident from the chronicle that in the town of Vilcabamba the Old there were a considerable number of women and some priests. It is also evident that Vilcabamba the Old was so constructed that the monks could be kept in the



(1) A copper knife-edge shawl pin, a convenient utensil worn by Inca women. Natural size. (2) Bronze shawl pin with star-pointed head. .4 natural size. (3) Bronze crowbar. 1/3 natural size. (4) Bronze needle. .44 natural size. All these interesting souvenirs of a departed race were found at Machu Picchu.

A BRONZE AXE OF THE TYPE USED BY THE INCAS IN SOME OF THEIR RELIGIOUS CEREMONIES, FOUND AT MACHU PICCHU. NATURAL SIZE

vicinity without being able to see what was going on in the city.

MACHU PICCHU FITS THE PICTURE

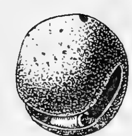
So far as this latter condition is concerned, Machu Picchu admirably answers the requirements of the case, for it would have been very easy for the Inca to have kept the monks in the vicinity of Machu Picchu for three weeks without their having a single glimpse of the extent or beauty of this ancient city. Had they been lodged in huts at the foot of the mountain, only two hours' journey from the city, the requirements of the chronicle might easily have been met. The monks probably knew so little of the extent or remarkable character of the place near which they lodged that no account of it could have been given to their friends and eventually reported by Calancha. Furthermore, as has been said, Machu Picchu is just about three days' journey on foot from Puquiura, so that this requirement is also met.

The question remains: Is there any evidence that the last residents of Machu Picchu were priests and Virgins of the Sun or women of the coast valleys?

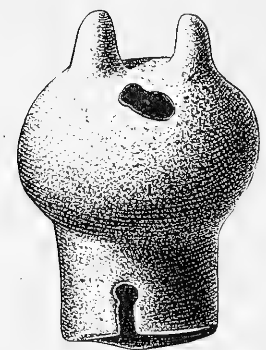
Fortunately, Dr. George Eaton, of the Peabody Museum of Yale University, under whose direction a large amount of skeletal material was collected in 1912 from the burial caves at Machu Picchu, and who has been making a careful study of this material during the past year, has come to the conclusion that among the skeletons there is not a single one of a robust male of the warrior type. There are a few effeminate males who might very well have been priests, but the large majority of the skeletons are female and *some are coast types.*

A "UNIVERSITY OF IDOLATRY"

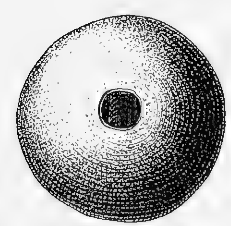
Until we can find some other ruin within three days' hard journey of Puquiura which answers the requirements of a "university of idolatry," an important religious center, containing mostly



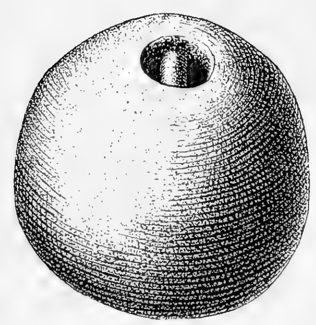
A TINY BRONZE BELL



A SMALL BRONZE BELL



A BRONZE PLUMBOB



A SILVER PLUMBOB

All these objects, found at Machu Picchu, are pictured 1¼ times natural size

remains of women and effeminate men, I am inclined to believe that we have at Machu Picchu the Vilcabamba-the-Old of Calancha's chronicle.

Now the question remains, Does the archeological evidence tend to support or destroy this theory?

In the caves where the skeletal material was found we secured a large number of broken pieces of pottery and a few that were not broken. These are shown on pages 210-214. They are of the type usually called *the Cuzco style* and accepted as the sort of pottery commonly used *by the Incas*. In the excavations in the older part of the city itself fragments of other types were found, represented by the brazier on page 206, which appear to belong to an earlier culture than the Inca.

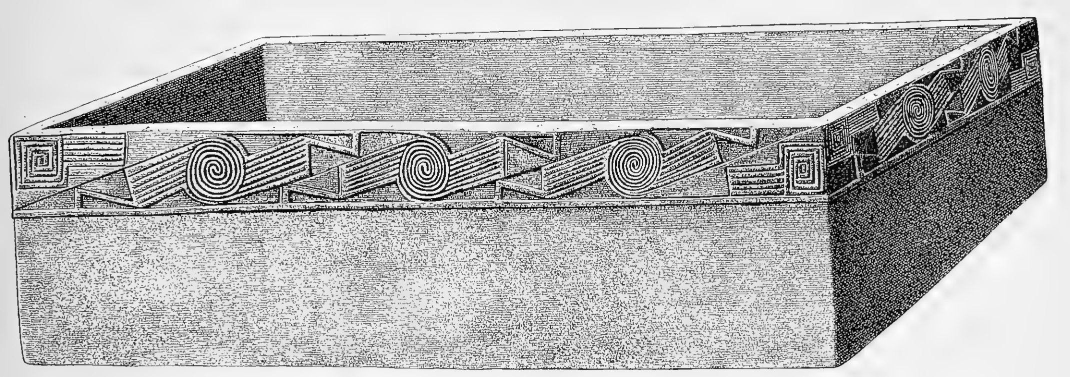
In addition to the evidence of the pottery, we have the evidence of the buildings, which clearly appear to have been built in two distinct periods. Some of the photographs in my previous article (April, 1913) give abundant evidence to even the most casual observer of the fact that the lower portion is of finer construction than the upper.

Examination of the ruins of the fairly recent Inca cities on the islands of Lake Titicaca, where few of the structures are earlier than 1300 A. D., and of the ruins of the palace of Vitcos, a palace built probably about 1540, shows that the Incas in their later construction used a considerable amount of clay and mud in filling in the chinks of the walls, thus obviating the necessity of laboriously shaping the stone blocks with anything like the precision used by their distant ancestors, the megalithic folk. Several pictures of houses at Machu Picchu appearing in my previous article show ancient terrace walls, on which are built typical Inca houses.

A SUMMARY OF EVIDENCE

Is it possible that at Machu Picchu we have the ruins of Tampu-tocco, the "cradle of the Incas," the birthplace of Manco Ccapac, the first Inca; and *also* the ruins of Vilcabamba-the-Old, the sacred city of one of the last Incas and the home of his women and priests?

Let us take into consideration the following facts: *First*, in the buildings and walls of Machu Picchu we have two



A BEAUTIFULLY DECORATED STONE DISK, CARVED OUT OF A SINGLE PIECE OF STONE

Found in many pieces widely scattered over the ridge near the Snake Rock and the Three Window Temple, undoubtedly pre-Inca and possibly a remnant of the earliest folk who built the pre-Inca structures at Machu Picchu. 1/3 natural size.

distinct styles, probably separated several centuries in development—an early period when the city was small and the structures remarkably fine (one of the finest of which is a masonry wall containing three large windows), and a second period when the structures are of late Inca design, and many of them built on top of ancient terraces and ancient walls; *second,* in the pottery we likewise have, in the more recent burial caves, Inca-style pottery, and in the excavations in the more ancient part of the city different and earlier types of pottery; *third,* in the more ancient part of the city, near the Sacred Plaza and the Snake Rock, we find a large number of problematical stone objects or "record stones" not found in the burial caves with the Inca pottery, and whose use does not appear to have been known to the Incas.

Finally, if we add to these facts the skeletal evidence, and remember that the bones of the most ancient inhabitants and the builders of the town have probably long since disappeared, and that the remains found in good condition in the burial caves must be those of the more recent inhabitants, and remember that these turn out to be chiefly the skeletons of women, some of whom are pronounced to be of the coast types, we are ready to arrive at the conclusion that Machu Picchu has had two periods of occupancy, and in its last state is probably the place referred to by Calancha as "Vilcabamba the Old," where the Inca treasured the remains of his religion, restored the University of Idolatry, and kept the Virgins of the Sun who had escaped from the ravages of the Spanish Conquerors.

An examination of the walls of the houses shows that the town was enlarged by the Incas to accommodate its increased population. An examination of the results of excavation shows that the three-windowed temple and its vicinity belonged to a far earlier period than the east part of the city and the burial caves, in short probably to the end of the megalithic period.

ABUNDANT CONFIRMATION

The archeological evidence (the artifacts, the pottery, and the bones), combined with the historical evidence in the incidents brought out by Montesinos, Salcamayhua, and Calancha, besides the testimony of the old men who gave their evidence in the time of the Viceroy Francisco de Toledo, confirms us in the belief that at Machu Picchu we have the ruins of Tampu-tocco and, superimposed on them, the ruins of Vilcabamba the Old.

Surely Machu Picchu, which has made such a strong appeal to us on account of its striking beauty and the grandeur of its surroundings, appears to have had a most interesting history. Selected as the place of refuge for the last of the megalithic kings; chosen as the site for the capital of the little kingdom which their followers set up, and where they reigned for six or seven hundred years; abandoned when Cuzco once more flashed into glory as the capital of the great Inca Empire, it was again sought out in time of trouble when the foreign invader

desired to extinguish all vestiges of the ancient religion, and became the home and refuge of the Virgins of the Sun, whose lives and whose institution formed one of the most interesting features of the purest religion of aboriginal America.

Concealed in a cañon of remarkable grandeur, protected also by walls and a moat, these chosen women gradually passed away on this beautiful mountain top and left no descendants willing to reveal the importance and explain the significance of the ruins of Machu Picchu.

Finally, a word of caution: it must be remembered that there are no inscriptions at Machu Picchu to enable us to be sure of our deductions. The evidence is what lawyers term circumstantial; but it must stand until some one can find a place or places better suited to answer the requirements of *Tampu-tocco,* home of Manco Ccapac, the First Inca, and *Vilcabamba the Old,* religious capital of Manco, the Last Inca.

In the following pages I have endeavored to give a more special study of the so-called "record stones," which seem to be pre-Inca and may have been used to keep the records at Tampu-tocco before the discovery of the *quipu,* or knotted string.

QUEER RECORD STONES

During the progress of the work carried on at Machu Picchu in 1912, the most fruitful digging was that on the ridge between the Temple of the Three Windows and the city gate. The most interesting feature of this part of the city is a huge boulder with several snakes carved on its upper surface. We called it Snake Rock (see page 497, April, 1913).

In these excavations we found large quantities of curiously shaped stones of a type *not* used by the Incas, so far as we know. Their character is well brought out in the drawings shown on page 204. Many of them are made of a green micaceous or chloritic slaty schist. They were probably quarried at the foot of one of the precipices on Machu Picchu Mountain. Their use is largely problematical.

In some ways they are one of the most interesting features of the collections. It is possible that they are record stones. A few similar ones were found by Professor Saville in Ecuador, and Dr. Dorsey found similar ones on the Island of La Plata, off the coast of Ecuador. An eminent Peruvian archeologist, Señor Gonzalez de la Rosa, believed that the pre-Incas kept their accounts in record stones, just as the Incas used *quipus,* a series of different colored and diversely knotted strings. Professor Saville, in his "Antiquities of Manabi, Ecuador," has the following to say in regard to these:

"We quote herewith from Velasco, the source which has undoubtedly served Mr. de la Rosa in coming to his conclusion. In the 'Historia Antigua del Reino de Quito,' by Velasco, he states that he obtained his information from the work of Fray Marcos de Niza, whose history, he says, is the only fountain of information which merits confidence. Unfortunately, we know of this work only through the extracts which have been quoted by Velasco. On page 7, volume 2, Velasco writes:

" 'They used a kind of writing more imperfect than that of the Peruvian *quipos.* They reduced it [the writing] to certain archives, deposits made of wood, stone, and clay, with divers separations, in which they arranged little stones of distinct sizes, colors, and angular form, because they were excellent lapidaries. With the different combination of these they perpetuated their doings and formed their count of all.'

"On the same page, in treating of the number of years of the Cara rule of the province of Quito before the coming of the Incas, he continues: 'Some, by their traditions and the deposits of the little stones, extended this to seven hundred years, with the succession of eighteen *scyris;* and others, with the same counts and traditions, only extended it to five hundred years, with the succession of eighteen *scyris.*' These statements clearly show the system to have been imperfect. Again, in treating of the burial customs of the *scyri,* or kings of Quito, Velasco writes, on page 33, as follows (see page 203).

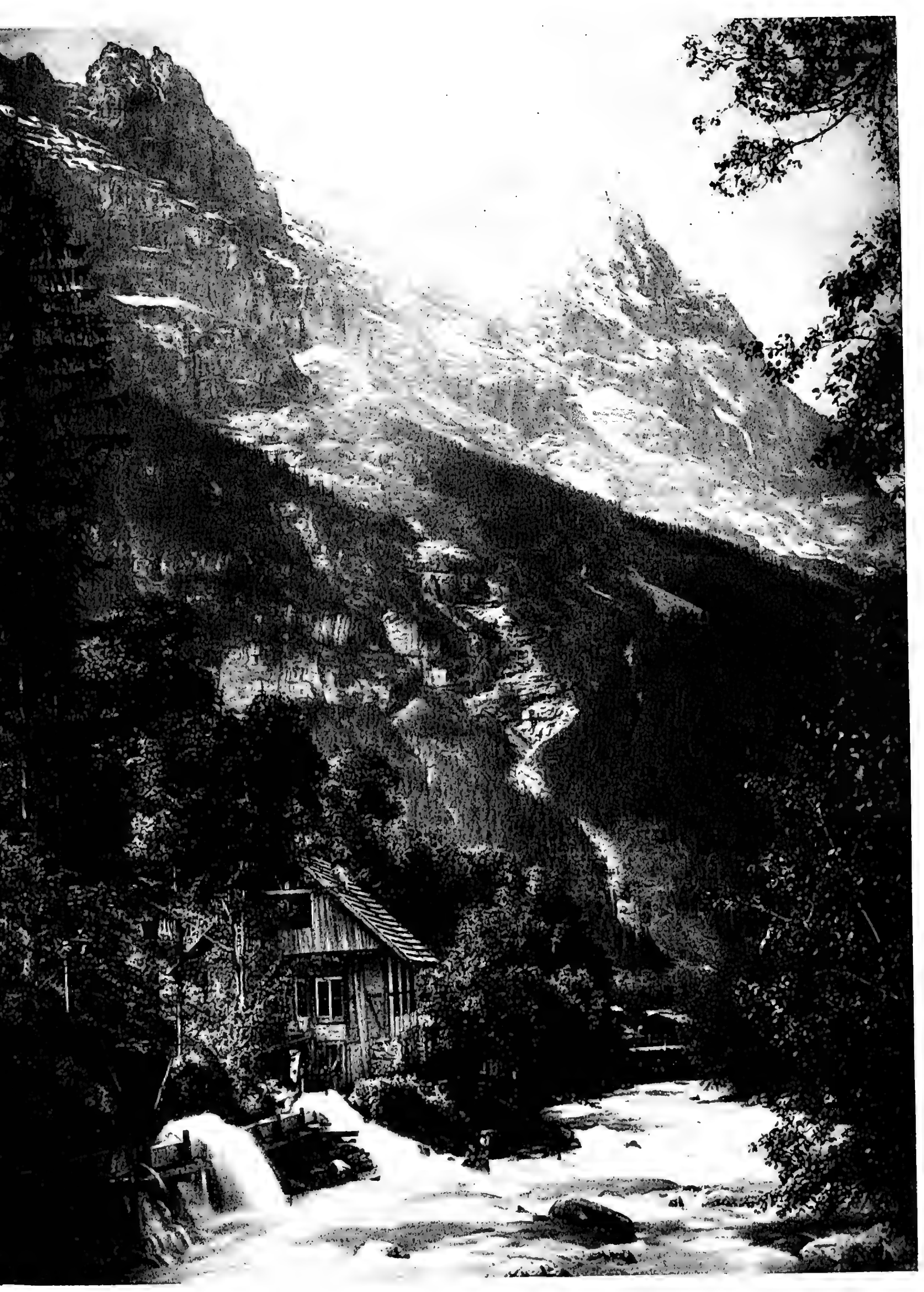
Photo by Donald McLeish

AN ASCENT OF THE ALLALINHORN: SWISS ALPS

The Allalinhorn is a not distant neighbor of the Matterhorn and Mount Blanc, in the Pennine Alps, between the Little St. Bernard and the Simplon Pass.

WHERE MOUNTAINEERING WAS BORN: THE WETTERHORN

Systematic mountaineering, from the standpoint of sport, began when Sir Alfred Wills ascended the Wetterhorn in 1854. The following year the first ascent of Monta Rosa was made and two years later an Alpine club was formed in London, the forerunner of Alpine clubs throughout the world. In 1865 Edward Whymper's ascent of the Matterhorn marked the close of Alpine conquest, and thereafter the mountain climbers turned their attention

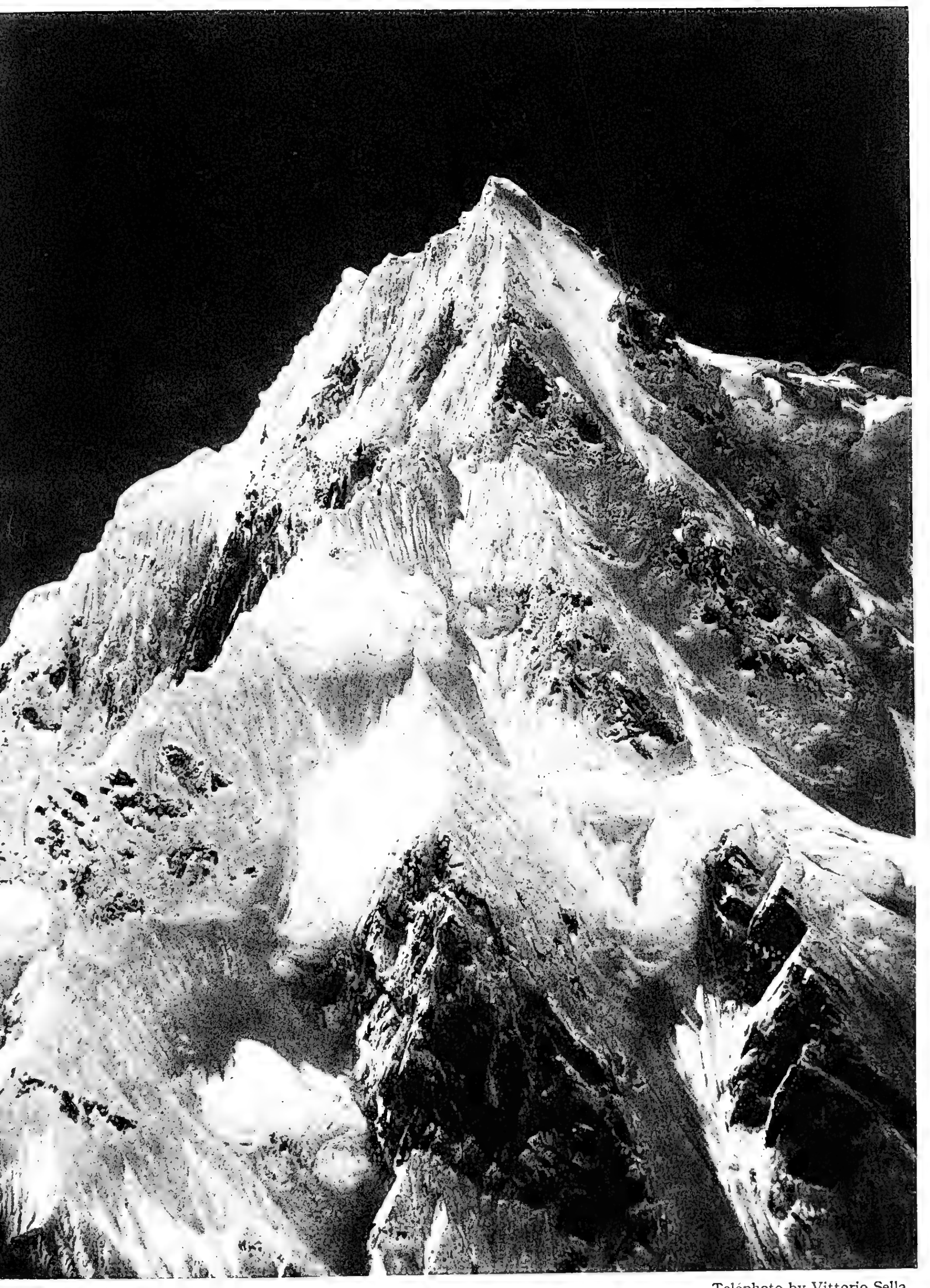


RURAL SCENE IN SWITZERLAND

The Swiss army is organized on a basis of a thorough military training for every citizen, with few exempt from service, and with those exempt taxed in lieu of service. Literary instruction and gymnastics are coupled with military instruction, and every boy reaching military age must enter the service for a period varying from 60 to 90 days.

IN THE FOOTHILL FORESTS OF THE HIMALAYAS

It is from regions such as this that come tens of thousands of India's fighting forces which now stand shoulder to shoulder with the French, English and Belgians, in Belgium and France. The hot, long rainy seasons produce a vegetation unsurpassed in luxuriance, but it has never served to dampen the ardor of the fighting men of India.



Teléphoto by Vittorio Sella

THE CREST OF SINIOLCHUM, IN THE HIMALAYAS

This mountain, 23,000 feet high, is generally regarded by mountain lovers the most beautiful of all snow-peaks. It is situated in the Sikkim Himalayas, between the Teesta and Zemu Rivers.

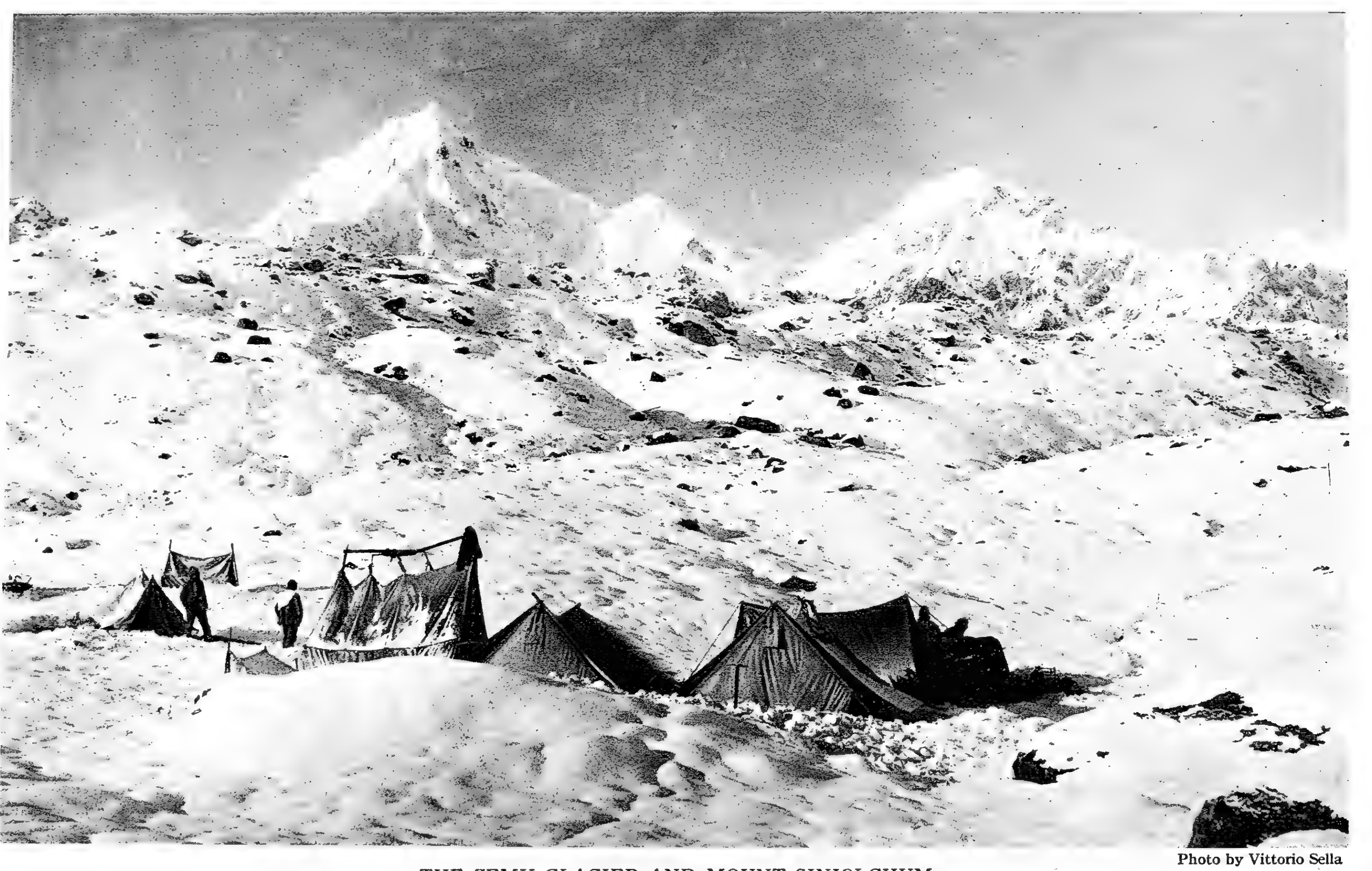


Photo by Vittorio Sella

THE ZEMU GLACIER AND MOUNT SINIOLCHUM

The valleys of the Himalayas present every conceivable variety of climate, vegetation and produce. They contain whole nations with various political organizations; tribes of diverse races and origin, at every stage of civilization, speaking an endless number of different tongues, professing every religion of Asia, exemplifying social customs which range from polygamy to polyandry. It scarcely seems possible that man should ever succeed in com-

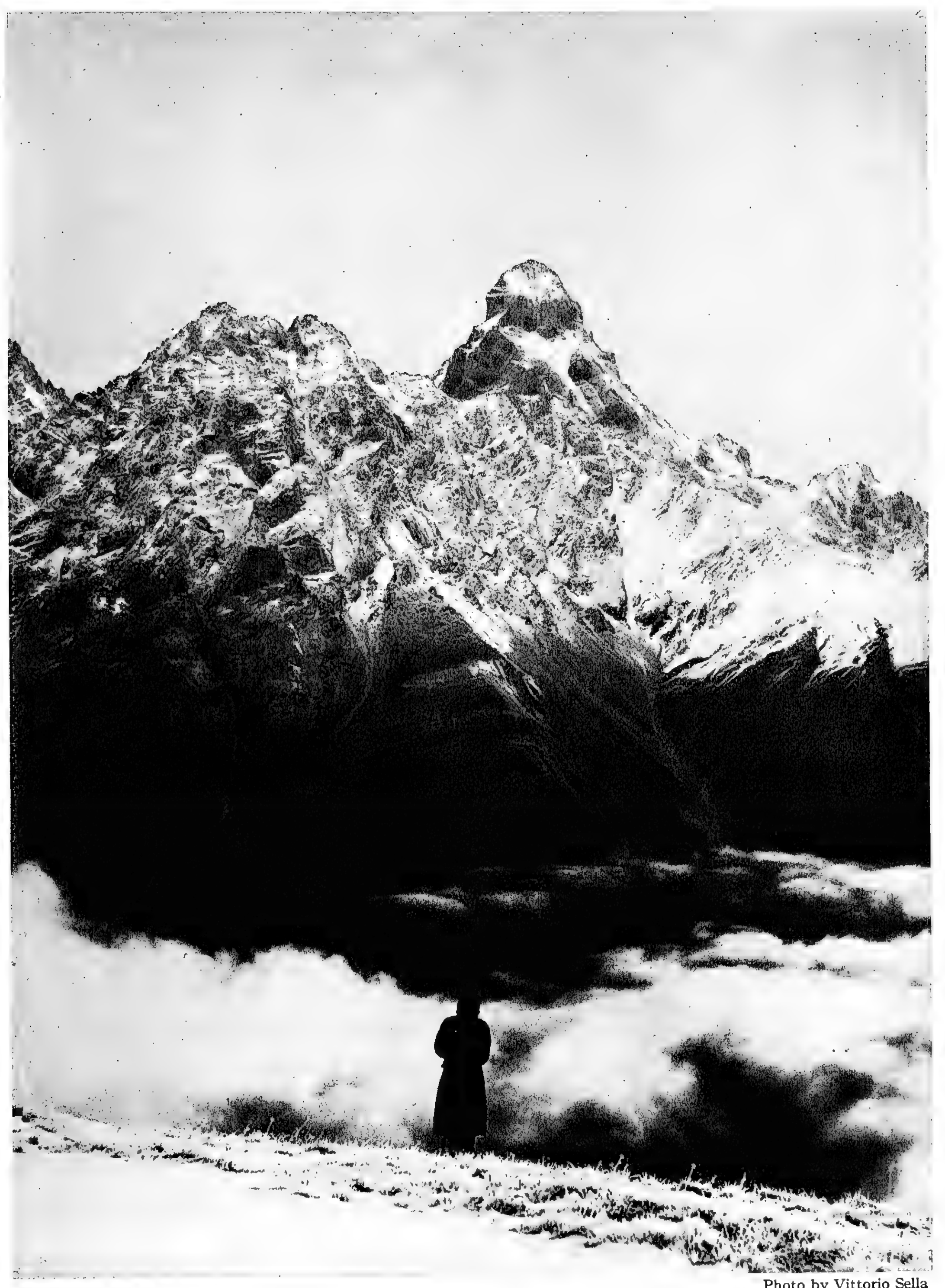


Photo by Vittorio Sella

USHBA, THE MOST IMPRESSIVE OF ALL CAUCASIAN MOUNTAINS

Double-towered Ushba, stationed on the watershed which divides Asia from Europe, gives one of its peaks to the former and the other to the latter. The Caucasus gave to that great race which has ruled the world through many generations its name. Long before the Christian Era, Greek merchants brought back news of rivers running with gold, in which the natives laid sheepskins to enmesh the shining metal. They reported it a land of fertile valleys, where grapes and peaches grew wild, where minerals of every description abounded in inexhaustible quantities, and where the Eldorado of earth existed.

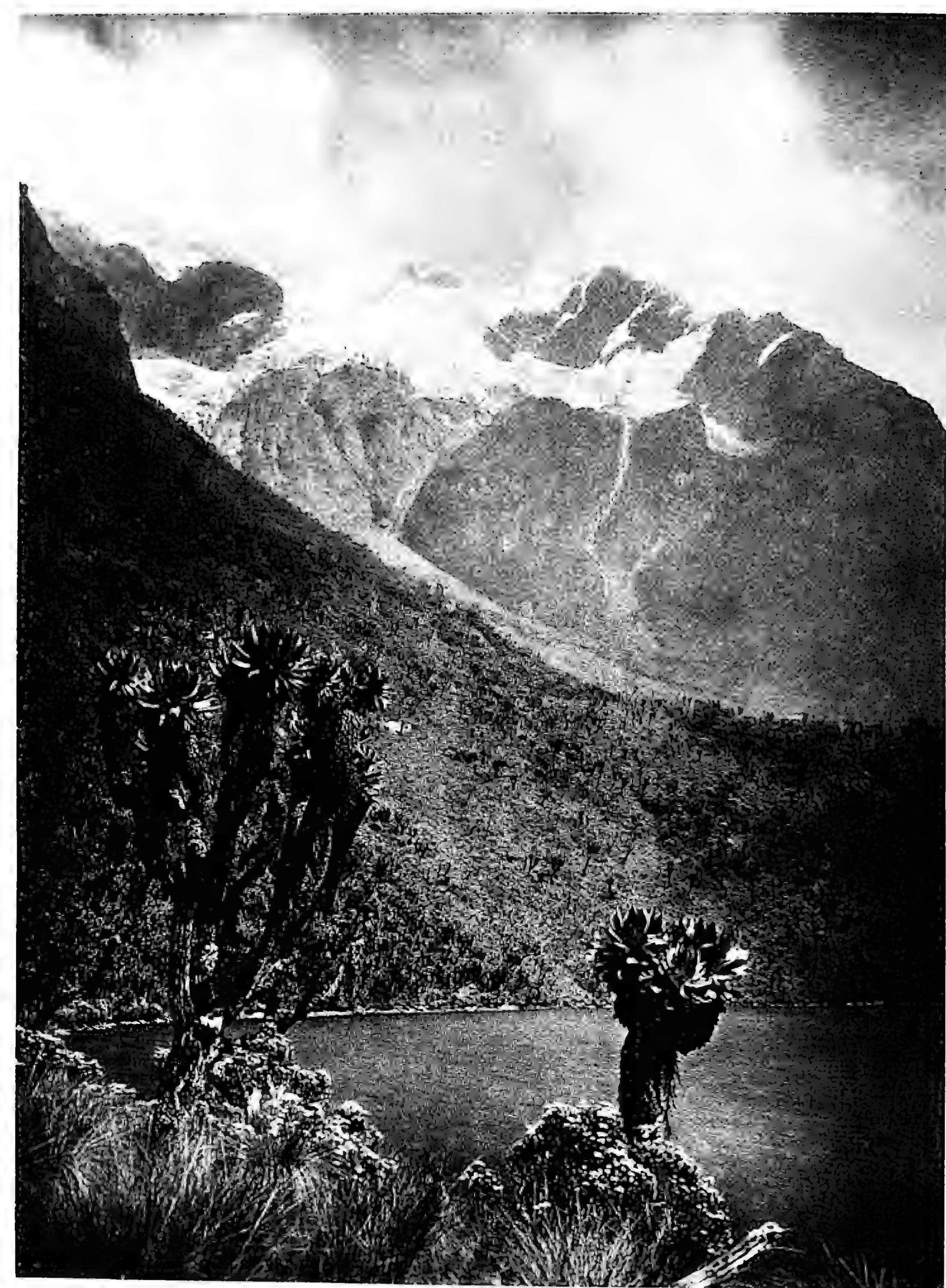


Photo by Vittorio Sella

LAKE BUJUKA AND MOUNT STANLEY

Describing his discovery of the Ruwenzori Mountains, Henry M. Stanley wrote that while looking to the southeast he saw a peculiar-shaped cloud of the most beautiful silver color. Following its form downward he became struck with the deep blue black color of its base; then, as the sight descended to the gap between the eastern and western plateaus, he became conscious that what he gazed upon was not the image or semblance of a vast mountain, but a real one covered with perpetual snow.

Photo by Vittorio Sella

A BEAUTIFUL VALLEY IN THE HIMALAYAS OF SIKKIM

The valleys which slope up into the mountain passes from Darjeeling into Sikkim are covered with luxuriant forests, which are apparently tropical, even at a great height. Here Alpine plants of marvelous beauty reach dimensions undreamed of in Europe or in the United States. This vegetation is the result of torrents of rain which fall throughout the summer months. Within a territory of less than 3,000 square miles there is found more than 4,000 species of flowering plants, 200 varieties of ferns, 400 kinds of orchids, 20 different bamboos, and 30 types of the rhododendron.

Photo by Vittorio Sella

THE LOBELIA DECKENI, SENECIO AND TREE-HEATH, RUWENZORI MOUNTAINS, AFRICA

The whole valley is one mass of luxuriant vegetation of indescribable strangeness. The ground is carpeted with a deep layer of lycopodium and springy moss, thickly dotted with big clumps of papery flowers, and with pink, yellow, and silver-white "everlasting." Above these rise the tall columnar stocks of the lobelia, like funeral torches, beside huge groups of the monster senecio. The impression produced is beyond words to describe. The spectacle is weird, improbable, and unlike all familiar images.

Photo by Vittorio Sella

A GRACEFUL LOBELIA WOLLASTONU IN BLOOM, RUWENZORI MOUNTAINS, AFRICA

This is one of the rarest of the two hundred species of lobelia found in all the temperate and warmer regions of the world, except Central and Eastern Europe and Western Asia. It is known as the tree lobelia, and thrives only on the slopes of the high mountains of tropical Africa. It is a cousin of the "Indian tobacco" of North America, whose chief constituent, lobeline, closely resembles nicotine.

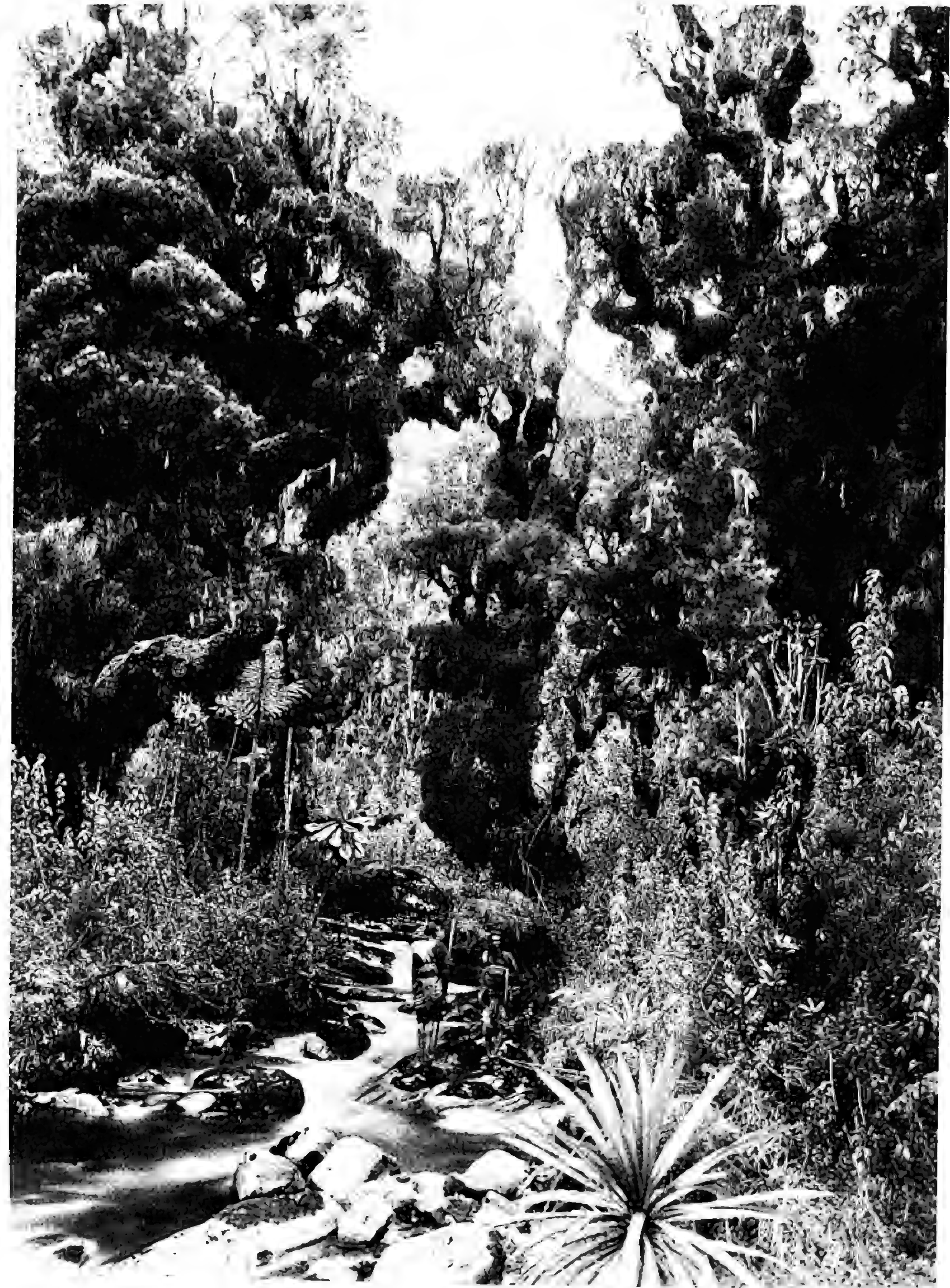


Photo by Vittorio Sella

THE RUWENZORI MOUNTAINS, AFRICA

The headwaters of this little river form a mere Alpine stream buried in fantastic vegetation. Its yellow-brown waters are without fish or any other form of life. The surrounding ground is covered with heath forest and an underwood of tall ferns, creeping plants, orchids, and thorny brambles laden with blossoms and unripe blackberries. In their shade grow violets, ranunculus, geraniums and many other beautiful flowers. The men in this picture were members of the mountain climbing party of the Duke of the Abruzzi.

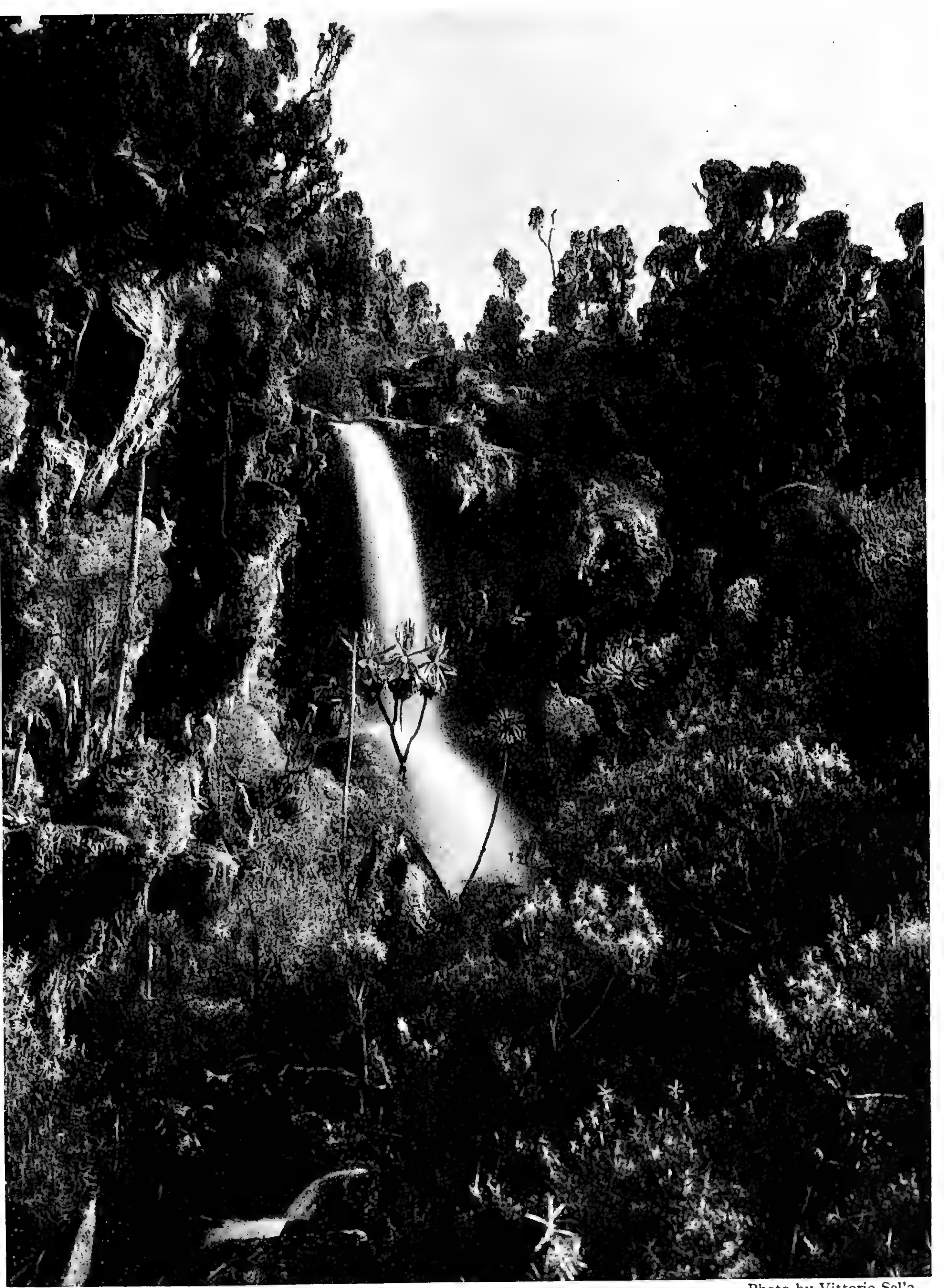


Photo by Vittorio Sella

WATERFALL AT BUAMBA, MOBUKU RIVER, AFRICA

Framed in foliage and flowers, this graceful waterfall leaps from one plateau to another, in a region where many traces have been left of the former passage of glaciers, the rocks being worn smooth and streaked. There are also many moraine piles, boulders and other debris, now hidden in the dense growth of a hundred hues which fringe the base of the Kiyanja Peaks.

Photo by Vittorio Sella

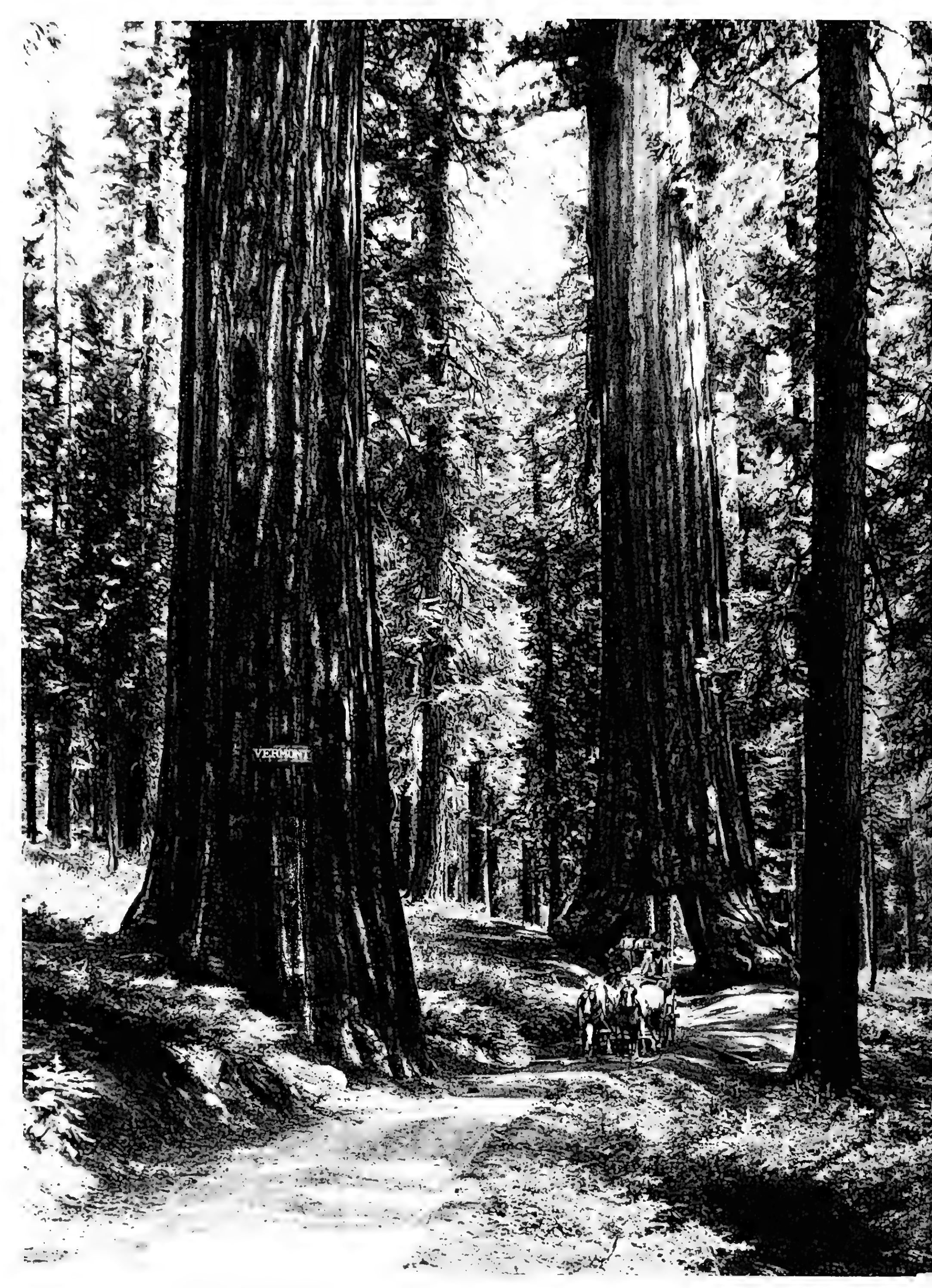
THE WONDERFUL VEGETATION OF THE RUWENZORI MOUNTAINS, AFRICA

Situated almost under the equator, on the borderland between the Belgian Congo and Uganda, the Ruwenzori Mountains are famous for their wonderful vegetation. Many richly aromatic plants keep the mountain climber company until an altitude of 11,500 feet is reached. As they drop by the way-

Photo by Vittorio Sella

THE VILLAGE OF DALAKAFF, IN THE VALLEY OF THE LIAGDON, CENTRAL CAUCASUS, RUSSIA

An old legend says the Babel of the Caucasus cannot be reduced to writing. It reads: "Give up your task. Can you put into human writing the rolling of the thunder along the peaks, the crash of the falling avalanche, the deep roar of the mountain torrent, the blast of the waterfall? Can you represent the sound of the stones as they clatter down the gorges, of the branches of the forest as they moan in the tempest, the screams and songs of the birds as they call to one another from height to height? How, then, can you hope to imprison in letters the free speech of the tribes of the Caucasus?"



THE BIG TREES OF THE MARIPOSA GROVE, CALIFORNIA

The sequoias of California, the tree monarchs of the world, are one of the few surviving links which establish the kinship of the cypress and the fir. Once they were widely diffused over the earth. During the Ice Age they seem to have been exterminated except in the California mountains, where they never come closer to sea level than 5,000 feet and are not able to grow above 8,400 feet. They sometimes attain a height of 320 feet and trunk diameter of 35 feet.

THESE RECORD STONES WERE OF MANY SIZES AND COLORS

"'Their bodies were embalmed with their royal insignia round about and the treasure and jewels which each one sent, if they could. Above each one extended a hole or little niche, where a small figure of clay, stone, or metal was represented, and inside were the small stones, of various shapes and colors, which denoted his age, the years, and the month of his reign.'

"Velasco gives one other reference to the use of the little stones in place of *quipos;* but, aside from this single authority, we find no other statements regarding this interesting method used by the Caras, after, according to their own traditions, they had left the low coastlands and migrated, by way of the Esmeraldas Valley, to the highlands in the vicinity of Quito. The little stones of distinct sizes, colors, and angular shapes, used for the purpose of keeping historical and other records, are thus found on the coast in the examples from La Plata, Cerro, Jaboncillo, and La Tolita, not far distant from the southern frontier of Colombia, and each varies with the locality." (Saville: "The Antiquities of Manabi, Ecuador," pages 172-173.)

At Machu Picchu, hundreds of miles south of Ecuador, we have quantities of similar stones, including many regular and irregular shapes (see page 204). The irregular ones can hardly be classified. The regular forms are disks, oblongs, and triangles.

Of the *156 stone disks* found at Machu Picchu only three were found in the caves containing skeletal material opened by Dr. Eaton. In fact, the great majority of them appear to have belonged to an earlier culture than that represented by the times of the skeletal material.

The diameter of the largest stone disk found in Machu Picchu is 23.5 cm. (or about 9 inches), and of the next largest, which is rather oval in shape, 23 cm. x 21 cm. The largest one was found in the center of the Upper City, the other on one of the terraces. Both are rough-hewn, partially ground and polished.

Of the others we find only one of the disks to be less than 1 cm. (an inch being 2.54 centimeters); the others range as follows:

		cm.		cm.
6	between	1.0	and	1.5
18	"	1.5	"	2.0
21	"	2.0	"	2.5
33	"	2.5	"	3.0
10	"	3.0	"	3.5
15	"	3.5	"	4.0
6	"	4.0	"	4.5
4	"	4.5	"	5.0
4	"	5.0	"	5.5
2	"	5.5	"	6.0
2	"	6.0	"	6.5
4	"	6.5	"	7.0
6	"	7.0	"	7.5
2	"	7.5	"	8.0
3	"	8.0	"	8.5
1	"	8.5	"	9.0
2	"	9.0	"	9.5
5	"	9.5	"	10.0
1	"	10.0	"	10.5
1	"	10.5	"	11.0
1	"	11.0	"	11.5
3	"	11.5	"	12.0
1	"	12.0	"	12.5
2	"	12.5	"	13.0
1	"	13.0	"	13.5
1	only over	13.5		

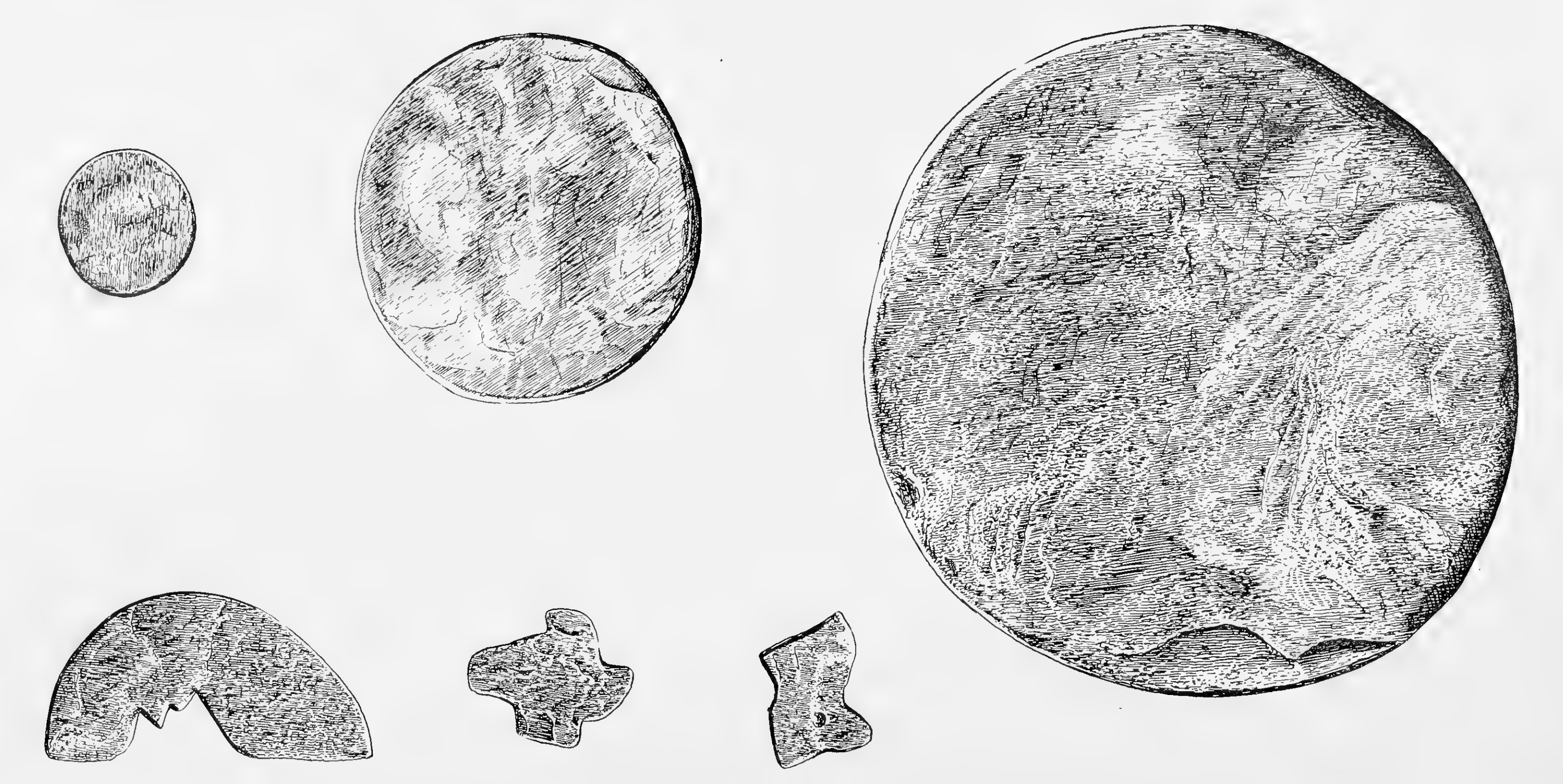
THE MYSTERY OF THESE STONES

It will be noticed that every half centimeter is represented by one or more disks from the largest to the smallest. There are many more small ones than large ones, one-half of the disks being 3 cm. or less in diameter. However, it seems impossible to draw any hard and fast dividing line between the sizes.

I have thought that some of the larger, rougher disks might have been used as pot covers. If, however, all were used as counters, the relative infrequency of large numbers (supposing that the large counter signified a large number) would account for the relative scarcity of the larger disks.

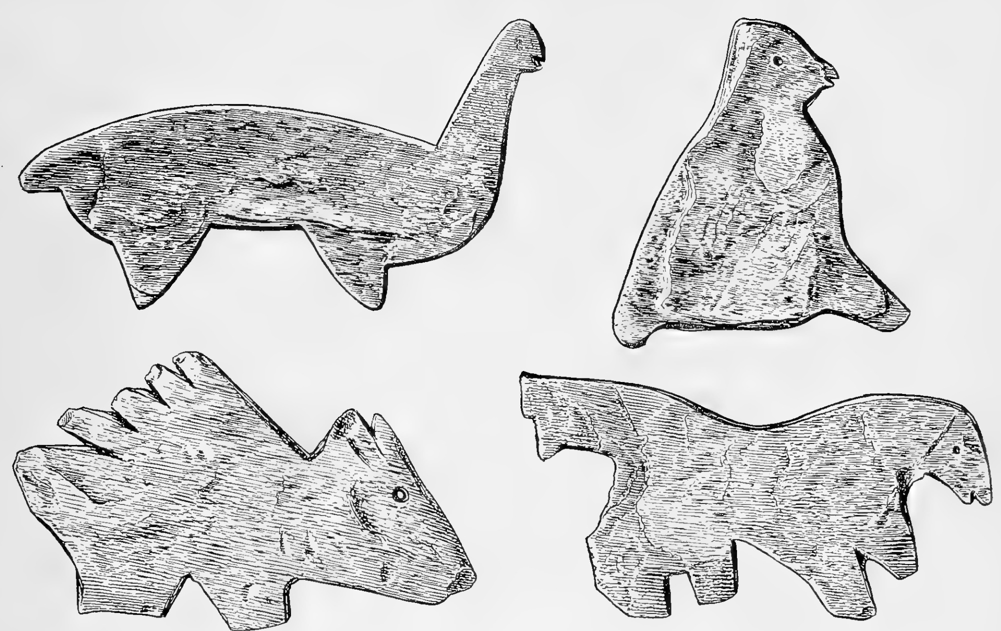
Most of the large disks are roughly made, but a few are nicely rounded, and are ground and polished to a fairly consistent thickness. The largest of all are rough-hewn, but partially ground and polished. Only one is clearly purposely incised—that measuring over 13.5 cm. This has a single cross on one side in the center of the disk, the two lines being respectively 4.5 cm. and 5 cm. in length. One disk was found notched with four notches, and four disks were perforated.

A careful examination of the smaller



STONE DISKS RESEMBLING POKER CHIPS AND OTHER CURIOUS STONES, ALL PROBABLY RECORD STONES. 1¼ TIMES NATURAL SIZE

One hundred and fifty-eight of these disks were found in excavating the older part of the city. They were probably used by the earliest inhabitants of Machu Picchu as record stones; but later, in the time of the Incas, were superseded by the knotted string, which was a far more flexible, easily preserved, and carried record (see text, pages 175, 186, and 203).



LITTLE STONE FIGURES OF ANIMALS CARVED OUT OF GREEN MICACEOUS SCHIST

All found in one grave and representing jungle animals—that is, the peccary, the ant-eater, otter, and the parrot—evidently intended to be the record of a visit to the dense jungles of the lower valley by some artistic stone artificer. 1½ times natural size.

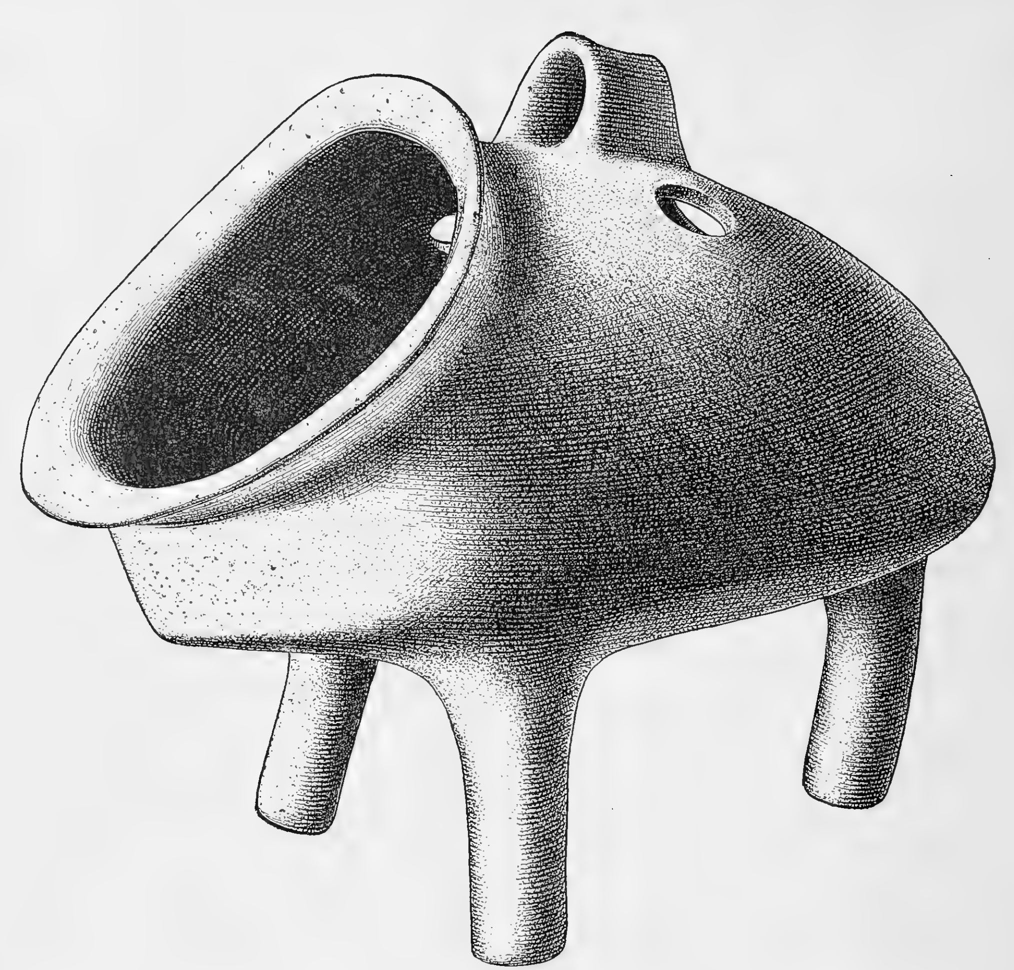
disks or counters shows that practically all were ground and polished, some more, some less. A large number of them are nicely rounded. Nearly all show scratches made in the grinding and polishing, and a few are ground so thin as to be translucent. The scratches are in a few cases puzzling, but we have not been able to come to the conclusion that the scratches were intentional or graphic.

On perhaps a dozen of the disks the scratches are suspicious; but in none of these cases can one say that they are not accidental. Certainly there is no regular rule about the scratches, and their suspicious character consists in occasional markings that resemble tallying. The stone of which these disks are composed, green chloritic schist, is soft, easily scratched, and quite suitable for being marked with tallys if it were so desired. If that had taken place, however, I believe that we should be in no doubt about the marking. There are tally marks on the baked-clay dice or cubes (see page 176).

An exceedingly well-made group of these smaller disks, 16 in all, besides a discoidal stone pendant of similar size, was found in one hole near the Snake Rock. All of them are carefully ground and polished, and all bear, in addition to the marks of grinding and polishing, suspicious scratches. Fourteen of them are 3 cm. in diameter, one is 4.5 cm., and one a trifle over 6 cm.

In two or three cases flat discoidal pebbles of similar material were found in connection with the ground and polished disks

Forty-two *oblong* problematical or "record" stones were found, all of them of the same material—green chloritic schist. Two or three are thicker and rougher than the others, but most of them are about 0.3 cm. in thickness. The longest is 5.8 cm. in length and about 2 cm. in width. The widest is 3.2 cm. in length and about 2.5 in width. The smallest is 1.4 cm. in length and about 0.3 cm. in width. Nearly all bear marks of having been ground and polished, but none appears to have been engraved, although a number have irregular scratches of a suspicious character, which might, however, have been made accidentally in the course of manufacture. Nearly all thirty-one came from



THE THREE-LEGGED BRAZIER, A PARTICULARLY IMPORTANT STYLE OF POT FOUND AT MACHU PICCHU. 2/3 NATURAL SIZE

the Snake Rock region and the Upper City.

Nineteen *triangular,* or roughly triangular, unpierced, problematical stones were found, generally in places where the other types of record stones were discovered. None was found in any of the burial caves.

RECORDS ANTEDATING THE INCAS

These "record stones" probably belong to an earlier culture than that of the Inca. In the first place, they have been hitherto almost unknown in collections of Peruvian antiquities, although this may be due to their apparent unimportance. In the second place, they do not occur at Machu Picchu in connection with the burial caves containing Inca or Cuzco style pottery, and not more than half a dozen appear to have found their way into any of the caves containing skeletal material. In the third place, they were not found in excavations in the houses of undoubtedly Inca construction; and, finally, they do occur in greatest profusion in the excavations in the vicinity of the Snake Rock and the Sacred Plaza. The Snake Rock region is very likely an ancient pre-Inca cemetery.

Five obsidian flake knives were found, varying in size. All were found within a fairly short radius of the Snake Rock, two being near the Sacred Plaza, one at the head of the Main Stairway, and one at the entrance of the Upper City. None was found in any of the burial caves, in

the excavations in the Eastern City, nor in the Lower City.

In an excavation near the Main City Gate of the Upper City 29 obsidian pebbles, slightly larger than ordinary marbles, were found. These chunks vary in size from 2.2 cm. x 1.7 cm. x 1.5 cm. to 0.9 cm. x 1 cm. x 0.9 cm., and in weight from 6 G. to 1 G. One more was found in an excavation a few feet away, but not one was found anywhere else. Most of them might be described as sub-angular in character and somewhat faceted in shape.

Professor Pirsson, of the Sheffield Scientific School, who examined them, tells me that similar pebbles are found scattered all over the world. Specimens have been picked up in Austria-Hungary, Moravia, Honduras, and Arizona. The finding of these rounded chunks of volcanic glass where there is no volcanic action has led to the suggestion that they might be extra-terrestrial, possibly a "meteoric shower." From their location, near the city gate at Machu Picchu, they were probably used as record stones.

Finally, we must continue the search for "record stones" in Inca ruins. They may not be found. On the other hand, they may have been overlooked by former collectors. They certainly would have been overlooked by treasure hunters.

MUCH IMPORTANT MAPPING WAS DONE IN 1914

One of the greatest handicaps in the way of scientific work in all of this region is the lack of accurate and adequate maps.*

Accordingly it was felt that the best way to prepare for the scientific work of the Expedition of 1915 would be to send out two or three topographic parties in 1914, who could utilize the information gathered in 1911 and 1912 to prepare better maps than anything we have had.

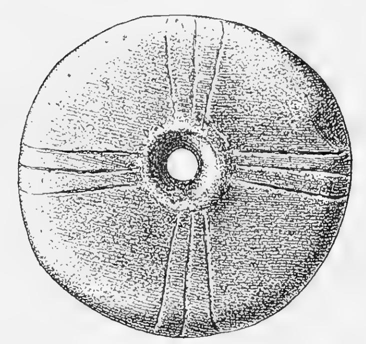
With the consent and approval of the Peruvian government, we began our field work in 1914 by making a geographical reconnaissance of that portion of southern Peru which includes the Cordillera Vilcabamba and other portions of the watershed of the Apurimac and Urubamba rivers within a radius of 100 miles of Cuzco. Much of the country is on the edge of the great Andean plateau.

The Cordillera Vilcabamba is a chain of magnificent mountains, rising from 15,000 to 20,540 feet above sea-level, and reaching their highest point at the beautiful peak known as Salcantay. The tops of many peaks are 12,000 feet above the floor of the canyons at their base. Since their bases are situated between latitudes 12 and 14 S., they are clothed with tropical jungles, while the peaks, on account of their great height, are mantled with snow and glaciers, and form one of the largest undescribed glaciated regions in the world. The first description of a scramble through the heart of this great glaciated country was given by the writer in the April, 1913, number of the NATIONAL GEOGRAPHIC MAGAZINE.

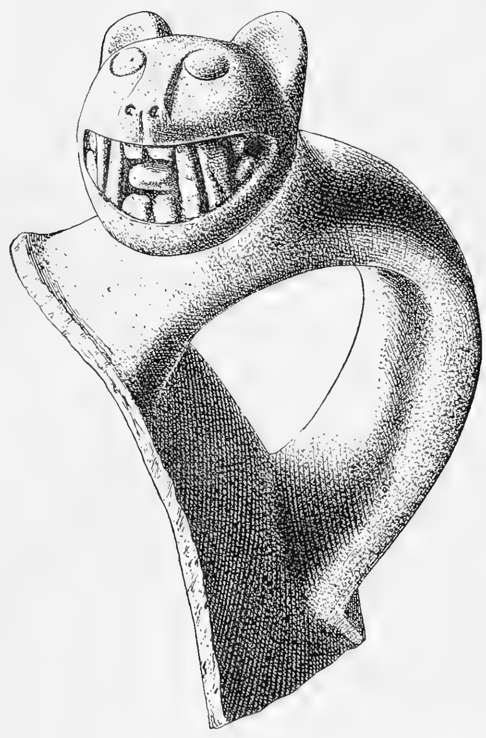
TYPICAL HAMMER-STONE, SHOWING THE WAY IN WHICH THE BUILDERS OF MACHU PICCHU FINISHED THEIR WONDERFUL BUILDING STONE

Hundreds of hammer-stones were found, indicating the great importance and frequent use of this ancient implement, which enabled the old stone-masons to accomplish almost impossible feats. ½ natural size.

* One of the most interesting results of the topographical work of the 1912 Expedition was the discovery that the course of the great river Apurimac is quite incorrectly laid down on the Peruvian maps. At Pasaje it is 20 miles farther away from the Urubamba than the government maps show it to be. As a result interesting possibilities for discovery and exploration have been opened up in a region some 600 square miles in extent, an area which did not heretofore exist on any map.



CLAY SPINDLE WHORLS USED BY THE WOMEN OF MACHU PICCHU IN SPINNING WOOL



THE HANDLE OF A JUG DECORATED WITH A JAGUAR'S HEAD

This is partially hollow, so that a string may be passed in the teeth in such a manner as to support the jug.

Thanks to the courtesy of the government of Peru, arrangements were made with the government's wireless station in Lima to have time-signals sent out, so that more exact data than any hitherto available could be obtained in determining the longitude of the area to be mapped. For this purpose two sets of wireless receiving apparatus were provided, one of which was installed at the Harvard Observatory in Arequipa, where, through the courtesy of Prof. E. C. Pickering, the time-signals were also received and recorded.

In order to get the receiving wire high enough in the air to overcome the distance over which the wireless time-signals must travel, it was proposed to use a number of box-kites arranged tandem, but experience proved that it was not necessary to do more than raise the receiving wire a few feet above the ground.

Our Chief Topographer, Mr. Bumstead, was with the topographical branch of the United States Geological Survey for a number of years, and had the advantage of our 1912 field season in one of the most difficult parts of Peru. As he was familiar with wireless telegraphy, the determination of the longitudes of the region mapped has been done with great accuracy.

With Mt. Salcantay as a center, we have now succeeded in mapping the surrounding territory as far as it is practicable to do so. The character of the map and its extent have depended largely on the weather and, to a certain extent, on the ability of the topographers to do difficult mountain climbing.

RACING WITH THE CLOUDS

In his report on the results of this season's work Mr. Bumstead says that 52 per cent of daylight, during the "dry season," weather conditions were so bad as to make topographic work impossible. He continues:

"While in the country around Salcantay, and particularly on the westerly side, cloudiness and rain were almost continuous throughout the season, the fog extending down nearly to the bottoms of the valleys. It was in this region that my most important work was centered, and I spent much time there making a desperate effort to get work done. Many peaks were climbed in the dark in order that I might be ready to work at sunrise, for I found that that was the time when I was most likely to be able to see. The clouds would frequently clear away in the night and begin to gather again at

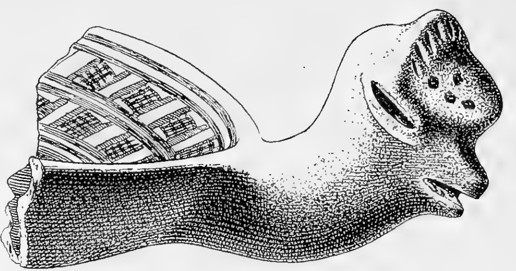
sunrise or very soon after. On one important peak, at an elevation of 15,157 feet, that was too difficult to climb in the dark, I remained out over night; but the discomfort and risk was so great that I decided not to do it again.

"My usual program of work in this region was to get started from camp early enough to go as far as was safe in the dark, and the rest of the way to my point in the morning twilight, which in these low latitudes is very short. Then there would be a desperate uphill race between the clouds and me, and the clouds usually won the race! I want to say that this racing uphill at altitudes around 14,000 to 16,000 feet, frequently carrying instruments, with the almost certain knowledge that the clouds would get there first, and the knowledge that if they did another valuable day would be lost, is an experience that, if oft repeated, will have a decidedly dampening effect on one's ardor for topographic surveying. When I was so fortunate as to win the race and see that I would have a few minutes, or perhaps an hour, to work, I would get my location and elevation by regular plane-table methods and get lines and vertical angles to the most important points.

"Then I would take a series of photographs around the horizon, with the camera set on the leveled plane-table. In my photographic record I noted the direction of camera by measuring angle, with a protractor between it and a true meridian drawn on the plane-table sheet. From these photographs I hope to be able to fill in much of the detail that it was impossible to sketch in the limited time before everything was obscured by fog. When weather permitted, I went ahead with detail sketching by ordinary methods."

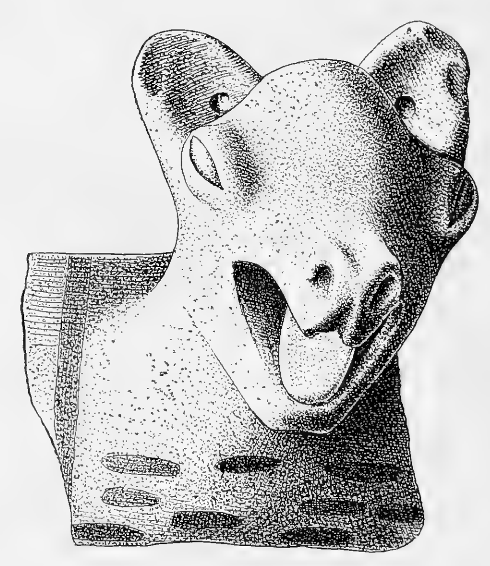
A second topographic party, under the leadership of Mr. E. L. Anderson, covered during the field season of 1914 a large unexplored area between Mt. Salcantay and the Huarocondo Valley. In this region was found the interesting fortress of Huata and a considerable number of other ruins that have not hitherto been reported, and which ought to be carefully studied some time in the future. Mr. Anderson's party covered altogether about 400 square miles, of which 120 were southwest of Cuzco, near Paccaritampu, which has long been [erroneously?] supposed to be the site of Tamputocco, the windowed tavern from which the Incas came to Cuzco.

During the season of 1914 several interesting archeological finds were made, including some small wooden and bronze artifacts at the edge of a glacier, 16,000 feet above sea-level, which would seem to indicate that some Inca had been buried or lost on the ice.



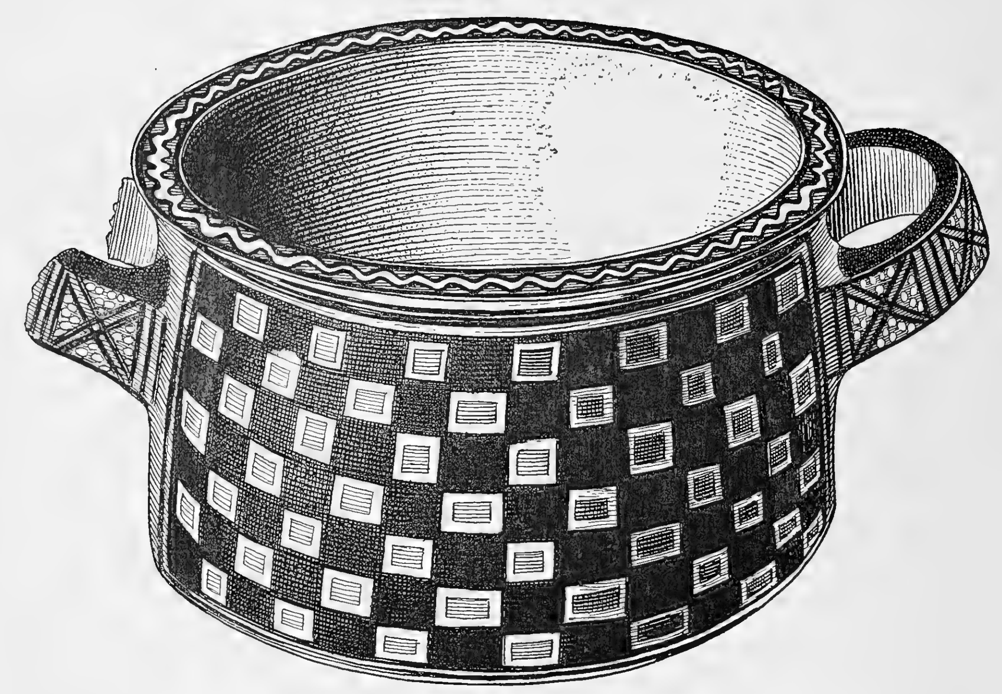
THE DESIGN ON ANOTHER HANDLE OF THESE LADLES

Which intimates that the ancient Incas had a sense of humor and a lively imagination in art.



THE MOST CHARMING AND LIFELIKE REPRESENTATION OF AN ANIMAL'S HEAD FOUND AT MACHU PICCHU

It appears to be one handle of a deep two-handled dish and seems to represent a baby llama. The modeling and the spirit in which it is worked out are most delightful.



TWO-HANDLED DISH USED BY THE INCAS FOR SERVING THEIR FOOD

They were painted in three colors, with geometric patterns, the same on each side. The dish was evidently intended to be set down between two persons, since it is equally attractive on either side. ¾ natural size.

THE 1915 EXPEDITION

It would be foolish to attempt to predict how much will be accomplished by the expedition in 1915; but as a portion of the area to be covered has only just been mapped, and several hundred square miles lie in virtually unexplored territory, it is hoped that the results will prove geographically interesting and scientifically valuable.

The personnel of the Expedition is as follows:* *Director,* Hiram Bingham.

Geologist, Herbert E. Gregory, Ph. D., Silliman Professor of Geology in Yale University, Geologist of the Society's 1912 Expedition.

Naturalist, Edmund Heller, Naturalist of the Smithsonian African Expedition, under the leadership of Col. Theodore Roosevelt.

Botanist, O. F. Cook, Ph. D., of the U. S. Department of Agriculture.

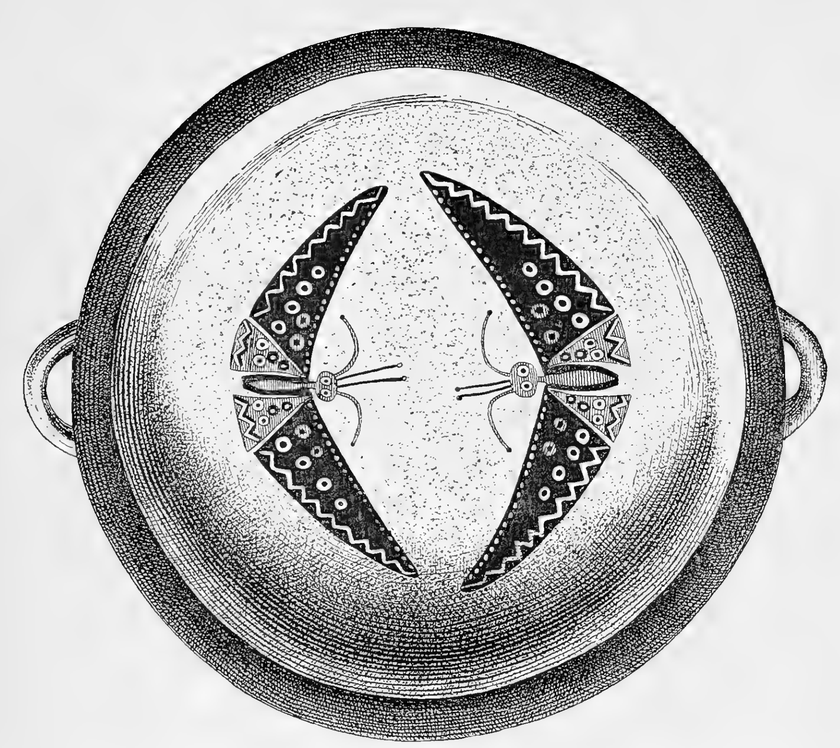
Surgeon and Physical Anthropologist, D. E. Ford, M. D.; *Topographical Engineer,* Albert H. Bumstead, of the 1912-1914 Expeditions; *Topographer,* Edwin L. Anderson; *Chief Engineer,* Ellwood C. Erdis, of the 1912-1914 Expeditions; *Engineer,* J. J. Hasbrouck, Ph. B.; *Chief Assistant and Interpreter,* Osgood Hardy, M. A., of the 1912-1914 Expeditions; *Assistant Topographer,* Clarence F. Maynard, C. E.; *Assistant Botanist,* G. B. Gilbert, of the U. S. Department of Agriculture.

*All the members of the expedition (excepting Professor Gregory) sailed from New York March 3, 1915, on S. S. *Zacapa* bound for Peru.

THE MOST ATTRACTIVE FIELD FOR EXPLORATION IN THE WORLD

There is no part of the world which offers to the scientific explorer a more attractive field than the highlands of Peru and Bolivia.

In the first place, this region contains the vestiges of the most ancient and most advanced culture in South America. These remains consist in part of the ruins of roads and aqueducts; walls and terraces, fortresses, towns and cities. Besides the works of the ancient engineers



A SMALL TWO-HANDLED SAUCER WITH A MOST CHARMING DESIGN IN THREE COLORS REPRESENTING SOMEWHAT DIAGRAMMATICALLY A PAIR OF BUTTERFLIES

Two of these dishes were found in one cave at Machu Picchu along with a skeleton of a tall woman, possibly the high priestess. The other articles in the cave were also of superior quality. This pair of saucers is one of the best examples of the highest stage of the development of Inca pattern. ¾ natural size.

and architects, there are the fragmentary remains of the ancient metallurgists, potters, and weavers. Here and there in old burial caves may be found specimens of bronze and silver ornaments, tools, and utensils. Originally there was considerable gold to be found; but four centuries of treasure-seekers have left so little in the way of precious metals for the modern explorer that he must have other objects in view or he will be sadly disappointed.

The larger part of the population of this lofty American Tibet today is composed of non-Spanish-speaking Indians. Their commonest language is Kechua or Quichua, which was taught to their ancestors and probably forced upon them by the Incas, who flourished between 1100 A. D. and 1572 A. D. In many villages there has been so slight an element of European influence that manners and customs of very ancient origin may still be observed and studied.

Our knowledge of the distribution of the ancient peoples who preceded the Incas and of the gradual formation of the Inca Empire is based largely on the writings of the Spanish conquerors and their friends. These writings are full of exaggerations and misstatements, so that our information in regard to the Incas and the other ancient tribes of the Andes is very uncertain.

The historical geography of the Andes of Peru and Bolivia offers a series of problems of intense interest. These include the origin of the ancient cities, such as Tiahuanaco, Cuzco, and Machu Picchu; the relation of the different types of architecture, including the monolithic, the adobe, and the rubble; the question of the migration of races, the spread of the ancient civilization, and the sequence of cultures, besides a thousand and one queries as to the manners and customs, government, religion, and philosophy of those illiterate but very skillful engineers

A LADLE OR DISH WITH ONE HANDLE, USED BY THE INCAS AS A SOUP PLATE

It is painted in three colors, inside the dish and on the handle, in a very attractive pattern, reminding one of the decoration used on Greek pottery. The two incised nubbins opposite the handle are evidently an echo of the time when the dishes had two handles. One handle got broken off, and it was discovered that the dish was even more convenient than when it had two handles. In hundreds of examples of this type of dish in the Machu Picchu collections and in the great museums containing collections of Peruvian pottery we have found a very few cases in which these nubbins were not incised, but cases in which the incision goes all the way through and becomes a perforation. The dish may very conveniently be held in the hand, the thumbs going through the loop of the handle. ½ natural size.

and soldiers, the Incas, and their predecessors, the "Megalithic Folk."

When one considers the many attractive features of this ancient civilization—the picturesque location of the towns, the beautiful stonework, the symmetry of the buildings, the difficult engineering feats that are frequently in evidence, the attractive designs on pottery and textiles, the skillful metallurgy, and above all the stories of remarkable governmental organization made familiar by the fascinating volumes of Prescott—our zest for exploration and discovery in this region may readily be understood.

UNDESCRIBED ANIMALS

There is the appeal of geology and physiography. It is believed that southern Peru contains the key to the structural growth, erosion epochs, and stratigraphic history of the Andes, and to climatic fluctuations of great range. The reported presence of irrigation ditches at high elevations suggests interesting studies relating to the shifting of population due to climatic and other changes.

Furthermore, this area is so little known to geologists and paleontologists that the chance of making interesting and important discoveries is considerable. Many unexplored and even unlocated extinct lakes of Pliocene and Pleistocene times probably exist on this plateau, which, like the Ayusbamba, visited in 1912 (see the NATIONAL GEOGRAPHIC MAGAZINE, April, 1913, page 501), may be expected to yield vertebrate fossils.

From the point of view of zoology, remarkably little is known of the animal life of this region, considering the length of time that it has been opened. In the great museum collections there are very few specimens of the fauna of the Andes of Peru and Bolivia. It is believed that there are many new species of mammals yet to be described. The Andean bear, the so-called "spectacled" bear, which is so very shy, and of which no specimens have been brought home from southern Peru, is fairly common in this region.

On the botanical side the region is particularly interesting as being the original home, it is believed, of some varieties of our more common articles of food, such as the potato and Indian corn. Furthermore, we find here several edible roots and vegetables that are unknown in the United States, and which may be worth transplanting.

AN ARYBALLUS, OR LARGE TWO-HANDLED WATER JAR, OF THE SHAPE MOST CHARACTERISTIC OF INCA CIVILIZATION: MACHU PICCHU

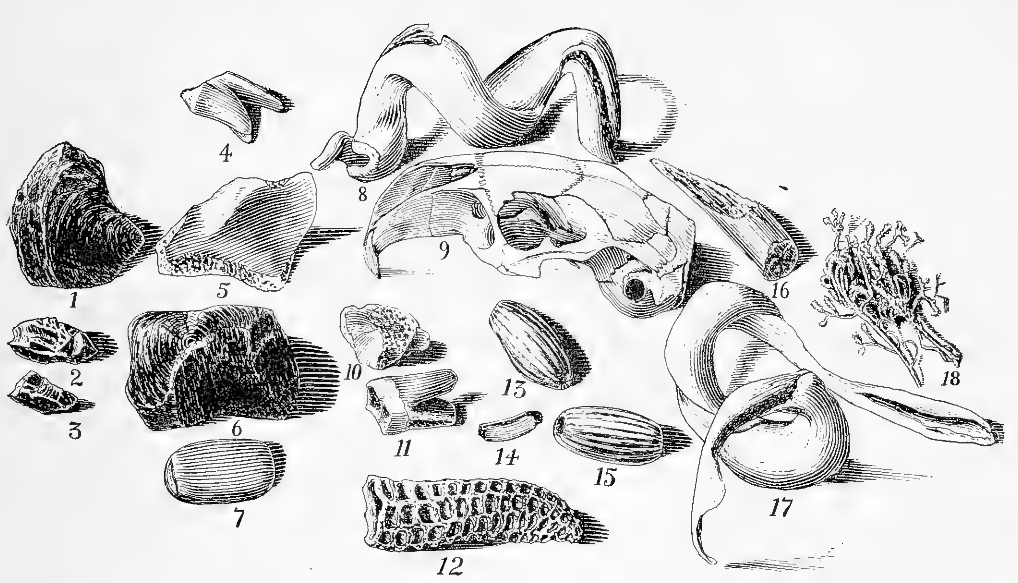
The decoration is a remarkably complex one, worked out in three colors, with an intricate system of scrolls and geometric patterns. In carrying these jars on the back and shoulders, according to the customary method, a rope was used to secure them. This rope, passing over the shoulders and through the handles, was fastened to a projecting nubbin, usually made in the form of a grotesque animal's head, on the shoulder of the jar near the neck. There is almost nothing in the decoration on the side of the jar opposite to this nubbin. When the jar was carried on the shoulders, that side, of course, was practically invisible; so there was no object in decorating any but the outer surface. ¼ natural size.

A TYPICAL INCA JUG, DECORATED WITH A HUMAN FACE, PARTLY IN RELIEF AND PARTLY PAINTED

The front shoulders of the jug are decorated with a necklace pattern consisting of small bronze or silver disks suspended from a single string. This necklace pattern was worked out by the Incas in various ways. ¾ natural size.

A SORCERER'S JAR, FORMERLY A ONE-HANDLED JUG FROM WHICH THE HANDLE HAD BEEN REMOVED AND THE NUBBINS RUBBED DOWN

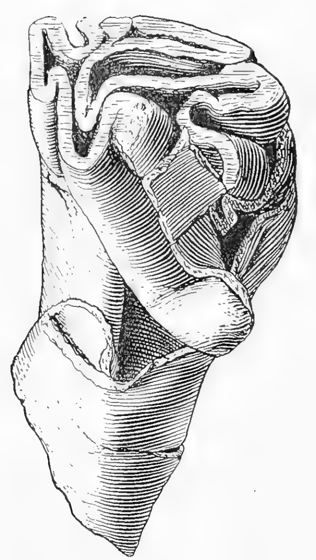
This jug was found in a cave above the city and contained an extraordinary variety of articles, as shown on the following page. From their complexity and their resemblance to some of the great remedies still sold in the plaza of Cuzco and used by the Indians, we believe that this jug belonged to a sorcerer, or medicine man.



THE CONTENTS OF THE MEDICINE MAN'S JAR SHOWN ON THE PRECEDING PAGE

(1) a piece of charcoal; (2 and 3) pieces of a bright, shiny mineral rock; (4) a tooth; (5) a piece of charred bone; (6) charcoal; (7) a seed; (8) a dried seed pod; (9) a skull of a small mammal, possibly a guinea-pig; (10) a piece of bone; (11) a tooth; (12) a small corn-cob, less than two inches in length; (13 and 15) another kind of seed; (14) a small tooth which probably fell out of the skull; (16) a small piece of wood; (17) a seed pod; (18) dried moss.

THERE IS NO PART OF THE WORLD WHICH OFFERS TO THE SCIENTIFIC EXPLORER A MORE ATTRACTIVE FIELD THAN THE HIGHLANDS OF PERU AND BOLIVIA
(SEE PAGE 210)



PERHAPS THE MOST IMPORTANT FIND AT MACHU PICCHU

It has been generally supposed that the ancient peoples of Peru did not know how to manufacture bronze, but that all their bronze was accidental. This picture shows a piece of pure tin, which had apparently been rolled up by the Incas or their predecessors like a sandwich. From it, it is supposed, slices were cut when the artisan to whom it belonged needed tin in the making of bronze. It is a strong indication that the inhabitants of Machu Picchu knew how to make bronze. Most of the bronze utensils found in the city (see pages 171-184) contained from 5 to 9 per cent of tin and about 90 per cent of copper.

A WONDERFUL COUNTRY IN WHICH TO WORK

Finally, from the artistic and esthetic point of view, the magnificent scenery of southern Peru makes a very powerful appeal. The depth of the canyons, the height of the unclimbed mountain peaks, the numberless glaciers, the wide range of tropical jungles on the eastern slopes of the Andes, the magnificent roaring rapids of the Apurimac and the Urubamba, which go to feed the mighty Amazon, and the many vivid colors of the tropics—all add to the delight and enthusiasm of the explorer whose good fortune it is to work in this region.

They help him to forget the fevers and insect pests of the lowlands; the vampire bats of the middle valleys; the bitter cold of the nights in the uplands; the disagreeable features of mountain sickness; the physical discomforts of working at great elevations, and the lonesomeness of long separations from home and kindred.

Taking everything into consideration, I consider myself most fortunate in being enabled, through the interest and generosity of the National Geographic Society and of friends of Yale University, to conduct another expedition in this fascinating region.

Photo by Albert H. Bumstead

THE FIRST WIRELESS STATION OF THE NATIONAL GEOGRAPHIC SOCIETY—YALE UNIVERSITY EXPEDITION, ELEVATION ABOUT 13,000 FEET ABOVE THE SEA (P. 208)

MT. SALCANTAY, SHOWING THE CLOUDS WITH WHICH THE MAP-MAKERS HAD TO RACE EVERY DAY (SEE PAGE 208)

Photos by Albert H. Bumstead

ONE OF THE CAMPS OF THE NATIONAL GEOGRAPHIC SOCIETY–YALE UNIVERSITY EXPEDITION: SALCANTAY REGION, PERU

THE NATIONAL GEOGRAPHIC SOCIETY

AT A meeting of the Board of Managers, January 20, which was attended by every member of the Board in Washington, Mr. O. H. Tittmann, Superintendent of the U. S. Coast and Geodetic Survey, who for the past five years has been the Vice-President of the Society and was one of its founders, was unanimously elected President to succeed the late Henry Gannett, and Rear Admiral John E. Pillsbury, United States Navy, retired, was unanimously elected Vice-President. The other officers of the Society were re-elected.

President Tittmann was born at Belleville, Illinois, August 20, 1850. At the age of 17 he entered the United States Coast and Geodetic Survey and has worked his way up to the superintendency of that world-famous scientific bureau. During his career many notable experiences have been his lot. In 1874 he went to Japan as assistant astronomer of an expedition to observe the transit of Venus. In the years immediately following he was engaged in coast-survey work on both the Atlantic and Pacific coasts.

From 1889 to 1893 Mr. Tittmann was in charge of the United State standards of weight and measure. In 1890 he went to Paris to bring to the United States the standard meter which is now so carefully kept at the Bureau of Standards and which has become the basis of all our exact measures. At the same time he studied the systems of standards at Paris, London, and Berlin. He was a delegate to the International Geodetic Conference in Berlin in 1895, and became a member of the Permanent Commission of the International Geodetic Association in 1900.

In 1895 he became assistant in charge of the United States Coast and Geodetic Survey Office, and in 1899 Assistant Superintendent. His appointment as Superintendent of the Survey dates from December, 1900.

Mr. Tittmann was appointed to represent the United States in marking the boundary between Alaska and Canada, and in 1904 was appointed United States Commissioner of the Alaskan boundary and northern boundaries excepting the Great Lakes.

Rear Admiral John E. Pillsbury was born at Lowell, Massachusetts, December 15, 1845, and graduated from the United States Naval Academy in 1867, becoming an ensign in 1868 and a captain in 1902. For ten years he was engaged in coast-survey service, commanding the Coast Survey steamer *Blake,* during which time he made a very complete investigation of the phenomena of the Gulf Stream. He anchored the *Blake* in that ocean current and kept it there for a period of two years, observing the current at various depths below the surface by means of an instrument of his own invention. He established the position of the axis of the stream off Cape Hatteras and in the Straits of Florida and determined many of the laws by which its flow is governed. (See "The Grandest and Most Mighty Terrestrial Phenomenon," by John E. Pillsbury, in the NATIONAL GEOGRAPHIC MAGAZINE, August, 1912.) He commanded the dynamite cruiser *Vesuvius* off Santiago during the Spanish-American War. In 1905 he was chief of staff of the North Atlantic fleet, and chief of the Bureau of Navigation in 1908-1909.

IMPORTANT NOTICE

Members of the Society are urged to remember the following facts:

All remittances covering annual dues, purchase of books, panoramas, maps, bound volumes, etc., should be made direct to the National Geographic Society, Washington, D. C.

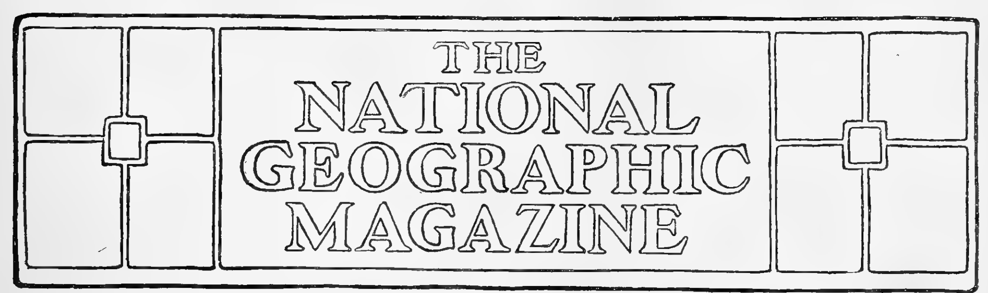
Remittances should be made by New York draft, postal, or express money order. Cash should not be sent unless the letter is registered.

Inasmuch as the Post-Office Department does not reforward second-class mail, the GEOGRAPHIC MAGAZINE will not follow you unless you notify us of your change of address, giving the old address at the same time. It takes three weeks in order to make a change of address effective, because of the necessity of addressing 400,000 magazine wrappers in advance.

In sending in nominations please use the blank form always to be found in the back part of the magazine, or write for booklet of application forms, which will be furnished upon request.

THE ULTIMATE WASHINGTON

ne national capital of the future is being surely, if very slowly realized. That plan is here pictured. The magnif
reunion of the North and the South, is under construction at the river end of the great parkway, which stretch
White Lot are the Pan-American Union Building, the Continental Hall of the D. A. R., and the American Red
nds the new Bureau of Engraving and Printing Building, also a part of the plan of 1901. The Department of
the beautiful office buildings of the Senate and House of Representatives, and north of the Capitol are the Uni
THE MALL, facing page 235. The home of the National Geographic Society is indicated by the arrow in the cen



WASHINGTON: ITS BEGINNING, ITS GROWTH, AND ITS FUTURE

By William Howard Taft
Formerly President of the United States

With Illustrations in Color from the Commission of Fine Arts

I HAVE been deeply interested in the development of Washington ever since as Solicitor General I looked out of the windows of the clerk's office of the Supreme Court, at the Capitol, and stood awestruck by the beauty of that sweep from the Capitol down to the Monument, thence to the shining bosom of the Potomac beyond, and across to the Arlington hills.

That is now a quarter of a century ago, and my love for Washington and my intense interest in securing from Congress the needed legislation and appropriations to bring out its incomparable beauties have never abated. That first view was along the axis of the Mall, which was a main feature in the plan of L'Enfant, and was the cherished core of that grand development of Washington recommended by the Park Commission in its report to the Senate Committee of the District of Columbia in 1901.

When I left Washington on the 4th of March, 1913, the last view that my eye lovingly rested upon was that other axis at right angles with the first, from the south windows of the White House across the White House grounds and the White Lot to the Monument, thence to the Potomac Park and the majestic river, with the far hills of Anacostia to the left and a distant suggestion of Alexandria on the right.

A SITE OF GREAT BEAUTY

Mr. James Bryce, in his article on Washington,* comments on the foresight of George Washington, who almost alone among his contemporaries seemed to look forward to the enormous growth of this country and saw the necessity for a grand Federal capital suitable for a great nation, and this, though he died before the acquisition of Louisiana. Washington was a surveyor and loved the country and the life of a squire. His selection of the site of Washington is evidence of his eye for natural beauty.

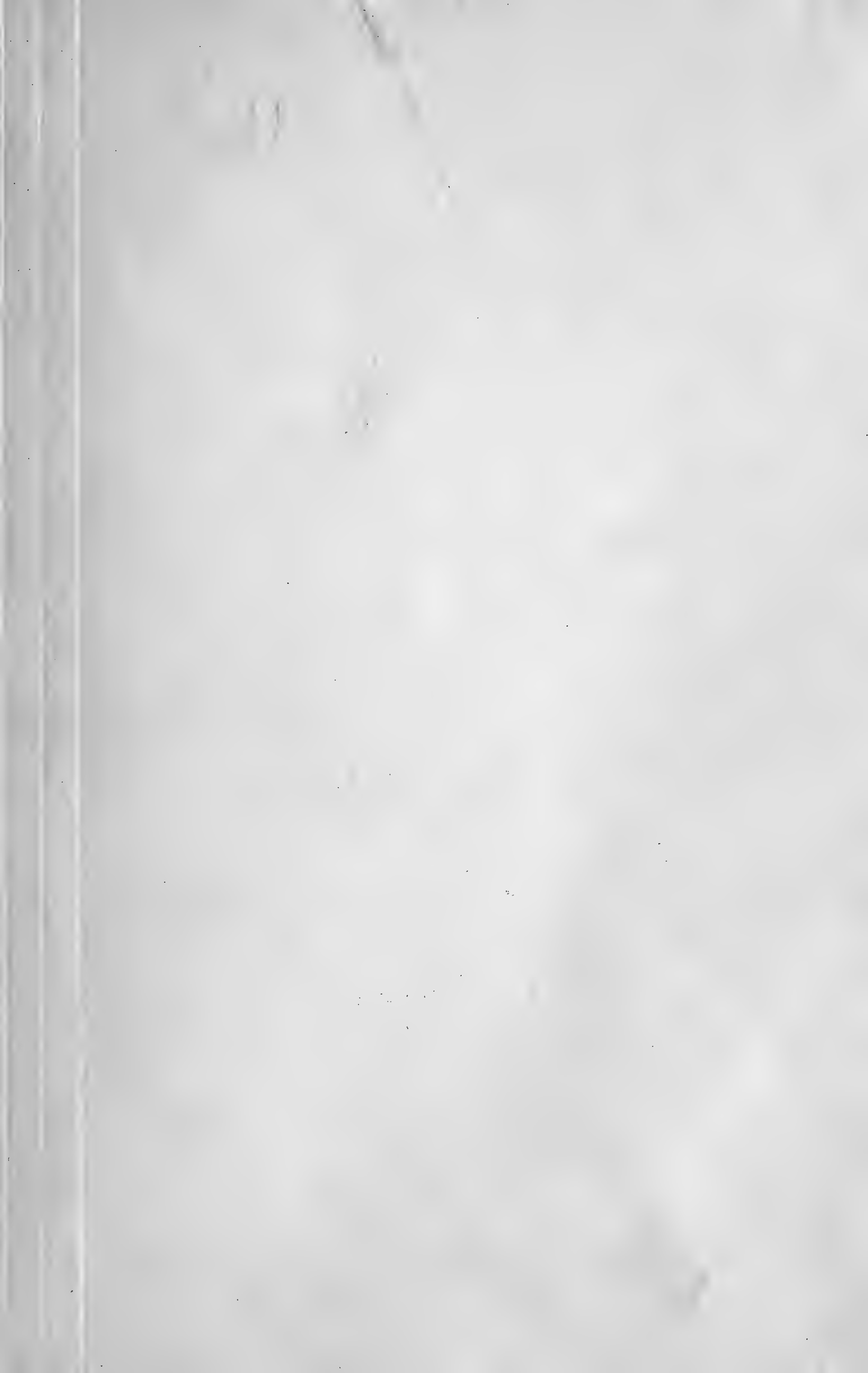
If General Washington, at a time when his country was a little, hemmed-in nation, boasting but a single seaboard, with a population of only five million, and with a credit so bad that lot sales, lotteries, and borrowing upon the personal security of individuals had to be resorted to in order to finance the new capital, could look to the future and understand that it was his duty to build for the centuries to come and for a great nation, how much more should we do so now?

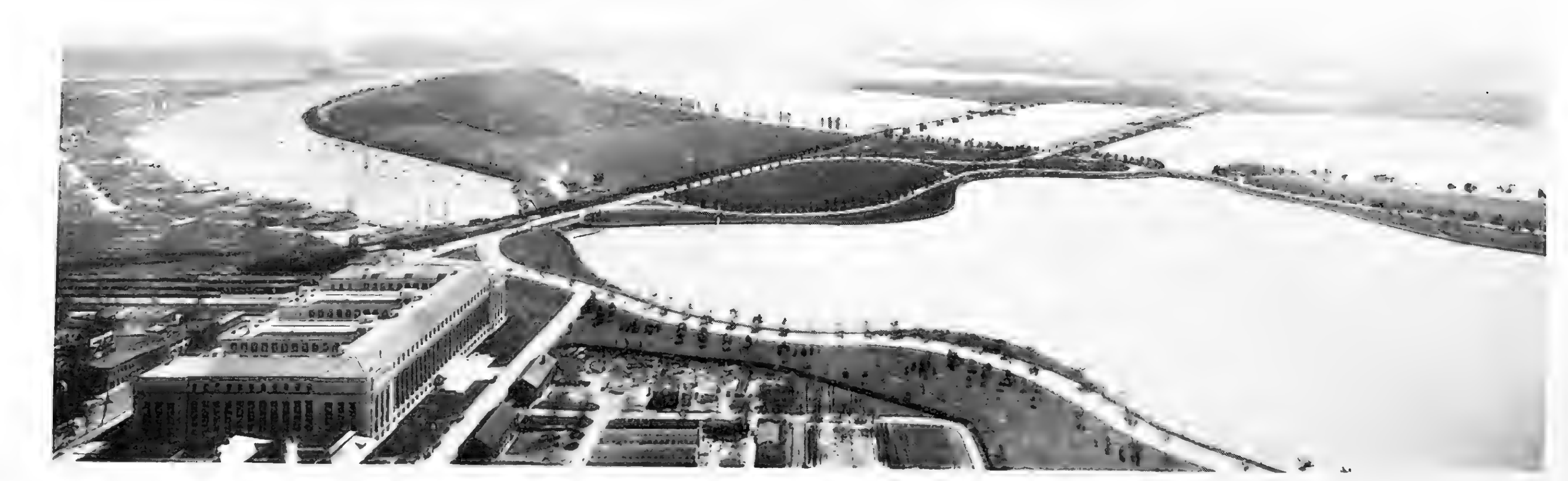
* In the National Geographic Magazine, June, 1913.

SUPPLEMENT TO NATIONAL GEOGRAPHIC MAGAZINE, WASHINGTON, D. C.
GILBERT H. GROSVENOR, EDITOR

THE ULTIMATE WASHINGTON

The plan laid out by the Commission of 1901 for the national capital of the future is being surely, if very slowly realized. That plan is here pictured. The magnifice
with Arlington by a great memorial bridge typifying the reunion of the North and the South, [illegible]
of Congress to the Potomac River. To the west of the White Lot are the Pan-American Union Building, the Continental Hall of the D. A. R., and the American Red Cr
Between the Washington Monument and the Harbor stands the new Bureau of Engraving and Printing Building, also a part of the plan of 1901. The Department of Ag
as it is to be. Flanking the Capitol on either side are the beautiful office buildings of the Senate and House of Representatives, and north of the Capitol are the Union
in the attainment of the Ideal Washington. See map of THE MALL, facing page 245. The home of the National Geographic Society is indicated by the arrow in the centre





A VIEW OF THE POTOMAC RIVER FROM THE WASHINGTON MONUMENT, SHOWING EAST POTOMAC PARK (SEE MAP, PAGE 245)

Above Washington the Potomac River is chiefly featured by a succession of rapids and falls (see page 238), but at Washington it broadens out into the smooth, lake-like waterway shown in this picture. In the background is seen the main channel of the river, and to the left the Washington harbor. Potomac Park has miles and miles of splendid roadway, which is soon to be connected with Rock Creek Park, making a pleasure thoroughfare unexcelled in beauty and unequaled in length in any capital of the world. During her residence in the White House Mrs. Taft took a deep interest in the development of Potomac Park and set out there the thousands of flowering cherry trees presented to her by Japan. When these reach maturity not even Tokyo will have a more beautiful cherry-blossom drive than Washington. The large building in the left foreground is the Bureau of Engraving and Printing (see page 253).

Photo by Albert G. Robinson

SUMMER ARCADES IN WASHINGTON

Many of the streets and avenues in the National City are transformed into sheltered, green-walled arcades in summer by the magnificent forest growths which border them. One may read a lesson in Gothic architecture as he walks, for he finds himself in the midst of a far-drawn-out Gothic archway whose parts are giant trees and whose whole represents the archetype of the bright conceptions of the Gothic builders.

In those days there were men a-plenty in Congress and out who bitterly opposed provisions for the future of the Capital City. To them the old doctrine of letting each generation provide for its own needs outweighed every other consideration; but a grateful nation rejoices today that the wisdom of the Father of his Country prevailed, and that the National Capital was built for us as well as for the people of his generation.

THE FUTURE AMERICA

If we are grateful that Washington made provision for the century ahead of him, how much the more should we be careful to provide for the century ahead of us!

Consider what that future may be. Our whole history shows that we grow from decade to decade in increasing volume. From 1870 to 1880 our population increased about 12 millions; from 1880 to 1890 it increased 13 millions; from 1890 to 1900 it increased 14 millions, and from 1900 to 1910 its increase exceeded 16 millions. But suppose from this time henceforward for the next hundred years it never exceeds 16 millions a decade, we shall have 260 million Americans whose seat of government will be at Washington.

Washington picked a site for the thousands of years which we hope will be the measure of our national destiny. The capital of no other nation approaches it in the beauty of its situation, and nowhere else does nature so admirably lend itself to the embellishing touch of art.

The controversy over the location of the National Capital, which finally ended in the selection of "the original ten miles

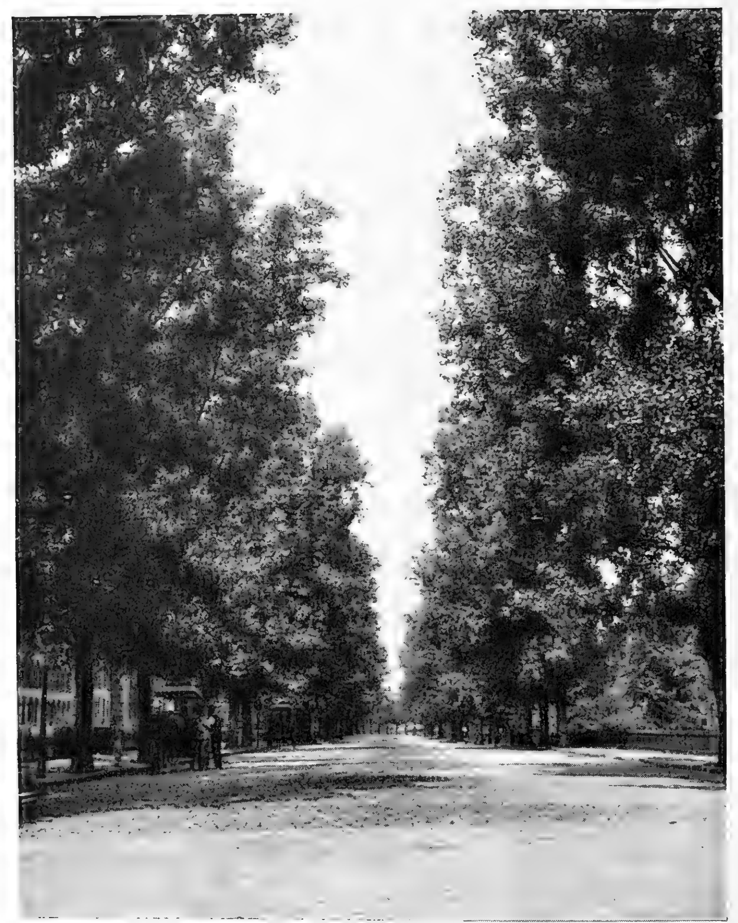


Photo by Albert G. Robinson

WASHINGTON A CITY OF VISTAS

That pressure of brick and plaster which is common to most "big cities" is not felt in Washington. Free in its numerous vistas, light and airy in its spacing, unique in the number of its trees, Washington rests lightly upon its people. In many of the world's larger cities a necessity for "letting in the country upon the city" is being felt. Such a necessity does not exist in the National Capital, which has been built around the "country," leaving many delightful strips within, where a mighty forest is growing in the midst of metropolitan life.

square" of the District of Columbia, was bitter and long drawn out, lasting over seven years and, in the words of one historian of the period, "insinuating itself in all great national questions."

CHOOSING THE SEAT OF GOVERNMENT*

About the first the world heard of the question was in the fall of 1779, when some of the members of the Continental Congress discussed the advisability of setting up a capital at Princeton, New Jersey. Four years later Kingston, New York, sent a memorial to the New York Legislature praying that it authorize the erection of its "estate" into a separate district "for the Honorable the Congress of the United States." The Legislature two months later granted the Kingston memorial.

Two months later Annapolis submitted its bid for capital honors, stating that it was more centrally located than any other city or town in the Federal States. Maryland backed up her capital city with

* See W. B. Bryan's fascinating "History of the National Capital," Vol. I, 1790-1814. Macmillan Co.

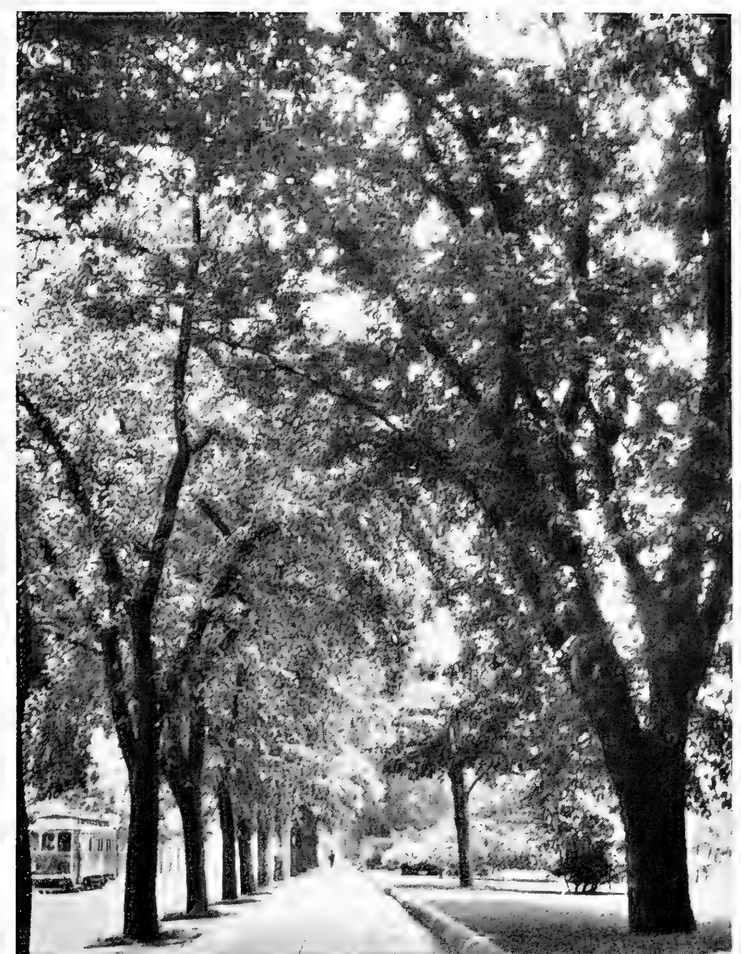


Photo by Albert G. Robinson

IN A CITY OF TREES

Washington, youngest among the world's greatest capitals, has more shade trees than Paris, one of the oldest. All of the world's beautiful trees able to live in a temperate climate have been brought here to give beauty and charm to the streets and gardens and parks of the National Capital.

an offer to turn over the State buildings to the Federal government and an additional proposition to spend $150,000 for the erection of 13 residences for the members of Congress from the 13 States.

On June 19 New Jersey submitted her bid, which was of a territory of 10 square miles in area and a gift of $150,000. Nottingham township, at the head of navigation on the Delaware River, was the site proposed.

Nine days later Virginia tendered the town of Williamsburg as a site for the future capital, offering to turn over the governor's palace, the capitol, and 300 acres of land, together with a cash bonus of $500,000, to be used in building 13 hotels for the use of the delegates in Congress. Virginia submitted an alternative proposition for a Federal district on the Potomac. Finally Virginia and Maryland united in an offer of land on the Potomac, with a bonus of $200,000 if the capital should be located on the Maryland side of the river.

A FEDERAL DISTRICT PROVIDED FOR IN CONSTITUTION

A few days after the several bids for the capital site were presented, the mutiny

of Pennsylvania troops occurred in Philadelphia. The Congress appealed to the State government, but was told that the militia of Philadelphia would not be willing to take up arms before their resentment should be provoked by some actual outrage. Some 300 men, fully armed, surrounded Independence Hall and demanded their money, although they made no attack. The result was that three days later Congress left Philadelphia and went to Princeton.

That incident proved to Congress that the Federal government must have a home of its own, where it could have sole and undisputed jurisdiction and where it could defend itself.

The years that followed the removal of Congress from Philadelphia were years of inconvenience to that body and its members. The Congress met at Trenton, York, Lancaster, and Baltimore.

The Constitution provided for a Federal district, but did not fix the place. The first Congress under the new government took up the matter and at its second session fixed the site on the Potomac River. The solution was reached by "log-rolling."

TRADING WITH THE ASSUMPTIONISTS

The Northern States wished the Federal government to assume the obligations that the States had incurred during the war, and the Southern States to have the capital on southern soil. Alexander Hamilton and Thomas Jefferson, representing the conflicting interests, got together and agreed that the anti-assumptionists would vote for assumption, and in return that the assumptionists would support the bill to locate the capital on the Potomac.

As soon as the law fixed the capital site on the Potomac River, Washington himself took active charge of the work of its location. He early wrote that Philadelphia stood upon an area of six square miles in extent, and declared that if the metropolis of a single State needed such an area the nation certainly would need more. He urged upon L'Enfant the desirability of providing all the land that might be needed for future growth, so that the capital should be freed from those blotches that otherwise might result. The law left the site optional within a limit of 67 miles between Williamsport, Maryland, and what is now Anacostia. Washington went over the whole territory, and finally selected the present District of Columbia.

A GREAT CITY PLAN

Washington's appointment of L'Enfant, an educated French army engineer, to lay out the Capital City was a most lucky circumstance in our history. L'Enfant's plan in a way resembles the Federal Constitution. That great instrument of government has proven itself adaptable to a change of conditions that even the most clear-sighted man of affairs could not have anticipated. The simple comprehensiveness of its broad lines under the statesmanlike interpretation of Marshall has proved equal to the greatest emergencies and the most radical crises that could possibly confront a nation.

So Washington and L'Enfant and Jefferson in their planning for Washington have left a framework for its development that the ablest architects and artists now more than 100 years after the plan was drawn and its execution begun have confessed themselves unable to improve.

The plan has been departed from in two or more notable instances through the obstinacy of men in power who could not appreciate its admirable qualities. Instead, however, of manifesting regret at these we should be grateful that they are so few in number, and that we are still able to carry out the plan and to make what its complete execution will make of Washington—the most beautiful city in the world. The reason why this is possible is because it has never been a center for business or manufacture, because its raison d'être is only to provide a seat for government activities and a home for public servants who carry them on. It thus is singularly free in its opportunity to devote its energies to enhancing its own stateliness and acquiring a dignity appropriate to the heart of our national sovereignty.

JEFFERSON AND THE CAPITAL

The troubles that grew out of the temperament of Major L'Enfant and the ne-

Photo by Roscoe G. Searle

THE ELM PLANTED BY GEORGE WASHINGTON IN THE GROUNDS OF THE CAPITOL

Washington ranks about twentieth among the capitals of the earth in the number of its people, but first among them in the number of its shade trees. Easily the most famous and best beloved of all its more than a hundred thousand trees is the Washington elm, planted by the Father of his Country more than 115 years ago.

cessity for his dismissal in 1792 because of his differences with the Capital Commissioners I need not dwell upon. It is sufficient to say that L'Enfant's plan was carried out with excellent judgment by Ellicott, seconded by Washington. While the initiation and foresight of Washington were indispensable to the making of the plan, Jefferson, who entered heartily into the project, was most useful in its development. He showed his active sympathy by sending to Major L'Enfant on the 10th of April, 1791, the plans of Frankfort-on-the-Main, Carlsruhe, Amsterdam, Strasburg, Paris, Orleans, Bordeaux, Lyons, Montpelier, Marseilles, Turin, and Milan on a large and accurate scale, which he said had been procured by him while in those respective cities. Speaking of the plans to L'Enfant, he said:

"As they are connected with the notes I made in my travels and often are necessary to explain them to myself, I will beg your care of them and to return them when no longer useful to you, leaving you absolutely free to keep them as long as useful. I am happy that the President has left the planning of the town in such good hands and have no doubt it will be done to general satisfaction. Considering that the grounds to be reserved for the public or to be paid for by the acre, I think very liberal reservations should be made for them."

Again he wrote to L'Enfant:

"Having communicated to the President, before he went away, such general ideas on the subject of the town as occurred to me, I make no doubt that, in explaining himself to you on the subject, he has interwoven with his own ideas such of mine as he approved. For fear of repeating, therefore, what he did not approve, and having more confidence in the unbiased state of his mind than in my own, I avoid interfering with what he may have expressed to you."

A LOVER OF GOOD ARCHITECTURE

The detailed plans of Jefferson for the buildings of the University of Virginia, at Charlottesville, and the calculations of their cost still extant, show his skill and talent in architecture and his practical familiarity with methods and cost of construction. One cannot visit Monticello without realizing his love of natural beauty and his power as a landscape architect.

I was much interested in a recent visit to the University of Virginia to note the effect of good architecture in the university buildings upon a student body. Everything on the grounds conforms to the original plan of Jefferson, except one building constructed soon after the Civil War according to the unsophisticated and inartistic plans of the donor. That structure, although a large one and useful because of the space it affords, is an eyesore to every student who breathes in the catholic and cultivated spirit of Jefferson in his daily life, and they long for the day when they can dispense with it. The students' attitude shows the educational effect of good architecture upon those who live with it.

Jefferson, like Washington, had an adequate conception of the future of the Federal City, for he says in his letter written at Washington to Dr. Joseph Priestley, the great Unitarian, under date of April 9, 1803:

"I have not heard particularly what is the state of your health; but as it has been equal to the journey to Philadelphia, perhaps it might encourage the curiosity you must feel to see for once this place, which nature has formed on a beautiful scale, and circumstances destine for a great one."

ITS DAY OF SMALL THINGS

In its history Washington city has had to live through the day of small things. The plan of L'Enfant met the obstinacy and lack of the artistic sense of certain legislators who closed the vista between the White House and the Capitol by insisting on the erection of the Treasury across the line of Pennsylvania avenue. Then later on, when Congress seemed determined to minimize everything national, it retroceded to Virginia the part of the ten miles square on the south side of the Potomac River and furnished substantial proof of its contracted view of Washington's future. This was quite a departure from the broad, liberal attitude of Jeffer-

THE SOUTH FRONT OF THE HOUSE WING OF THE CAPITOL

Washington well justifies the statement that it is a city of magnificent distances. Standing on the brow of Capitol Hill, we may gaze off to the west to the great monument, made needle-like in the distance, and beyond it to the hills of Virginia, wrapped in the blue of the distance. To the northwest lies the newer city, stretching far away to the heights of Maryland.

Photo by E. L. Crandall

WASHINGTON IS A CITY OF COLUMNS

Few cities have borrowed so extensively as Washington from the architectural achievements of the past. The employment of the column in its public architecture is notable. A few there are of the ornate Corinthian design, and a considerable number of the stern and uncompromising Doric; but most of them express that delicate blending of the ornate and the simple that we find in the Ionian. The architectural messages of the Parthenon, the tomb of Halicarnassus, the Pantheon, and many other famous edifices of the past have been translated into American stone and marble and made to enrich the beauty of a beautiful capital. This is a view from the steps of the D. A. R. Building (see also page 265).

Photo by E. L. Crandall

DETAIL OF ONE OF THE WORLD'S GREAT COLONNADES

There are few architectural features in the New World which surpass in majesty the splendid colonnades and porticos of the United States Treasury. Seventy-two great Ionic columns, stately monoliths, fashioned like those of the Temple of Pallas at Athens, stretch along the east front and enter into the composition of the porticos on the north, the west, and the south fronts. Each of these columns, fashioned from a single stone, is 36 feet and 9 inches in height, 12 feet and 6¾ inches in circumference, and weighs approximately 35 tons. Where the monoliths now stand formerly were sectional sandstone pillars, which early began to crumble. The work of replacing them with columns chiseled from single blocks of granite was begun before the Civil War and completed in 1909 (see page 255).

Photo by E. L. Crandall

THE WASHINGTON MONUMENT ON A WINTER'S NIGHT

With a new character for each new hour, a different aspect for every change of light and shade, the Washington Monument seems to link heaven and earth in the darkness, to [illegible] in the light, and to stand an immovable mountain peak as the mists of every storm go drifting by. With a height of 555 feet, a base of 55 feet square and walls tapering [illegible] inches at the top, with its interior lined with memorial stones from the several States, from many famous organizations and from a number of foreign countries; with its stately simplicity and the high qualities of manhood it honors, it is fitting that the aluminum tip that [illegible] should bear the phrase "Laus Deo"

Photo by E. L. Crandall

THE WASHINGTON MONUMENT ON AN AUTUMN MORNING

"Taken by itself, the Washington Monument stands not only as one of the most stupendous works of man, but also as one of the most beautiful of all human creations. Indeed, it is at once so great and so simple that it seems to be almost a work of nature. Dominating the entire District of Columbia, it has taken its place with the Capitol and the White House as the three foremost national structures."

Photo by E. L. Crandall

DUPONT CIRCLE IN JANUARY

One scarcely knows when to admire the parks of Washington the more—when dressed in vivid green and set with a wild and yet harmonious riot of color during the summer or when wrapped in winter's mantle of unsullied white. Circles and small squares are placed at the intersections of the several avenues, and most of them commemorate the military heroes of the nation—Washington, Lafayette, Thomas, Scott, Sheridan, Farragut, Dupont, and McPherson.

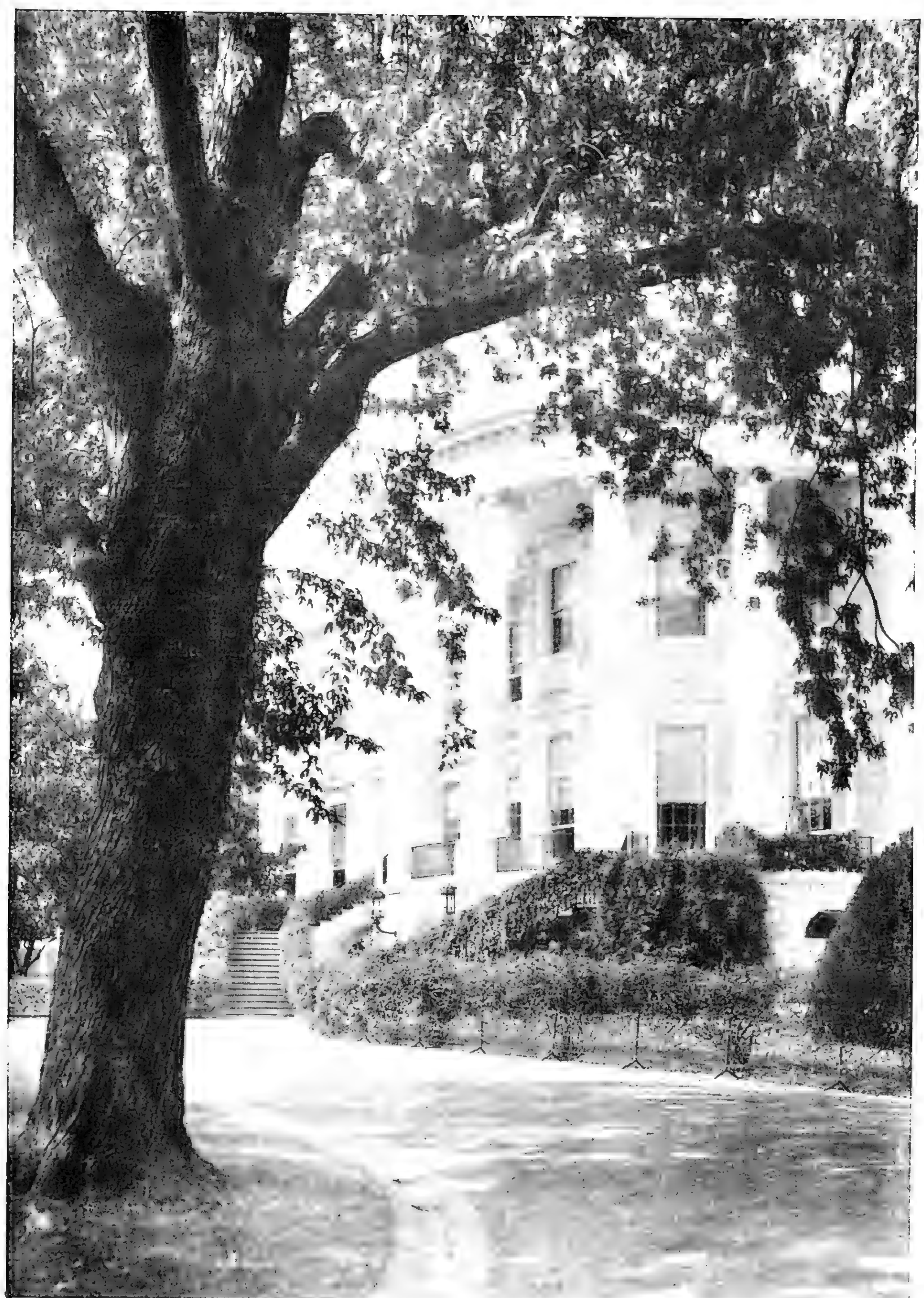


Photo by E. L. Crandall

SOUTH FRONT OF THE WHITE HOUSE

In the original plans of Washington the south front was intended to be the main front of the White House; modern conditions have made the north front the main one. From this colonnaded portico one looks out through old trees, over a well-planted garden, past the most beautiful fountain in the city to the Mall, the Washington Monument, the Potomac River, and the hills of Virginia. On the slopes below this portico thousands of brightly dressed children, high and low, rich and poor, gather on Easter Monday for the tradition-honored egg-rolling on the White House grounds (see also pages 260 and 261).

Photo by E. L. Crandall

A SPAN OF THE CONNECTICUT AVENUE BRIDGE

The Washington of the future will be famous for the beauty of its bridges. With their solid construction, their graceful arches, their broad roadways, and the picturesque development of the streams they span, those already constructed have won fame in the world of bridge architecture, and those planned will be fit companions to them.

Photo by E. L. Crandall

A WASHINGTON WINTER SCENE

Although Washington winters are usually mild and filled with some of the most beautiful days of the year, there are times when the mercury draws itself down into the bulb of the thermometer and snow and ice are supreme. But those times are neither frequent nor of long duration. A single day's sunshine often removes every trace of yesterday's reign of snow and ice. This picture gives a corner of New Hampshire avenue. All the avenues in our capital are named after the States of the Union.

Photo by E. L. Crandall

THE GREAT FALLS OF THE POTOMAC

Twelve miles from Washington are the Great Falls of the Potomac, pronounced by the Fine Arts Commission quite as well worth preservation as the greater passages of natural scenery in the national parks of the West. They form one of the most splendid cataracts on the Atlantic watershed. It is proposed in the plan of the ultimate Washington to make the Great Falls the terminus of a great Riverside Drive that will stretch westward from the eastern point of Potomac Park and which will protect and preserve for future generations some of the most beautiful river scenery in America.

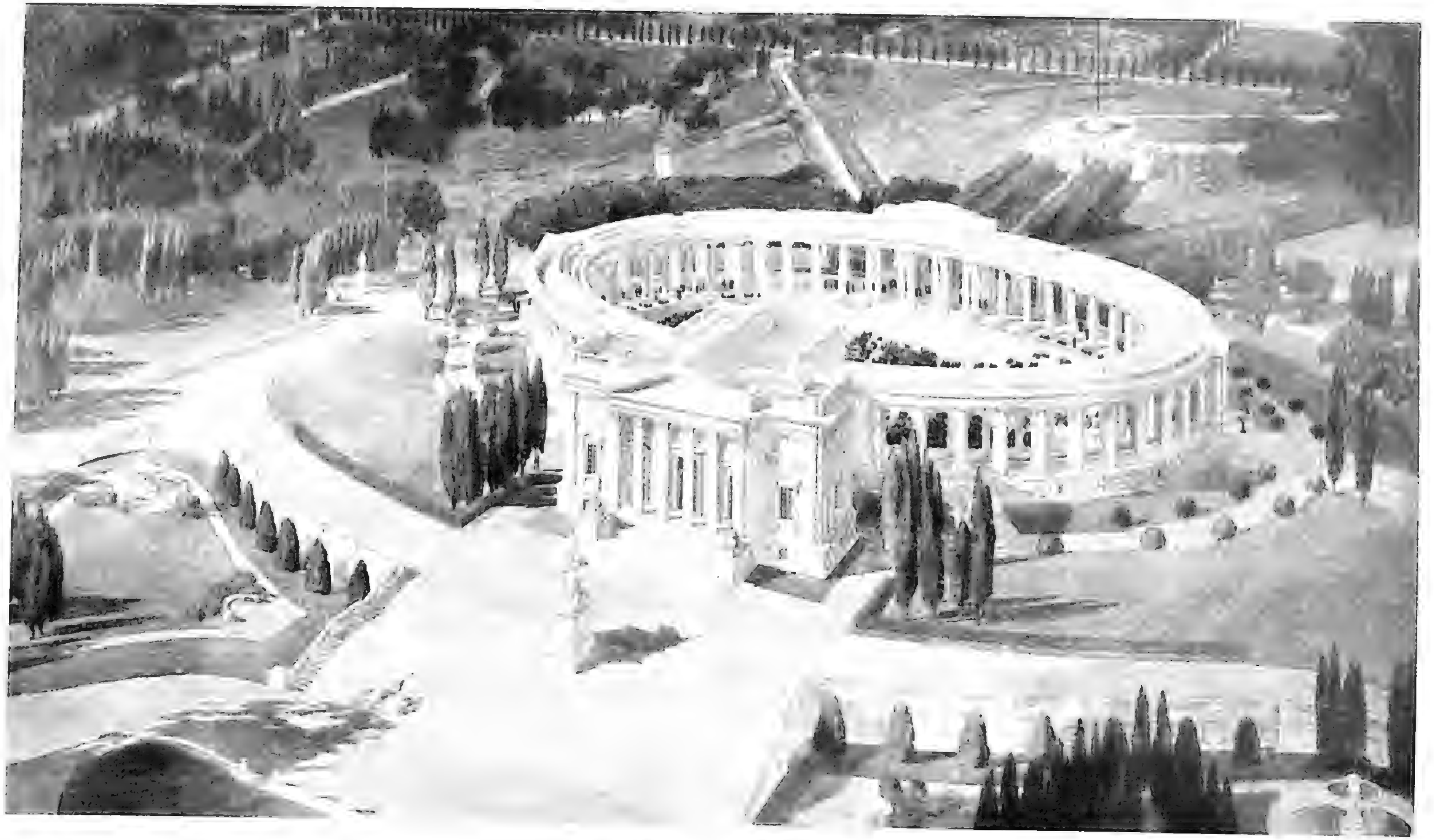
ALONG THE CHESAPEAKE AND OHIO CANAL

Stretching from tide-water to slack-water along the Potomac. the Chesapeake and Ohio Canal, whose construction Washington himself helped finance, has a charm of its own, as, half disclosed and half revealed, it winds among the trees; and not the least part of this charm is the slow, old-fashioned movement of the boats and of the people on and near this ancient waterway. Already pleasure-seekers in canoe and motor-boat enjoy its beauties, and it is becoming increasingly popular as a route between the populous city and picturesque charms of the river region.

Photos by Albert G. Robinson

A VIEW OF THE CHESAPEAKE AND OHIO CANAL AT GREAT FALLS (SEE PAGE 238)

Few of the world's artificial waterways equal the rare beauty of this one, and in the plans of the ultimate Washington it will play no inconspicuous rôle as a part of the great national playground in the environs of the capital.



THE ARLINGTON MEMORIAL AMPHITHEATER

Ground has just been broken for the new memorial amphitheater in Arlington National Cemetery which is to commemorate the heroic dead of the nation. Two years will be required for the completion of the structure, which will cost three-quarters of a million dollars. It will be a graceful marble ellipse, set with a temple facing over a broad stairway and a beautiful garden toward the Lincoln Memorial, the Washington Monument, and the Capitol. Carrere and Hastings are the architects.

THE NATIONAL BIVOUAC OF OUR SOLDIER DEAD: ARLINGTON

"Nothing could be more impressive than the rank after rank of white stones, inconspicuous in themselves, covering the gentle, wooded slopes and producing the desired effect of a vast army in its last resting place"

THE PROPOSED HOMES OF FOUR DEPARTMENTS

In the execution of the plans for adequately housing the several departments of the Federal government the blocks lying southeast of the Treasury (see page 243) have been acquired and plans have been drawn for the three buildings of a stately, simple design which are to house the Departments of State, Justice, Commerce and Labor. They will adjoin the new Municipal Building across Fourteenth street, which is seen in the left of the picture and also on page 269. This is a view from the south front of the Treasury Building (see page 255).

Pennsylvania avenue, 6,000 feet long between the Capitol grounds and the Treasury Building and 160 feet wide, is the Appian Way of the American Republic. All of the historic pageants of a great nation's capital sweep up and down this broad thoroughfare, and often as many as 400,000 people gather to witness them. The land in the right foreground (all that to the right of the +) has been acquired by the government, and upon it will be erected (unless present plans are changed) the first of the three new buildings shown on the preceding page.

Photo by E. L. Crandall

THE CAPITOL ON A WINTER'S NIGHT

Imposing by day, the dome of the Nation's Capitol is impressive by night. Silhouetted against the sky, with its surmounting statue of Armed Liberty facing the east and seeming to peer over the horizon for the first faint glimpse of the morrow's dawn, no one who beholds it can ever forget the sigh

MAP OF THE NATION'S CAPITAL: 1915

Showing locations of Public Buildings, Monuments, and existing and proposed Public Grounds.

Prepared for the exhibition of the National Commission of Fine Arts at the Panama-Pacific International Exposition by Frederick D. Owen, Engineer, James G. Langdon, Landscape Architect.

....Parks and Public Grounds existing in 1900 shown thus.

....Parks and Public Grounds acquired since 1900 shown thus.

....Additional Parks and Public Grounds recommended by the Park Commission of 1901 shown thus.

....Public and Quasi-Public Buildings and Monuments existing in 1900 shown thus.

....Public and Quasi-Public Buildings and Monuments undertaken since 1900 shown thus.

....Streets adopted since 1900 shown thus.

....Railroads (steam) existing in 1900 shown thus.

....Railroads (steam and electric) built since 1900 shown thus.

....Railroads (steam) existing in 1900 which have been retained shown thus.

....That part of the District south west of the Potomac River was ceded back to Virginia in 1846—originally 10 miles square.

SUPPLEMENT TO NATIONAL GEOGRAPHIC MAGAZINE, WASHINGTON, D. C.
GILBERT H. GROSVENOR, EDITOR

THE MALL

WASHINGTON, D. C.

PLAN SHOWING BUILDING
DEVELOPMENT TO 1915 IN ACCORDANCE WITH
THE RECOMMENDATIONS OF THE PARK COMMISSION OF 1901

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[illegible] MUNICIPAL [illegible]
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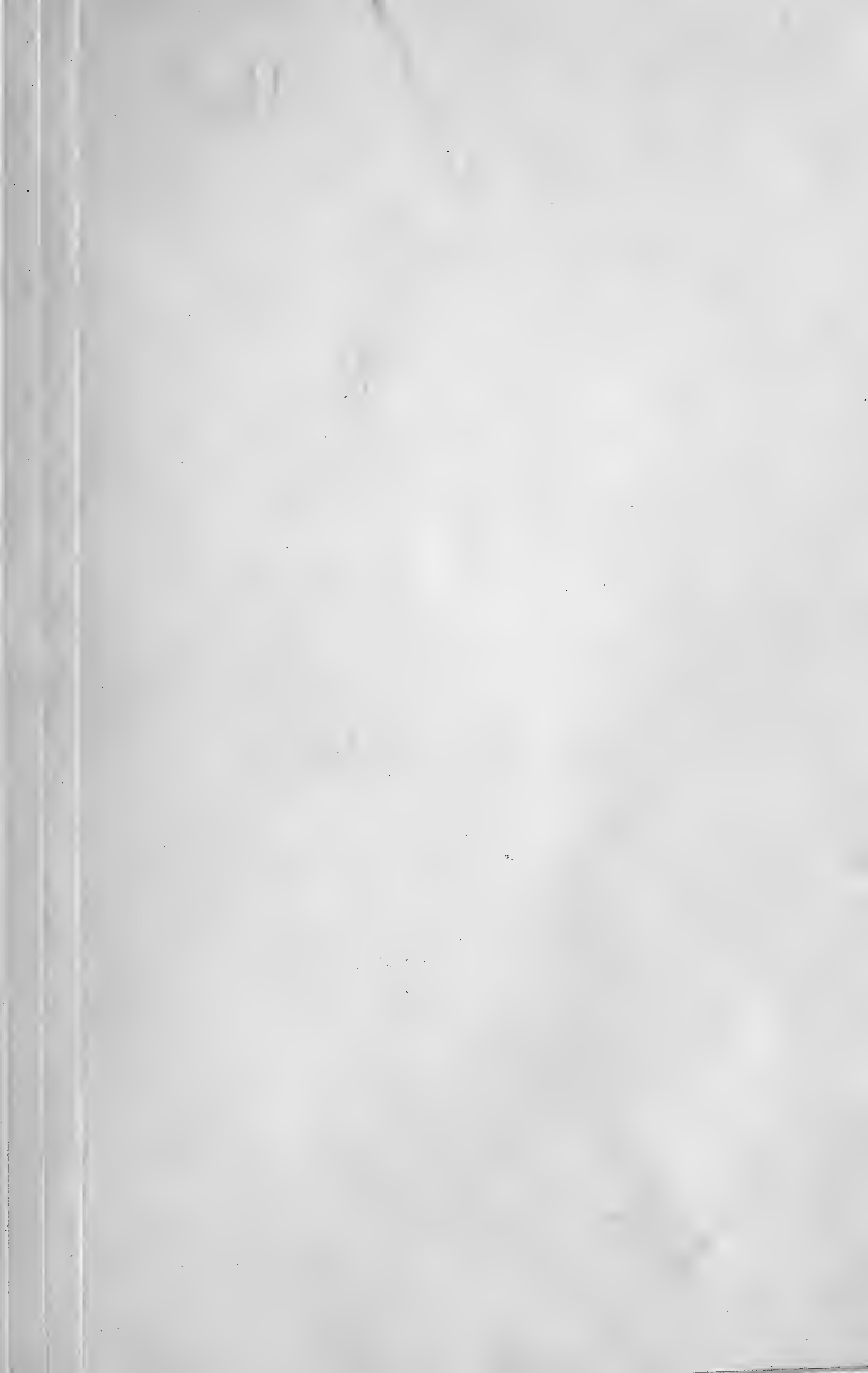
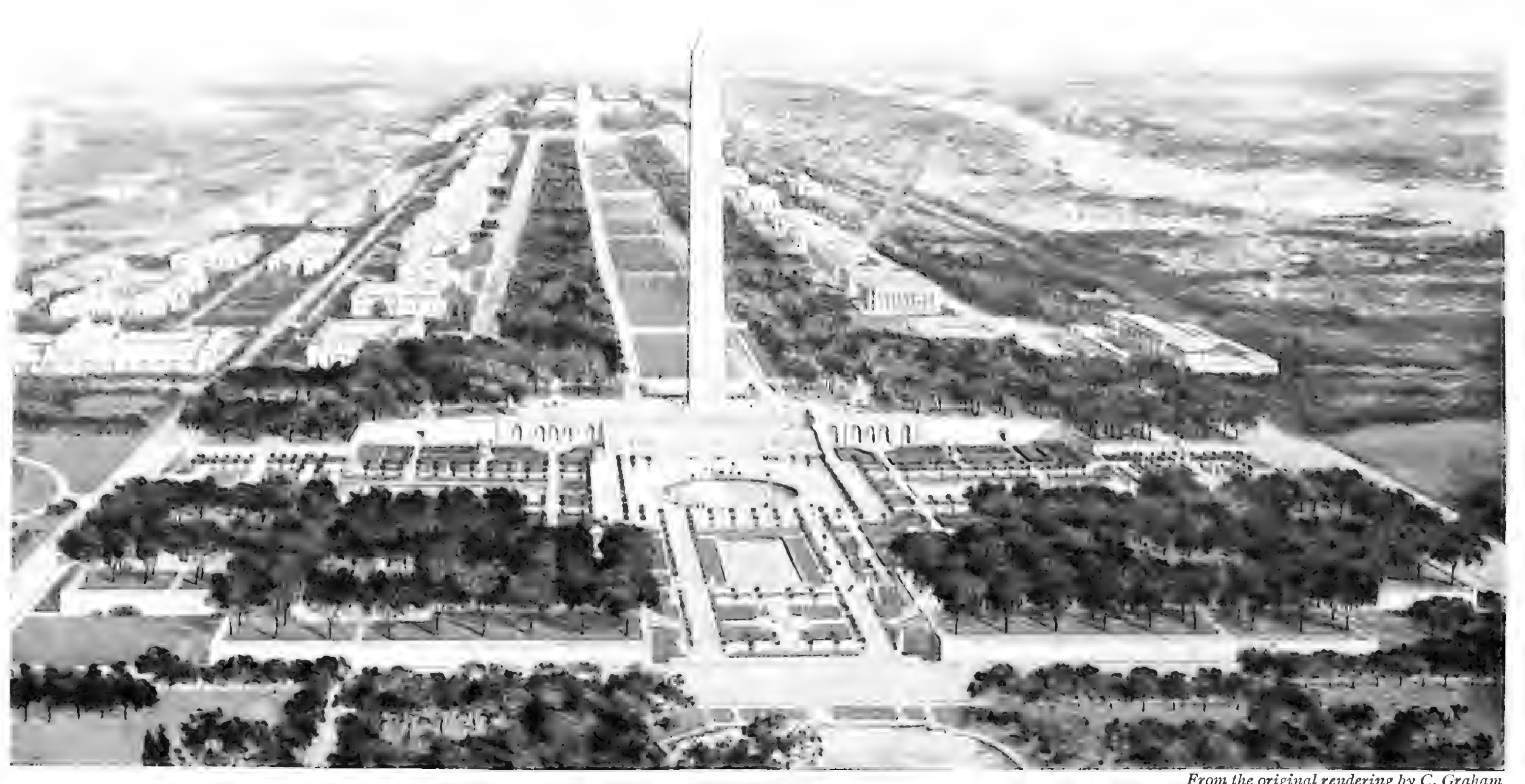
7 HOUSE [illegible]
[illegible] PAN AMER[illegible]
[illegible] DAU[illegible]

[illegible]GS UNDER CONSTRUCTION OR AUTHORIZED

[illegible] LINCOLN MEMO[illegible]
[illegible] AMERICAN RED [illegible]

INDICAT[illegible]ES OTHER PROPOSED BUILDING SITE





From the original rendering by C. Graham

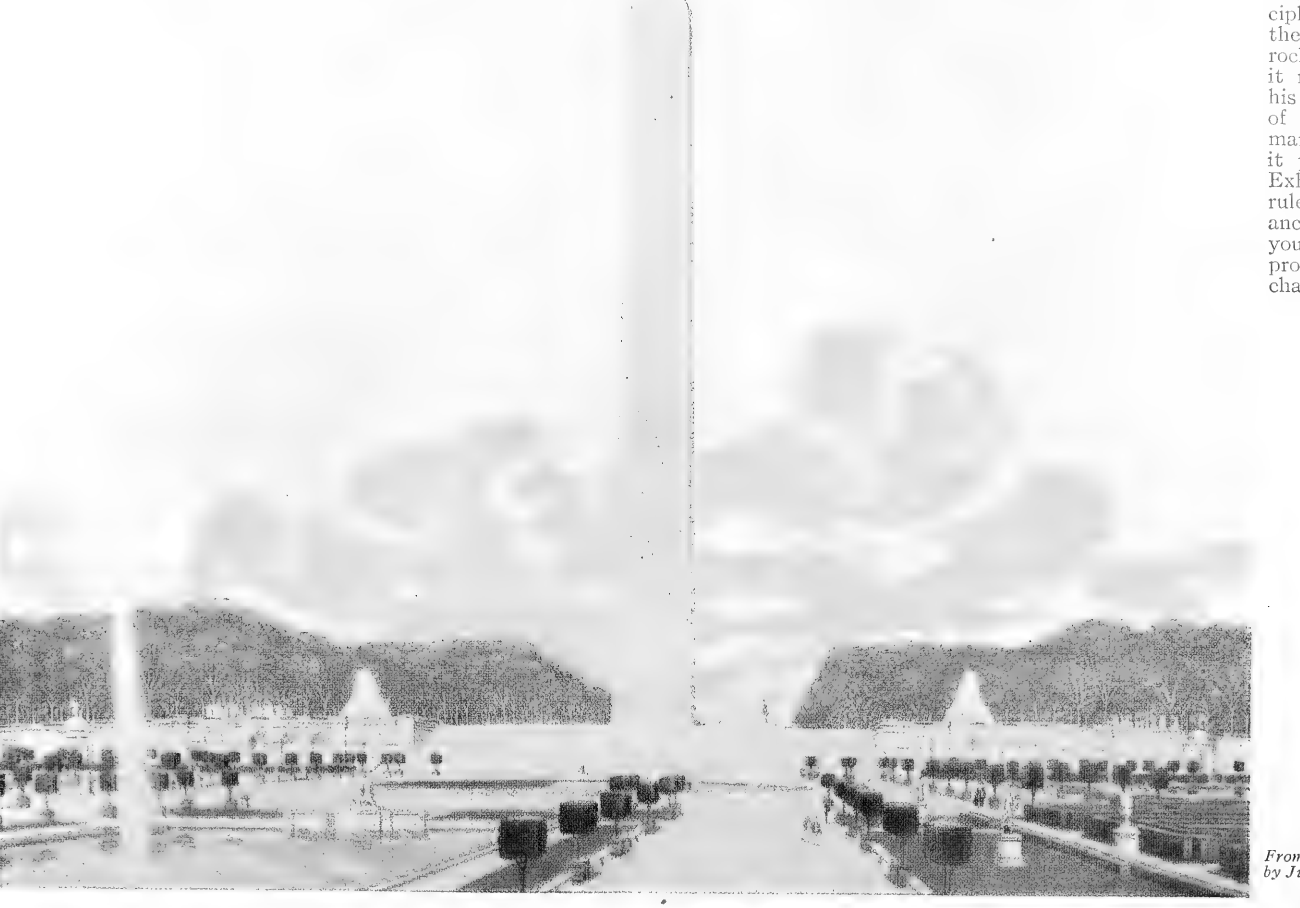
THE WASHINGTON OF THE ARTIST'S DREAM

The plan of the Park Commission provides for a magnificent garden more than two miles long, linking the Lincoln Memorial and the Capitol together, with the Washington Monument between and stately rows of government buildings bordering that part between the Monument and the Capitol. This view in the Monument Garden shows the proposed treatment of approaches and terraces, forming a setting for the Washington Monument. (See page 248.)

From the original rendering by Jules Guerin

VIEW OF THE LINCOLN MEMORIAL FROM THE LEE MANSION HOUSE AT ARLINGTON CEMETERY

Showing the relation of the Memorial to the Washington Monument and the Capitol. The tomb of Peter Charles l'Enfant is shown in the foreground. A century ago General Lafayette looked across the Potomac River from the fine old mansion at Arlington, and declared that never before had his eyes beheld a rarer view. Then Capitol Hill was not crowned by its present stately Capitol, then the Washington Monument did not rise with its majestic sweep toward the empyrean. Then neither the gold-domed Congressional Library, the graceful Union Station, the temple-columned Treasury, the green-carpeted Potomac Park, nor the splendid sweep of a new city to the northwest added any of their beauty to the landscape.



VIEW OF GROUNDS AND MONUMENT

"Build it to the skies, you cannot outreach the loftiness of his principles. Found it upon the massive and eternal rock; you cannot make it more enduring than his fame! Construct it of the peerless Parian marble; you cannot make it purer than his life! Exhaust upon it the rules and principles of ancient and modern art; you cannot make it more proportionate than his character."—*Winthrop.*

From the original rendering by Jules Guerin

VIEW SHOWING THE PROPOSED TREATMENT OF UNION SQUARE AT THE HEAD OF THE MALL

This treatment of the grounds at the base of Capitol Hill conforms generally to the L'Enfant plans, which show "a public walk through which carriages may ascend to the upper square of the Federal house." What is now the Botanic Garden is to be converted into a broad thoroughfare, so enriched with parterres of green as to form an organic connection between the Capitol and the Mall. The Grant Memorial, consisting of a statue of Grant and several subordinate groups, stands between Pennsylvania and Maryland Avenuse, at the foot of Capitol Hill.

From the original rendering by B. B. Long

VIEW OF THE LINCOLN MEMORIAL FACING TOWARD WASHINGTON MONUMENT

The Lincoln Memorial will be the costliest monument to the memory of one man ever reared by a republic. The Capitol, at one end of the great parkway stretching from Capitol Hill to the Potomac, is a monument to the Government; the Lincoln Memorial, at the other end of that parkway is a monument to the savior of that Government; and the Washington Monument, standing between, is a monument to its founder. The Memorial will stand on a broad terrace 45 feet above grade. The colonnade will be 188 feet long and 118 feet wide, and will contain 36 columns, 44 feet high and 7 feet 5 inches in diameter at the base. Within the interior of the structure will be three halls. In the central hall, which will be 60 feet wide, 70 long and 60 high, there will be a noble statue of Lincoln, while in the two side halls will be bronze tablets containing the Great Emancipator's second inaugural address and his Gettysburg speech. Henry Bacon is the architect of the Memorial, which will be completed in two years.

VIEW OF LINCOLN MEMORIAL FROM RIVERSIDE DRIVE

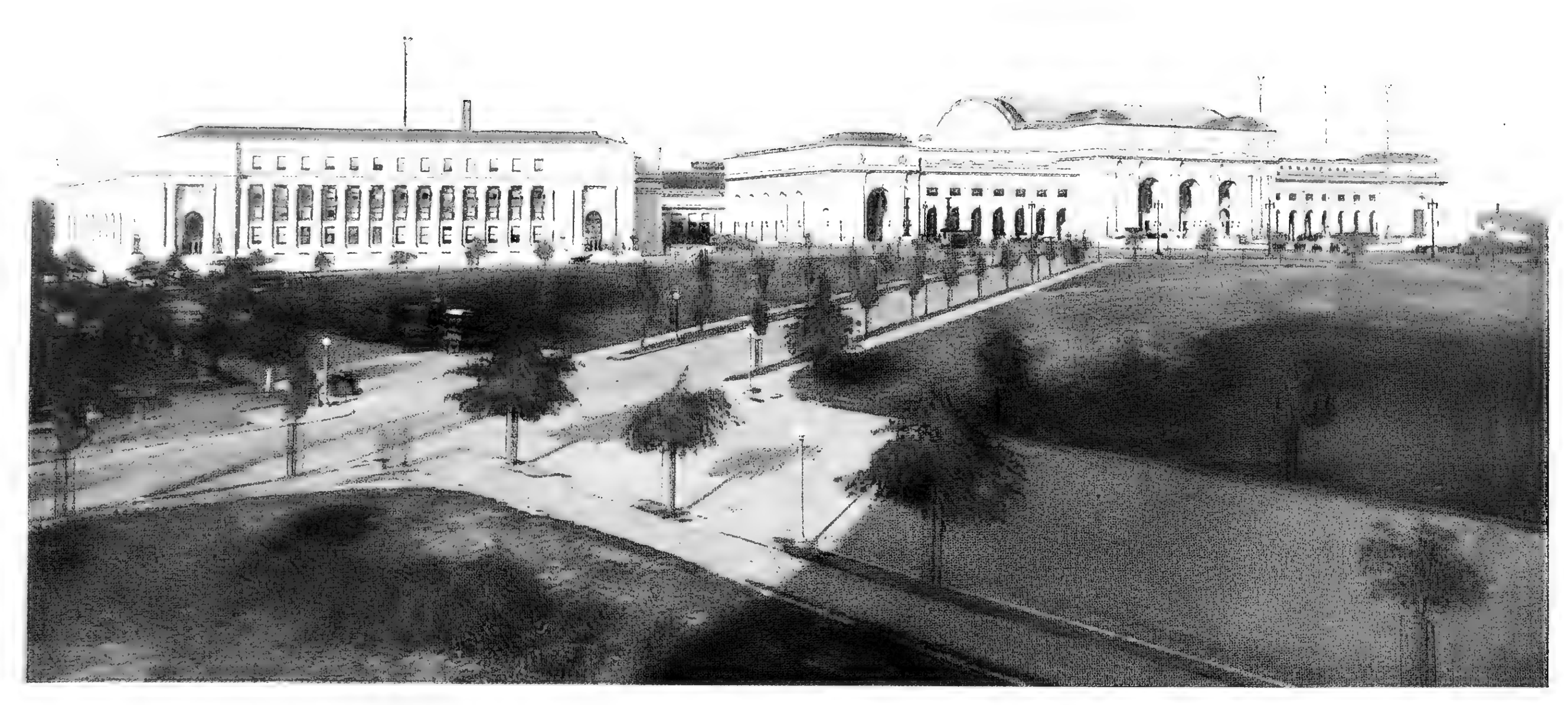
In the plan of the Ultimate Washington is provision for the realization of the dream of Andrew Jackson that "the broad and beautiful river separating two of the original Thirteen States" shall come to be "spanned with arches of ever-enduring granite, symbolical of the firmly established union of the North and South." For there is provision for a great memorial bridge which shall unite Arlington with Washington, link Virginia with the District of Columbia, and bind together the North and the South. The proposed bridge will be a link connecting two parts of a Government parkway stretching in one grand sweep from the westernmost gates of Fort Myer to the easternmost grounds of the Capitol, and forming the physical heart of the American nation.

THE ARMY
WAR COLLEGE

Here the officers of the United States come to take courses preparing them for advancement to higher grades, and to work out the military situation as it is likely to be in the case of hostilities with any foreign enemy. The School of National Defense, whose classes are composed of honor graduates of the infantry, cavalry and artillery schools of Fort Leavenworth and Fort Monroe, also holds its sessions in the Washington Barracks grounds, of which the War College site is a part. These grounds are situated at the confluence of the Potomac and Anacostia (or Eastern Branch) Rivers. The area to be developed in that vicinity is the water gate of Washington. McKim, Mead and White were the architects of the War College.

THE BUREAU OF ENGRAVING AND PRINTING

Viewed from Potomac Park across the tidal basin, this is one of the most dignified of all the noble structures which adorn the Nation's Capital. Out of its portals come the million dollars of new papermoney demanded by the commerce of the United States every day; the billions of stamps that are affixed to the nation's mail; and the millions of internal revenue stamps with which the nation collects its internal taxes. The very piece of linen that was a baby's christening robe may be in the bill that dowers her as a bride, and may come back to her again in the binding of the baby book of her first grandchild. The Bureau of Engraving and Printing was designed by the Supervising Architect of the Treasury. The old buildings shown in red are to be replaced by buildings designed in conformity with the plan.

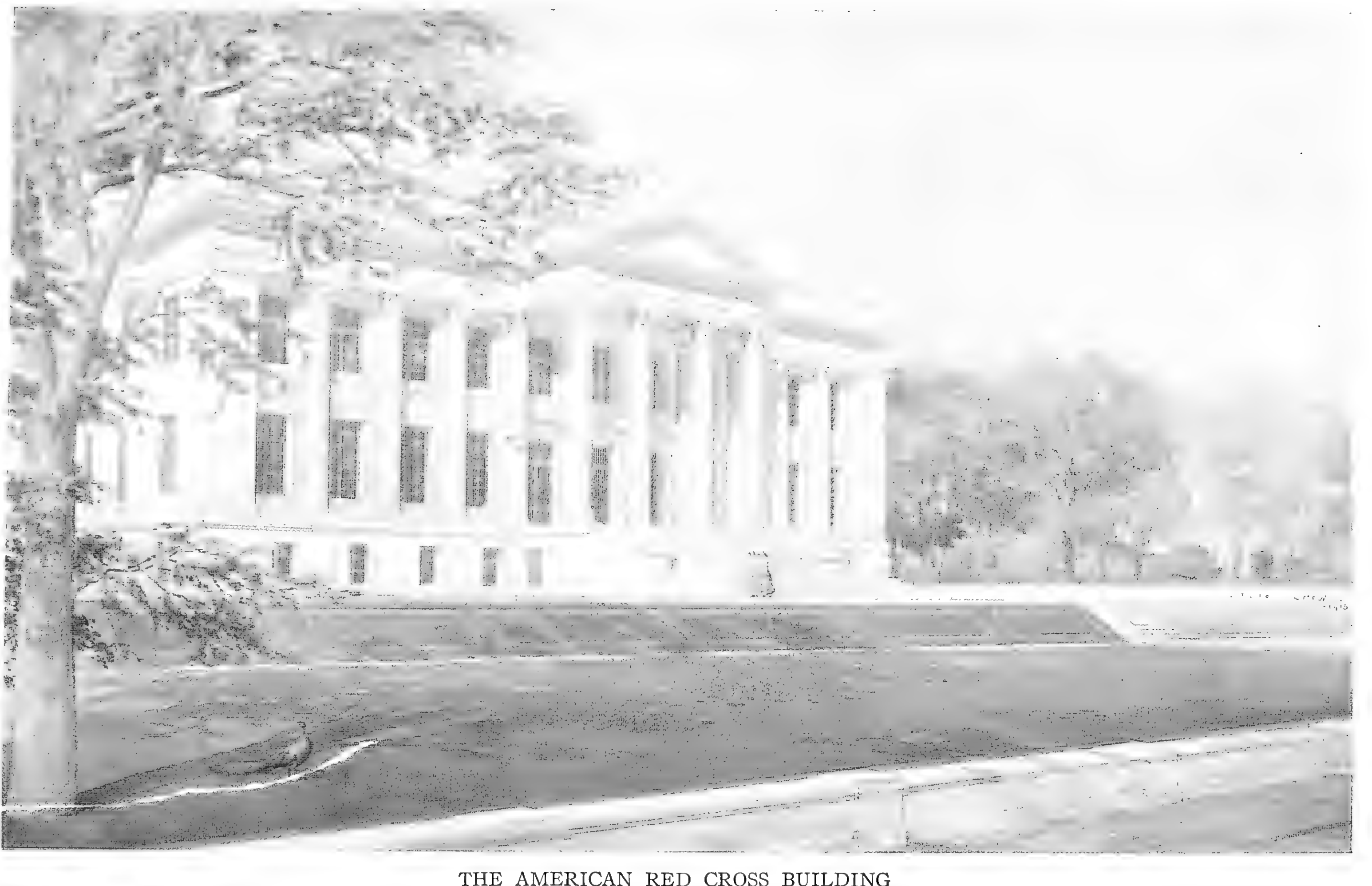


THE UNION STATION (RIGHT) AND THE WASHINGTON POST OFFICE (LEFT)

Covering an area of nearly six acres, the Union Station is still more conspicuous for its beauty than for its size. An army of 50,000 men could find standing room in the great concourse. The beautiful Capitol Park is to extend to the station's very portals, and the Capitol itself will first greet the eye of every visitor who passes out of the station's main entrance. The City Post Office was constructed as a model for the postal service of the country. In every part of the mailing room, and from the room itself to the train-shed of the Union Station, there are endless belts and conveyors designed to handle every type of matter from a special delivery letter to the largest mail bags and parcels. The clerks therefore scarcely have to move out of their tracks while on duty. Both buildings were designed by D. H. Burnham & Company.

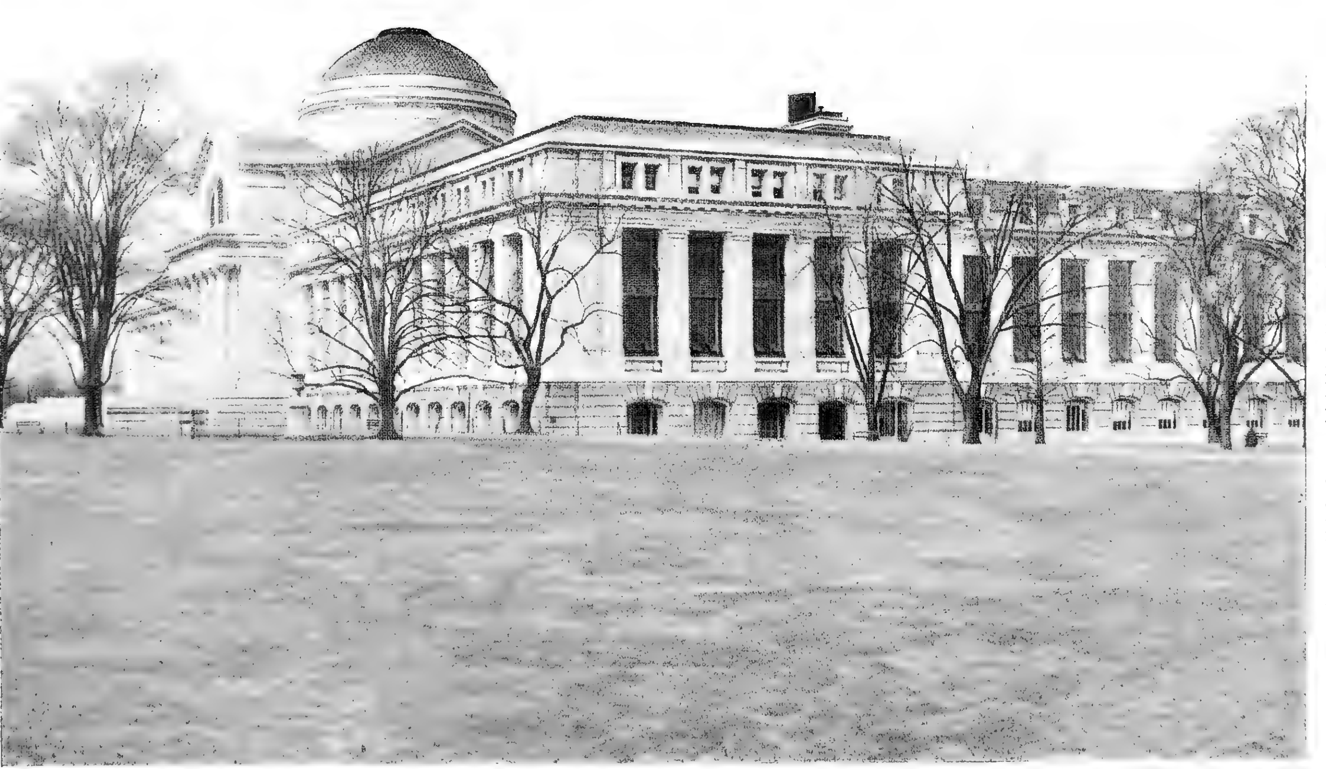
THE UNITED STATES TREASURY

The United States Treasury is architecturally one of the most imposing buildings in the National Capital, although it is not set in grounds commensurate with its dignity and beauty. It is the richest money-box in the world, the gold and silver in its several vaults reaching a grand total of 300 million dollars. Approximately a million dollars of new money goes out of the Treasury every day and a like amount comes back worn out by the long chain of financial transactions in which it has figured, to be cut up, macerated and transformed into bookbinders' board worth $40 a ton.



THE AMERICAN RED CROSS BUILDING

This handsome structure in a city of beautiful architecture will soon be another addition to the group of buildings on the west side of Monument Park where it touches the White House Grounds. It is being constructed with funds, given, one-half by the United States Government, and one-half by friends of the American Red Cross Society, as a memorial to the women of the American Civil War. With the Treasury (see page 255), the White House (see page 261), the State, War and Navy Building, the Corcoran Art Gallery, the D. A. R. Continental Hall (see page 265), and the Pan-American Union Building (see page 264), it will constitute the most notable single group of buildings in America. The architects of the Red Cross Building are Trowbridge



THE NATIONAL MUSEUM

Its bird collection contains over 180,000 specimens and nearly 70,000 eggs; only two families of living birds are unrepresented. Its insect collection contains many hundred thousands of different kinds of insects, ranging from almost microscopic bugs up to the huge Hercules beetle. Its mammal collection contains about 150,000 specimens, ranging from the smallest shrew, which is barely one-fourth the size of a house mouse, to the giant dinosaur which makes the elephant look small in comparison.

The National Museum Building conforms to the architectural type planned to border the Mall from the Capitol to the gardens of the Washington Monument, for the housing of all of the bureaus of the government. The architects of this structure were Hornblower & Marshall.

THE VON STEUBEN MONUMENT IN LAFAYETTE SQUARE

Lafayette Square is regarded as the most beautiful park in the National Capital and the richest in historical associations. Grouped around the Square are Cosmos Club, which was formerly the Dolly Madison house; the Arlington Hotel property, where King Edward of England and other notables were entertained; St. John's Church, which has been attended by the majority of the Presidents of the United States; and many other notable buildings. Five statues grace the Square Clark Mills' equestrian statue of General Jackson; the statue of Baron von Steuben, the great Prussian whose sword helped to achieve America's independence; that of Kosciuszko, the brilliant Pole whose sword was drawn in the same cause; Lafayette Monument, and that of Rochambeau, both of whom lent such splendid aid to America in the hour of her fight for freedom. The sculptor of the von Steuben monument was Albert Jaegers.

LINCOLN PARK

The monument to Abraham Lincoln in Lincoln Park. Showing the effect produced by a strong background of foliage.

Thomas Ball, sculptor.

THE WHITE HOUSE, SOUTH FRONT

Although the official residence of the Chief Executive of the United States may not in magnificence compare with the great palaces of the rulers of foreign countries, there is a stately simplicity in the White House that wins for it admiration from native and foreigner alike. It was the first building erected by the United States at the new seat of government, its site being selected and its cornerstone laid by the Father of his country himself. Like the Capitol, what was intended to be the front is now turned away from the main part of the city. The grounds around the White House harmonize with the simplicity of that structure itself, and the fountain in the south garden is one of the most effective in Washington.

THE WHITE HOUSE—NORTH FRONT

John Adams first occupied the structure in 1800, although it was a grey house then, having been built of Virginia freestone. When the British burned it in 1814, nothing was left but the blackened walls. White paint was used to cover the marks of the fire when it was rebuilt, and it became "The White House" except in official usage. In that usage it was "The President's House" in the early years of the republic; then it became "The Executive Mansion;" but finally President Roosevelt made formal usage correspond with popular thought, and "The White House" it became, and doubtless will continue to be as long as the United States holds her membership in the family of nations. In the famous East Room, the Presidents of a century have held their stateliest functions, brides have taken their nuptial vows, and millions of American tourists have found inspiration to good citizenship as they have come and gone in a century-long stream.

THE NATIONAL GEOGRAPHIC SOCIETY

Situated on Sixteenth Street, three blocks away from the beautiful Lafayette Square, (see page 258), which faces the White House, the home of the National Geographic Society stands as a noble monument to the deep interest of the American people in geographic science.

On the extreme right is Hubbard Memorial Hall, which was erected by the family of the Society's first President, Gardiner Greene Hubbard, as a memorial to him. Next to Hubbard Hall is the administration building, completed in 1913, at a cost of $175,000. Owing to the increasing popularity of the activities of the Society, additional land adjoining the administration building was purchased in 1914, at a cost of $105,000, upon which it is proposed to erect an auditorium and additional accommodations. The tentative design for the new building is shown on the left. See report of the Director and Editor, Gilbert H. Grosvenor, printed elsewhere in this number. Arthur B. Heaton is the architect.

THE UNITED STATES PATENT OFFICE

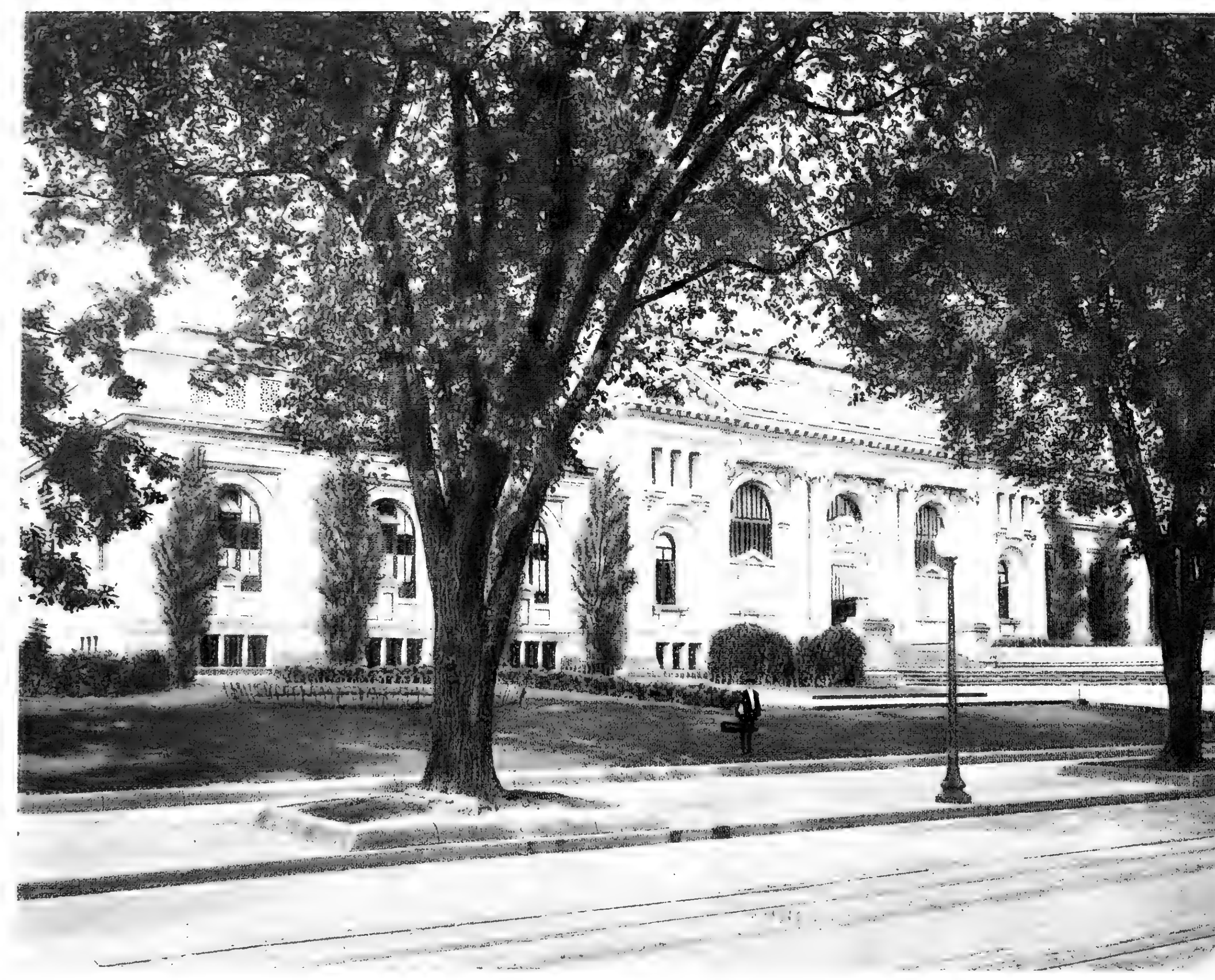
Although America has led the world in the art of invention, perhaps her greatest invention was the patent law that has made that leadership possible. More than 1,127,000 patents have been granted. It is estimated that the world saves half a billion dollars every year through the invention of harvesting machinery alone. The inventors of the United States have paid all the cost of maintaining the patent system and six million dollars besides. Washington knows this building as the Patent Office, yet strictly speaking it is the Interior Department, of which the Patent Office i one of many branches. The front of the building is adorned with a fine portico of Doric columns copied in pattern and dimensions after those of the Parthenon.

THE PAN AMERICAN UNION

In a sense this structure is the capitol of the New World. For here meet the representatives of the twenty-one republics which constitute such a large part of the Western Hemiphere. The affairs of the Union are controlled by a governing board consisting of the diplomatic representatives to the United States of the twenty republics to the south of the Rio Grande and Florida, and the Secretary of State of the United States. The home of the Union is one of the most beautiful structures in the world. Its interior is as fine a conception as its exterior, the patio carrying one back to that gem of Moorish architecture, the Alhambra. A sliding roof, moved by electric motors, opens up the patio to the balmy air of summer and closes it to the chill air of winter.

THE CONTINENTAL HALL OF THE DAUGHTERS OF THE AMERICAN REVOLUTION

Representing a membership of 80,000 women descended from the officers and soldiers of the Revolutionary War, Continental Hall was built at a cost of more than $500,000. This building is a type of semi-public structures especially adapted to the proper development of Washington. Edward Pearce Casey was the architect.



THE PUBLIC LIBRARY OF THE DISTRICT OF COLUMBIA

Harmonizing with the spirit of the plans for the Ultimate Washington, the Public Library and its grounds give a touch of beauty to a part of the city beyond the neighborhood of the Mall.

The Public Library has become an important literary and social center for the local population, who, through circulation, reference, technological and children's departments, make large use of its collections of books, classified pamphlets, clippings and mounted pictures, who attend illustrated lectures in its auditorium and hold in its study rooms numerous meetings devoted to many varied subjects of study and public questions. Not many years ago the site of this library was an ill-smelling, unsightly market-place. Ackerman & Ross were the architects.

THE MILLET-BUTT MEMORIAL FOUNTAIN

The memorial to Francis Davis Millet and Archibald Willingham Butt, victims of the Titanic disaster, was erected by their friends in the ground south of the State, War and Navy Building, with the sanction of Congress. This is a type of memorial suited to adorn the city of Washington and at the same time to commemorate lives worthily spent. It shows well the effect that can be produced with a small amount of money. Francis Davis Millet was the moving spirit of the creation of the Fine Arts Commission, which has labored so earnestly and with such gratifying success in behalf of the Nation's official home—the District of Columbia; and Archibald Willingham Butt was a journalist and soldier who made a nation his friend as aide to the President of the United States. Both knew how to live and how to die. Daniel Chester French was the sculptor and Thomas Hastings the architect for this monument.

THE ACCEPTED DESIGN FOR THE GEORGE WASHINGTON MEMORIAL HALL

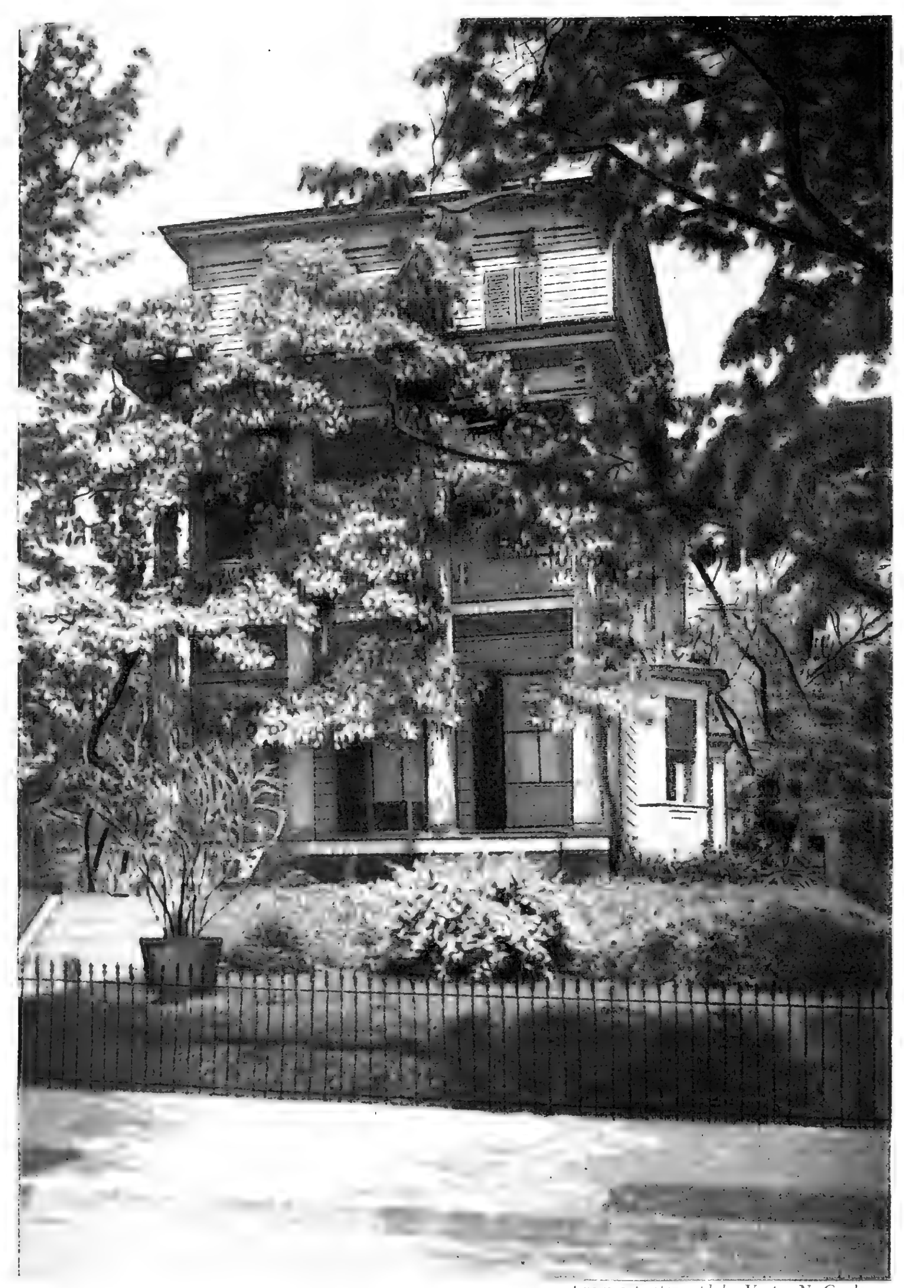
The George Washington Memorial Hall will be built on the site of the old Pennsylvania Railroad Station, which for many years marred the beauty of the Mall at Sixth Street, and which was the scene of the assassination of President Garfield. It is expected to cost $2,000,000, and to have its maintenance provided for by an endowment fund of $500,000. In architecture it will conform closely to its neighbors bordering the Mall, the National Museum and the Department of Agriculture. Tracy and Swartwout are the architects.

THE MUNICIPAL BUILDING

The Municipal Building of the District of Columbia is a local rather than a national structure, but was built in harmony with the plans for the embellishment of the National Capital. Cope and Stewardson were the architects.

THE CARNEGIE INSTITUTION OF WASHINGTON

The Carnegie Institution of Washington, with an endowment of $22,000,000, yielding five per cent annual interest, has proven one of the most effective research institutions in the world. Its activities cover almost the entire range of human knowledge. The Institution is located on the same street as the National Geographic Society and only a few blocks away. Carrere & Hastings were the architects.



From a photograph by Victor N. Cushman

WISTARIA IN WASHINGTON

The climate of Washington is so mild and equable that the lover of the beautiful may borrow freely from Nature's richest and warmest hues to decorate the exterior walls as well as to gladden the interior atmosphere of his home. The wistaria can hold its own with the ivy, and the magnolia with the cedar.

From a photograph by Peter Bisset

THE ROSE GARDEN

Washington is famous for its flowers. They hold a high carnival that begins before winter has turned to spring in the calendar and ends after autumn gives room to winter. The jonquil and the crocus and the tulip come to its inauguration; in their train follow the multi-hued hyacinth, the blushing violet, the saucy pansy; as summer approaches its zenith all the "warm-blooded" flowers in the catalogue come and dance attendance to the rose; and with the autumn come and go the stately chrysanthemum, the rich-robed dahlia, the hardy cosmos and the gold-tinted aster.

THE "HOUSE" OFFICE BUILDING

This structure and its companion piece, the Senate Office Building, complete the legislative group of buildings on Capitol Hill. The two office buildings for members of the Senate and House of Representatives contain some six hundred rooms. Each Senator who is not provided with offices in the Capitol itself has from one to three rooms. Each Representative except a few whose offices are in the Capitol has one room, though the chairmen of committees are entitled to from two to three rooms. They are the most efficiently equipped government office buildings in the world. Carrere and Hastings were

THE LIBRARY OF CONGRESS

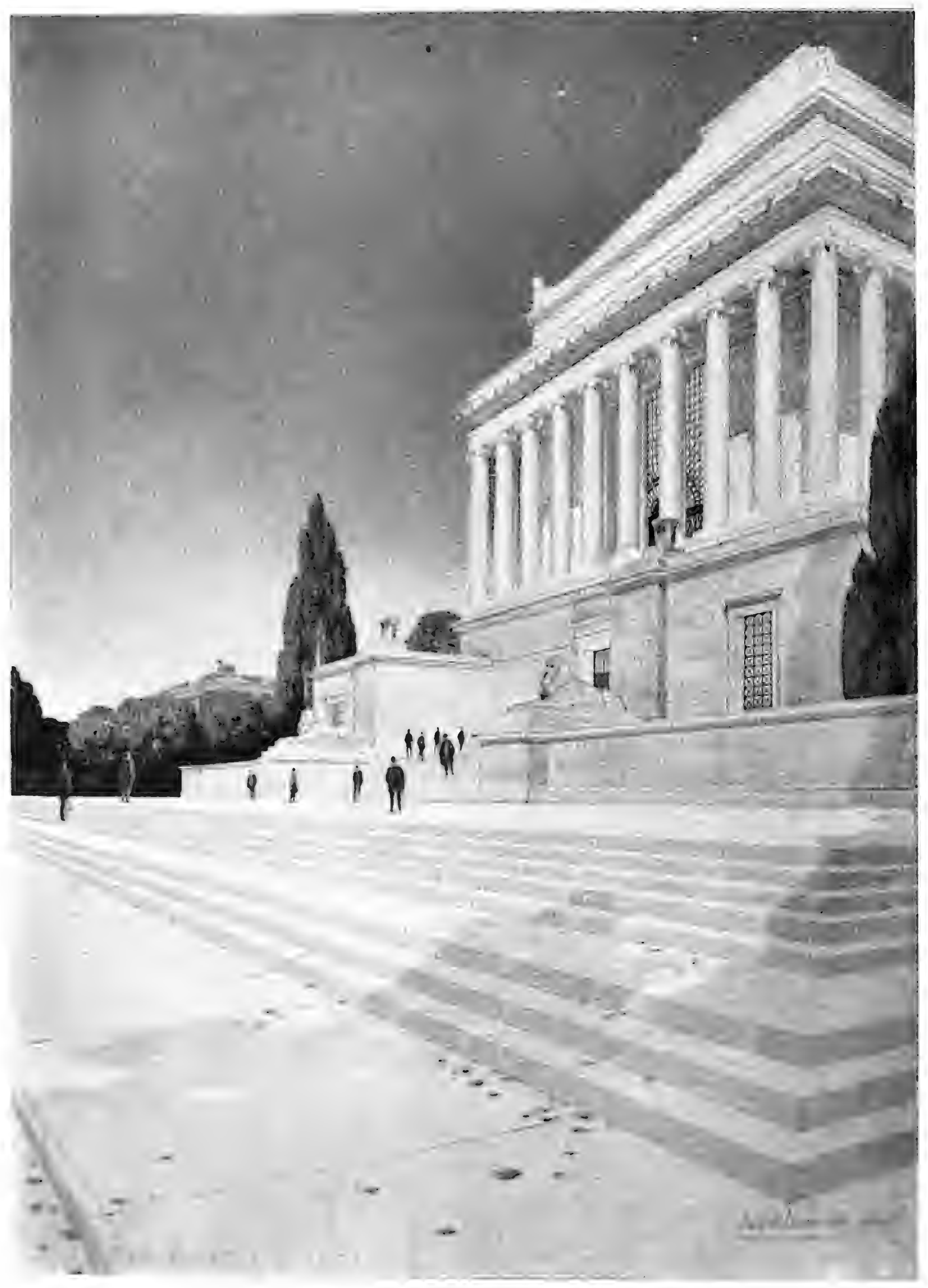
A part of the most complete legislative plant in the world. Around the square between it and the Capitol are grouped four buildings representing an aggregate cost of more than $25,000,000, which house the law making machinery of the United States Government. The Library was completed in 1897; its style of architecture is Italian Renaissance, and its 2,000 windows make it the best lighted library in the world. Its great bookstacks are of steel and marble construction and the shelves have a total length of nearly fifty miles. A book carrier of special design automatically carries books from the shelves to the reading room and back again to their proper decks again. It unloads each book at its proper deck and will never permit itself to be overloaded. The ultimate capacity of the Library is 4,500,000 volumes. The Library was built from plans prepared by Smithmeyer & Pelz and Edward Pearce Casey.

THE NATIONAL CAPITOL FROM THE EAST

The east front of the Capitol has witnessed some of the most stirring scenes in American history. Here came George Washington to lay its cornerstone in 1793; here a score or more of the Presidents of the United States have assumed their sacred trust; here have come heroes of the nation to receive the honors of the people; and from here have been borne illustrious dead whose lives have added lustre to the pages of American history.

THE UNITED STATES CAPITOL FROM THE NORTHEAST

This great structure is generally regarded as the most stately building in the world. Situated in a magnificent park, on a hill whose crest is a hundred feet above the river, it dominates every landscape and lends beauty to every picture. It covers nearly four acres of ground, and cost, from first to last, nearly $15,000,000. The dome is the crowning glory of the great edifice. It is of iron and weighs nearly nine million pounds. Its iron plates expand and contract "like a lily" with fluctuation in temperature, but these phenomena have been carefully compensated for in the plan of the structure. The dome was completed the year that marked the end of the American Civil War. The architects of the Capitol have been William Thornton, Benjamin Latrobe, Charles Bulfinch and Thomas U. Walter.



THE TEMPLE OF SCOTTISH RITE

This splendid edifice, representing the 14[illegible] sets of Masonic bodies and 80,000 members belonging to the Southern Jurisdiction of the Scottish Rite in America, is modelled after the Mausoleum of Halicarnassus, located on the coast of Asia-Minor, and accounted by the ancients one of the Seven Wonders of the World. The Washington temple was built at a cost of $1,500,000. It contains 33 great Ionic columns, each 33 feet high, and the steps which approach its main entrance, starting from the street, are arranged in groupings of 1, 3, 5, 7, and 9, sacred numbers of the ancients. The two huge sphinxes which guard the approach were hewn out of great stones weighing respectively 109,000 and 110,000 pounds, the largest ever quarried in America. John Alvin Pope was the architect.

son. It was a day of little Americans, and whenever they are in control the National Capital always suffers.

Then there was the period after the Civil War—that period when the art of architecture in this country was at a low ebb and buildings erected were "without form and void." When we think of the millions that were spent in the construction of the State, War, and Navy Department Building in Washington, which, like the Treasury Department, cut off another L'Enfant vista from and to the White House, and of the Federal buildings of similar architecture in many other cities, we ought to rejoice that we have returned to better days. It has been a struggle with the Philistines, but we now seem to have come under the elevating influence of men like Burnham, McKim, St. Gaudens, Olmsted, and other leaders among American architects.

MEN WHO CARRIED FORWARD WASHINGTON'S IDEAL

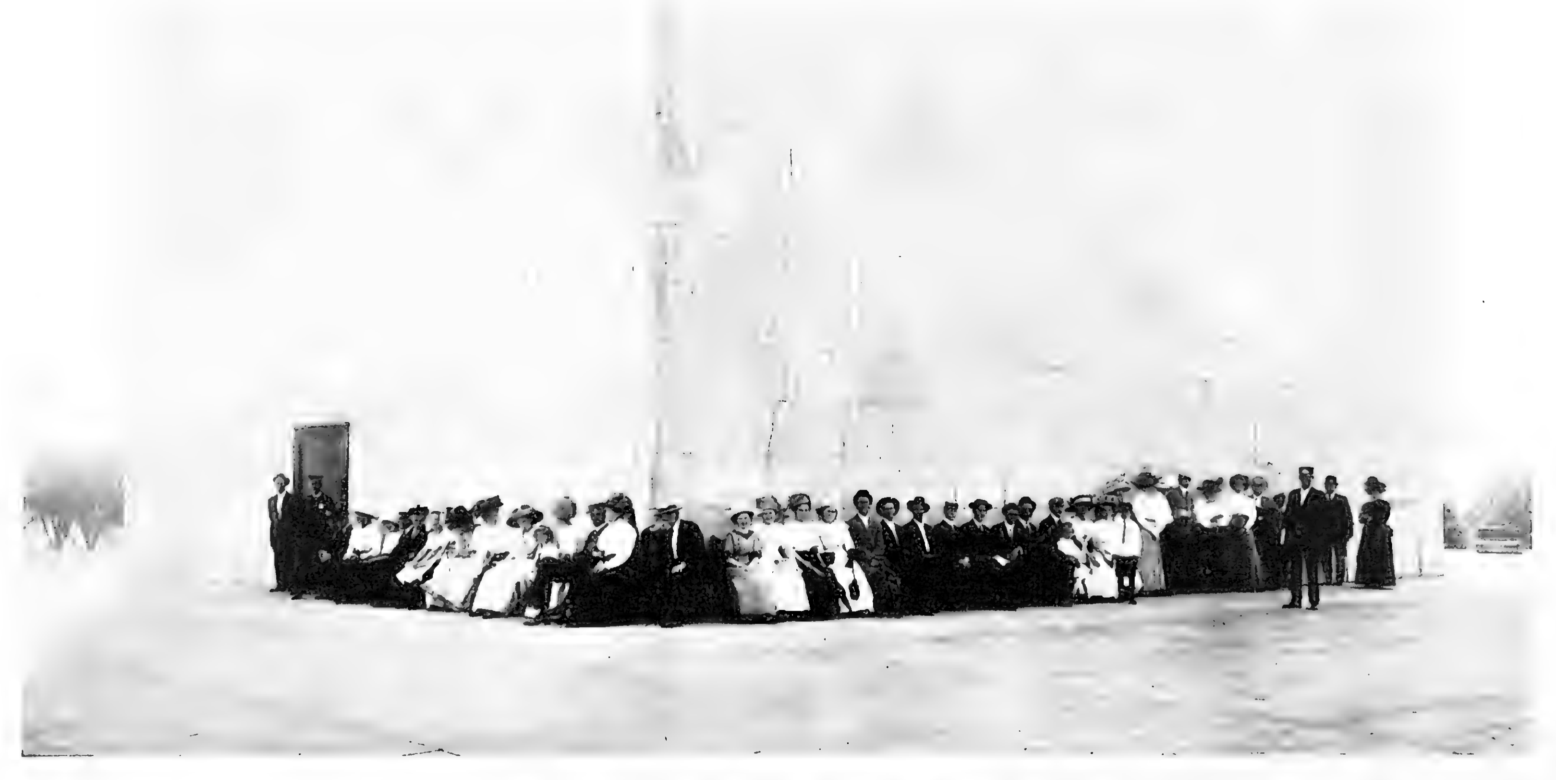
In the last two decades there have been in public life and in positions of authority men in whom innate artistic sense has been united with energy and disinterested effort, men who have shown a pride and anxiety that the country uphold and follow accepted canons of art, and who have had the practical ability to compass their patriotic purpose. Such a man was Senator James A. McMillan, of Michigan. For years he was at the head of the Committee on the District of Columbia in the Senate. To him is due the revival of interest in the proper development of our country's capital. For 12 years he gave a very considerable portion of his time and thought to putting in good order the District of Columbia. To this task he brought experience with all those activities that make up the life of a city like Washington. With him the development of the District was a constantly expanding idea. By the time of the centennial of the removal of the seat of government to Washington he had his ideal clearly in mind, and before the architects were called in, he had planned to make Washington a model capital. He organized the Commission consisting of Burnham, Olmsted, St. Gaudens, and McKim, who made the report to his Senate Committee in the Fifty-seventh Congress entitled "The Improvement of the Park System of the District of Columbia."

When Mr. Burnham suggested that the Commission should go abroad, Mr. McMillan promptly furnished the money. When it was necessary to have expensive models made of the Mall system, he again aided the project financially; and when in the last stages of the work Mr. McKim insisted that the architectural drawings be rendered, Mr. McMillan told him he might go ahead, and that if the government did not pay he would. The work of enlarging and renovating the White House, which is now a monument in its simple dignity and beauty to the brilliant genius of James McKim, was due to the initiation and insistence of Mr. and Mrs. Roosevelt and the assistance which Senator McMillan and Senator Allison rendered in securing in the spring of 1902 the necessary appropriations.

PLANS BEING EXECUTED

Senator McMillan reported the new plans for the improvement of Washington to the Senate on January 15, 1902, and on August 11 of that year he died. After his death, between $10,000 and $15,000 of money that he had advanced was paid back to his estate. The park next to the Soldiers' Home, in which is the filtration plant of the water-works of Washington, is now called McMillan Park, in honor of Senator McMillan, and is only a small recognition of the debt of gratitude which the people of the United States owe to this earnest and disinterested public servant.

Since the revival of interest in the capital, which for convenience we may date from the celebration of its centennial in 1902, many steps have been taken of a substantial character that make for the proper growth of Washington along the original plans. The movement for the clearing of obstructions in the Mall and the erection of that great monumental entrance to Washington, the Union Station, were the result of a coöperation between Senator McMillan, James Cassatt, President of the Pennsylvania Railroad, and Daniel F. Burnham. The erection of



A GROUP OF TOURISTS AT THE FOOT OF THE WASHINGTON MONUMENT, WAITING FOR THE ELEVATOR

If one desires further information about Washington as the seat of government, an excellent book on the subject is "The American Government," by Frederic J. Haskin. This book is also used as the basis for a valuable educational motion-picture subject, called "Uncle Sam at Work," and produced by Col. Henry W. Savage. Every pulsing artery of our great government's activities is faithfully produced, from the formal opening of the United States Senate by the Vice-President to the testing of the strength of a human hair by the experts of the Bureau of Standards. This clean-cut, carefully thought-out production, which opens new doors of understanding at every turn, will be of value and interest to every American, young and old, in school and out, and is warranted to make us prouder than ever of our country and to realize the magnitude of our public projects.

Photo by Albert G. Robinson

IN ROCK CREEK PARK

"To Rock Creek there is nothing comparable in any capital city of Europe. What capital city in the world is there where, within . . . a quarter of an hour on his own feet, one can get in a beautiful rocky glen, such as you would in the woods of Maine or Scotland, . . . where you not only have carriage roads, but an inexhaustible variety of foot-paths?"—JAMES BRYCE.

the Columbus statue and fountain in the plaza before the Union Station and the appropriation of the land between the station and the Senate Building and the Capitol, so as to make that all an open park, is an accomplishment the difficulties of which are rapidly being forgotten, but which at the time seemed well-nigh insurmountable. The House and Senate Office buildings fill important links in the plans for Capitol Hill; the removal of the Botanical Gardens and the consequent improvement of the lower end of the Mall has been provided for; the National Museum and the Department of Agriculture buildings have been located in accordance with the Park Commission's recommendations; the Bureau of Engraving and Printing has been fitted into the general scheme; Potomac Island and Potomac Park are coming to be dreams realized; the Lincoln Memorial is now taking physical shape; the buildings on the west side of Seventeenth street, facing the White Lot, have all been erected but one, and that one is under construction; the ground on the east side of Fifteenth street, facing the same park, has been acquired.

And so it happens that, except for a few departures, which will stand as object lessons to prevent others, there has been a consistent adherence to the well-considered recommendations of the Park Commission.

THE FINE ARTS COMMISSION

In 1910 Congress provided for a permanent Commission of Fine Arts, to be composed of seven or more qualified

judges of the fine arts, appointed by the President and serving for a period of four years each. The law provided that it should be the duty of such a commission to advise upon the location of statues, fountains, and monuments in the public squares, streets, and parks of the District of Columbia, and on the selection of models for statues, fountains, and monuments erected by the government, and upon the selection of artists for the execution of the same, and that it should be the duty of the officers authorized by law to determine such questions, in each case to call for the advice of the Commission. It was also provided that the Commission should advise generally upon questions of art when required to do so by the President or by any committee of either House of Congress.*

The first appointees upon this Commission included all the members of the first Park Commission organized by Senator McMillan, and others of high artistic achievement who sympathized with the purposes of the law, including a gentleman who had been most active and useful in all this work, and at one time Senator McMillan's private secretary, Mr. Moore, of Detroit. In this way it was considered that continuity and consistency could be given to the architectural progress of Washington, and that the spirit of the report of the Burnham Commission would be made vital and energizing in everything that was done thereafter.

I have said that the Mall was the axis upon which hung most of the recommendations of the Park Commission, and it is pleasant to note that in spite of great opposition at times the report and recommendation of the Burnham Commission have ultimately prevailed. A grand equestrian statue to General Grant was provided for by Congress and the question of its site gave rise to much controversy. The Special Commission decided that it ought to be in the axis of the Mall, at the foot of the Capitol grounds, in a line with the Monument and in the inclosure then occupied by the Congressional Botanical Garden.

* The present members of the Commission of Fine Arts are Daniel C. French, Frederick Law Olmsted, Thomas Hastings, Cass Gilbert, Charles Moore, Edwin H. Blashfield, Peirce Anderson, and Col. William M. Harts, U. S. Army.

THE LINCOLN MEMORIAL

A suitable memorial for Abraham Lincoln has been strangely wanting in Washington. Shelby M. Cullom, the veteran of the Senate from Illinois, sought to close his distinguished career by effective provision for it. The delay had not been due, of course, to a lack of desire to do honor to Lincoln's memory, but to doubt as to the form that the memorial should take. A commission had been appointed to recommend such a memorial, and time and money had been spent, but the report was not satisfactory, or at least it never made an impression upon the House and the Senate. Senator Cullom's bill was given the unusual form of naming the persons to constitute the Commission, which was given ample powers, through architects, sculptors, and artists, to procure a suitable design and to locate a proper site, subject to the approval of Congress.

Upon the recommendation of the Fine Arts Commission, Henry Bacon was selected as the architect of the memorial, and the site upon the axis of the Mall, near the bank of the Potomac River, was selected. This was in exact accord with the recommendations made a decade before by the Park Commission (see pages 250-251).

The work upon the memorial has gone on with great speed, the foundations are completed, and the work upon the superstructure is begun. Daniel C. French, the greatest of living American sculptors, has been selected to design and execute the statue of Lincoln which is to stand within the shrine, and I think we may reasonably expect that in two years' time the memorial will be complete and will be an inspiring tribute to the great martyred President, suggestive in its shining purity and beauty of his great soul. Thus we shall have the great axis of the Mall beginning with the Capitol Dome, running through the Grant Monument at the foot of Capitol Hill, and the Washington Monument two-thirds of the distance to

ONE OF THE MOST BENEFICENT INSTITUTIONS IN OUR NATIONAL CAPITAL

The Volta Bureau, for the Increase and Diffusion of Knowledge Relating to the Deaf, is educating the public to the fact that every deaf child can be taught to speak and to understand the spoken word by reading the movements of the lips. It contains all procurable literature on the history, causes and alleviation of deafness, and the education of the deaf, valuable genealogical material procurable nowhere else, and a card catalog with family history of more than 50,000 deaf children. This unique collection, which never can be duplicated, is of inestimable value in searching for the causes of deafness. The Bureau publishes a monthly magazine, *The Volta Review,* devoted more especially to advocating the teaching of better speech to children, deaf and hearing, in the home and in the school, and of lip-reading to the adult hard of hearing. The Volta Bureau was founded and endowed in 1888 by Alexander Graham Bell, the inventor of the telephone. In 1909 he deeded it, with other property, to The American Association to Promote the Teaching of Speech to the Deaf, of which he is the founder and past president.

the Potomac and ending in the Lincoln Memorial on the banks of the Potomac, high above the river, where it will suitably crown a memorial bridge uniting the North and the South, and leading to Arlington, the valhalla of the nation's patriotic dead (see panorama of the ultimate Washington).

More than this, the flats of Anacostia, on the Eastern Branch of the Potomac, are being reclaimed, while the peninsula that lies between the Washington harbor and the Potomac River, enlarging Potomac Park for more than a mile, and called East Potomac Park, is gradually assuming usable form (see page 222).

THE MAIN READING-ROOM IN THE LIBRARY OF CONGRESS (SEE PAGE 273)

With art, architecture, and sculpture lending their purest conceptions to its beautification, the main reading-room of the Library of Congress is unsurpassed among the reading-rooms of the world's libraries, both in size and splendor. It constitutes the great central rotunda of the Library. Above it rises the gold dome, capped with its ever-burning torch of learning. The most famous colored marbles in the world—dark from Tennessee, red from Numidia, and yellow from Siena—give it its rich color effects. Truly, as the great Vedder mosaic outside the reading-room proclaims, "Minerva was at her best when she builded this monument, more enduring than bronze."

GREAT AMOUNT OF WORK TO BE DONE

No one can read the report of the Park Commission, however, without realizing the great amount of work that remains to be done. Of this, part of it ought to be done at once—the sooner the better. The great addition to the L'Enfant plan made by the Park Commission was the development of the park system of Washington outside of its original limits. The heat of Washington in the summer was a circumstance that figured much in the deliberations of the Commission. They thought that the high ridges and hills all about the city had not been sufficiently improved as places of summer resort. They sought to impress upon Congress the necessity for the acquisition of these tracts for park purposes now, when the land could be bought at a comparatively cheap price. They wished to secure a circular zone running clear from the hills overlooking the upper Potomac beyond the Tennallytown pike, and following a line of abandoned, but picturesque and historically interesting, fortifications erected during the Civil War for the defense of Washington, extending southeastwardly clear around to the hills above Anacostia and reaching down to the Potomac below the Eastern Branch (see map on page 245).

I am very hopeful that some executive agency will be given power to act and to acquire this park zone bordering the perimeter of the District from the hills that command the beautiful Virginia Palisades of the Potomac around to the Anacostia hills that look across toward the home of Washington at Mount Vernon. The connection between Rock Creek Park and the Soldiers' Home and the grounds of the Capitol and the Mall is, of course, of the highest importance, but is so plain a necessity that I think we may safely count on its being carried out in the near future. While Rock Creek is beautiful and while the Potomac Park is beautiful, the extent of the drives in Washington is somewhat limited; but this outer park zone was developed, with its entrancing views and vistas, so as to make them noteworthy in the urban scenery of the world. The Commission has pointed out that the park area of the city of Washington is much smaller in proportion to the population than the park area of many of the great cities of the world.

VIRGINIA AND THE DISTRICT

The injury to Washington inflicted by the retrocession of the Virginia part of the District was serious, and one of the questions that we ought to meet promptly is whether we cannot retrieve some of the ground lost by that egregious blunder. While I was in the White House I conferred with the Representatives of Virginia in the House and Senate to see whether we might not procure some legislation by the State of Virginia tendering back all or a part of that which had been retroceded. I found that since Alexandria had grown into a prosperous city Virginia would never willingly part with it, but that jurisdiction of the remainder of the district, a considerable part of which the United States already owns—in the Arlington estate, in the agricultural experiment station on the Potomac, and in Fort Myer—Virginia might be willing to cede again to the government if the government would acquire by condemnation the beautiful Palisades and the country back of it. In this way the limits of Washington may be extended across the Potomac and brought within the improving influence of the government treasury.

The construction of the Memorial Bridge, which has already been projected, over to Arlington from the foot of the Lincoln Memorial will doubtless greatly facilitate some such arrangement; and then if Congress would build the Memorial Bridge and a great broad boulevard from the Memorial Bridge to Mount Vernon, as recommended by the Park Commission, Virginia would doubtless become more amenable. We might thus procure from Virginia and Maryland cession to the United States of the Great Falls of the Potomac, which now lie between Maryland and Virginia, but which ought to be a government reservation. They are the most beautiful water falls on the eastern side of the Appalachians, within easy distance of Washington, and should be incorporated in its park system.

THE SMITHSONIAN INSTITUTION, FOUNDED BY AN ENGLISHMAN WHO HAD NEVER SET FOOT ON AMERICAN SOIL

When James Smithson, an Englishman who had never visited the United States, but who had come to possess a deep faith in American ideals and institutions, willed half a million dollars for the founding of an institution for "the increase and diffusion of knowledge," he rendered a service to humanity whose full fruition can be measured only when time shall be no more. Through this institution the science of meteorology had its birth, fish culture its inception, the transmission of time signals in railroad operations its beginning, and the science of aëronautics its development to the point where the Wright Brothers could take it up and give it a practical value to the whole world.

SUNKEN GARDENS IN THE MALL

It was intended by L'Enfant that the Washington Monument should be at the intersection of a line from the center of the Capitol and at right angles to its axis, with another line from the center of the White House and at right angles to its axis; but the geometrical symmetry planned was not maintained and the Monument was not rightly placed. The line from the center of the White House intersects the line from the Capitol some rods nearer the river than the Monument. The Commission proposed a most ingenious method of avoiding the unfortunate effect of this error by a sunken garden, with a noble terrace and steps leading up the Monument (see page 248). The sunken garden as planned extends along the axis from the Monument in the direction of and opens a vista toward the Lincoln Memorial. There is no reason why this should not be carried out in the future.

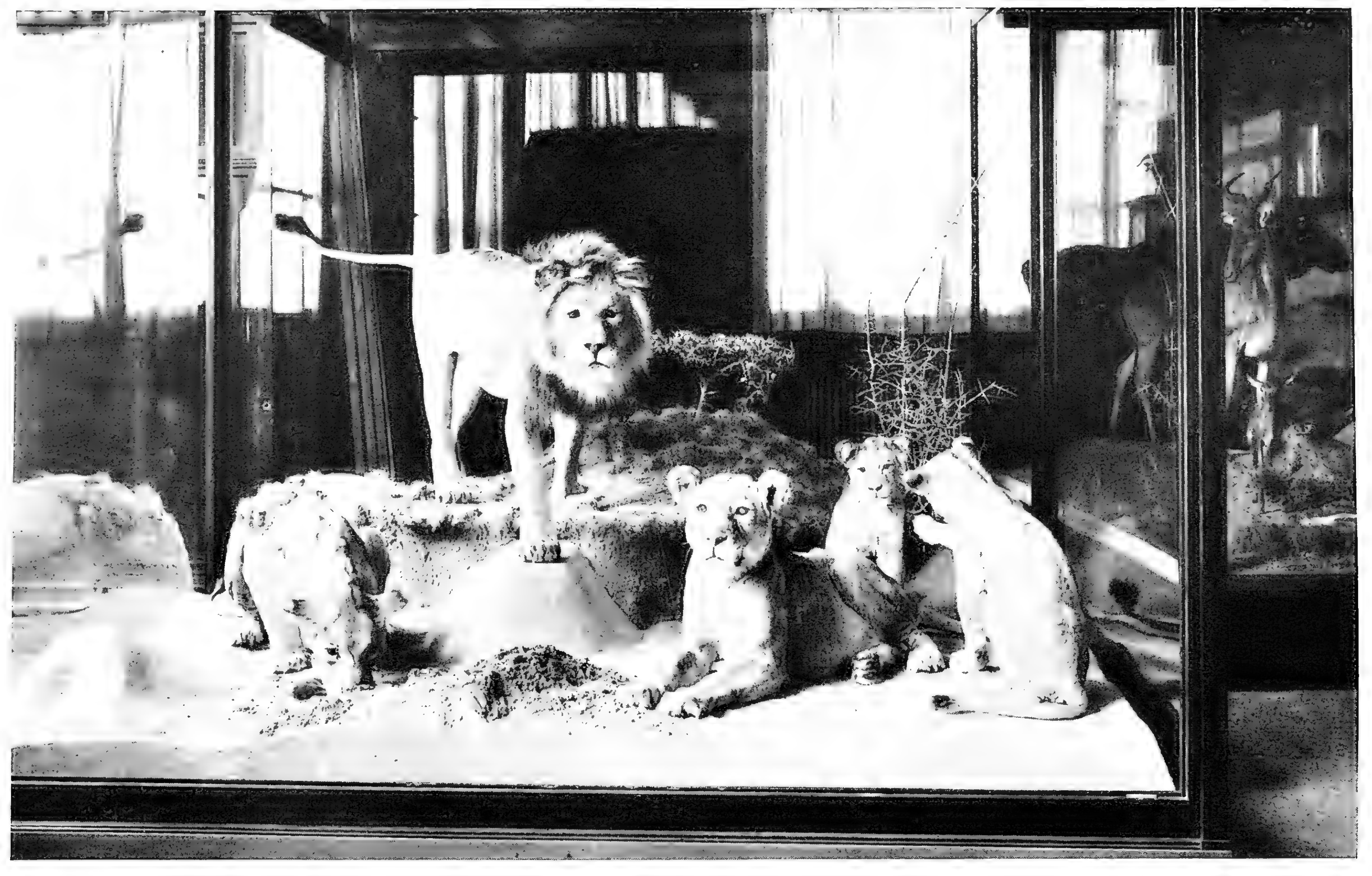
The transverse line from the White House crosses this sunken garden, in the imaginative sketch of the Commission, to a Pantheon at the intersection of the White House axis with the axis of Maryland avenue in a center of buildings and grounds for the encouragement and practice of athletics by the people of Washington, called Washington Common, which is at the same distance from the sunken garden and the Monument as the White House, and completes an axis secondary to that of the Mall (see panorama of the ultimate Washington, frontispiece). The beauty of the arrangement must impress every one who reads carefully the report of the Commission and studies the designs, which have been worked out with the utmost skill and attention to detail and adherence to the symmetry of the general plan.

POPULATION OF WASHINGTON AND OTHER CAPITALS

If the Nation's Capital continues to grow during the remainder of the present century as rapidly as it grew between 1910 and 1914, it will have a population of more than 800,000 at the beginning of the next century. Even then, however, it will be very much smaller than any of the leading capitals of the world. London, Paris, Berlin, Tokyo, Vienna, and Petrograd all have populations exceeding two million, while Buenos Aires, Constantinople, and Rio de Janeiro have populations exceeding a million. Other capitals which now have a population of more than half a million are Brussels, Budapest, Copenhagen, Lisbon, Madrid, Melbourne, Mexico City, Peking, and Rome. It follows that even a touch of the wisdom and foresight of Washington will lead us to provide for the Capital's future.

In many quarters there seems to be an erroneous impression that the United States government pays the entire expense of maintaining the Capital City, and, further, that the people of Washington have their municipal government handed to them on a silver platter. Such, however, is far from the truth. In any study of the National Capital and the relation of its inhabitants to the government the principal fact must always be kept in mind that the city is in no sense supported by the government for the people's benefit.

While they have to pay but half of the expense of the city government, that half is greater than most cities of Washington's class impose upon their people. There are two reasons for this. The first of these is that no other city of its class has so many unusual expenses to meet. For instance, no other city of its size has as many square feet of street surface to maintain; its expenditures for police protection are $2.96 per capita, where the expenditures of the nine cities with populations ranging between 295,000 and 408,000 average only $1.86. Its fire department expenditures are $1.92 per capita, where those of these nine cities are $1.66 per capita. Its per capita expenditures for highways are $3.12, as compared with $2.16 for the nine cities of its class. Its per capita expenditures for charities, hospitals, and corrections are $3.62, as compared with $1.24 for the nine cities. In every department of its activities expenses are somewhat unusual, this being due to the fact that the city is the home of the Federal government and

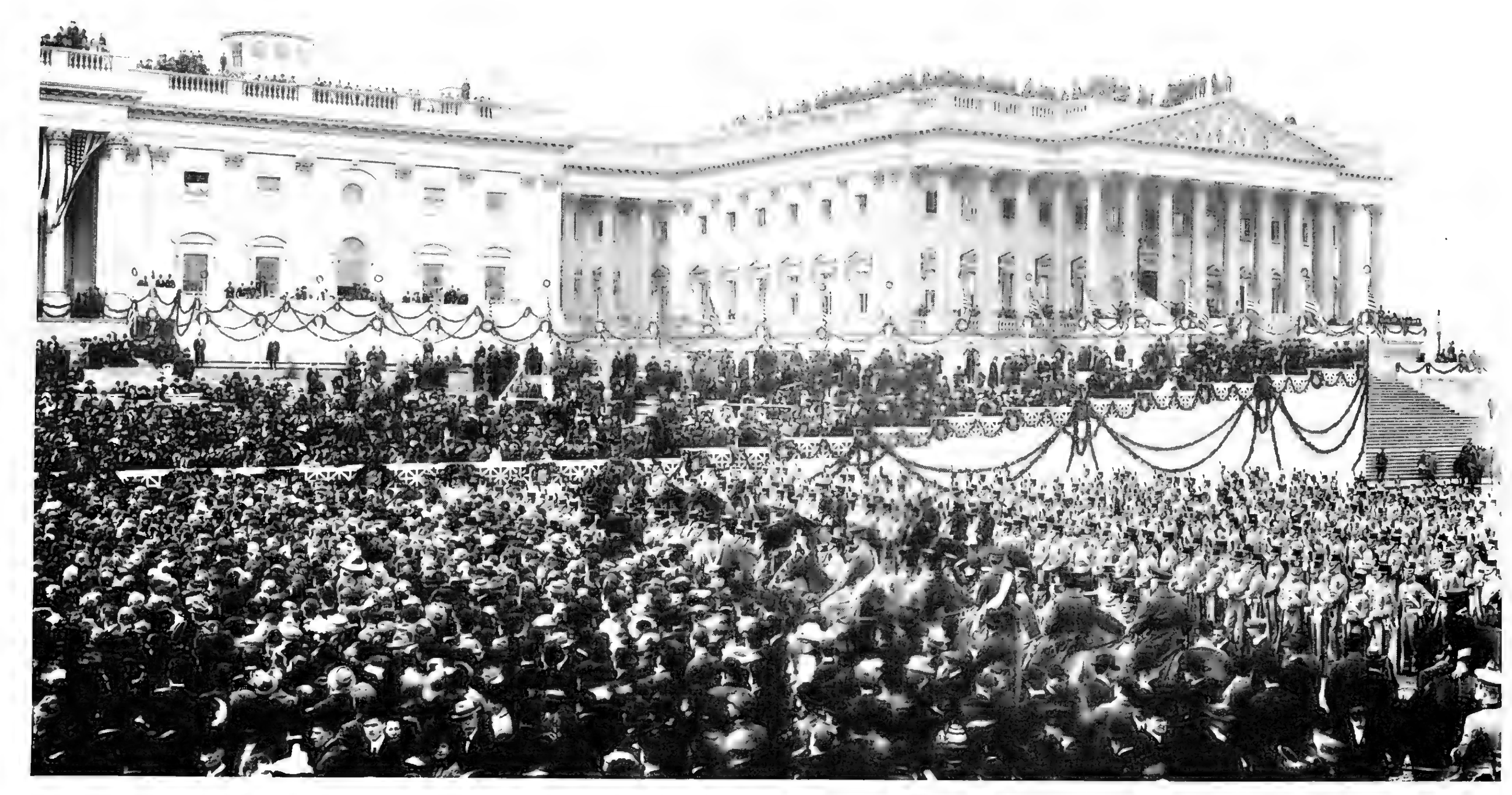


AT THE WATER-HOLE: THE ROOSEVELT GROUP OF LIONS AT THE NATIONAL MUSEUM

The United States National Museum is an exposition of American history, American invention, and American science. Here we find the nation's most priceless historical relics, from those of Washington to those of Lincoln and Grant; its most sacred treasures of invention, from the first Morse telegraph and the first Bell telephone to the first Wright flying machine; and its richest collections of scientific material, gathered from all parts of the world, including the splendid contributions of the Roosevelt-Smithsonian African Expedition.

THE ROOSEVELT RHINO GROUP AT THE NATIONAL MUSEUM

This group of square-lipped rhinos, the only group of this rare rhino possessed by any museum, represents a very small part of the vast number of specimens collected by the African Expedition of ex-President Roosevelt. That expedition gathered over 5,000 specimens of mammals alone, to say nothing of thousands of rare birds, insects, fishes, plants, etc. A few of these specimens are mounted, but most of them have been put into the scientific collections for study purposes. Note the birds on the back of the rhinos. In return for the plentiful supply of insects that the rhinos' bodies afford them, they serve as sentinels against danger.



GATHERING TO WITNESS THE INAUGURAL OF THE PRESIDENT

No spectacle in the history of government is more solemn than that of the President of the United States taking the oath prescribed by the Constitution when he enters upon his term of office. Surrounded by those who constitute the executive, judicial, and legislative machinery of his own government; by the delegated representatives of all the other governments of the earth; by the picked forces of the American army and navy, and by several hundred thousand of his fellow-citizens, the President-elect swears to uphold the Constitution, and one scarcely knows which is the most impressive—the dignity, the solemnity, or the simplicity of the occasion.

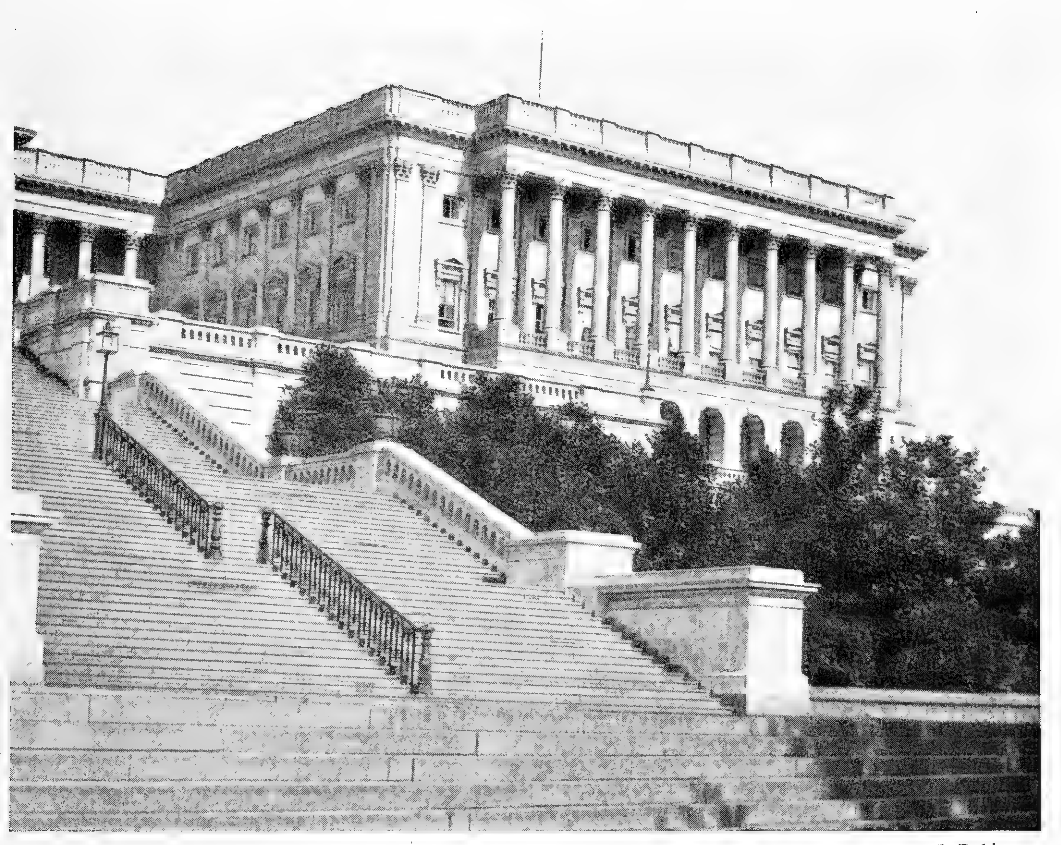


Photo by Albert G. Robinson

THE IMPOSING WEST FRONT OF THE HOUSE END OF THE CAPITOL

In the plans of the Park Commission it is intended that the west front grounds shall be relieved and enriched with basins and fountains, in which the water, falling from one level to another, is finally poured into a great central pool at the foot of Capitol Hill (see page 249). The capital Washington planned was infinitely greater in proportion to the resources of the nation at that time than the city as embraced in the plans now in process of slow execution are to the present resources of the nation.

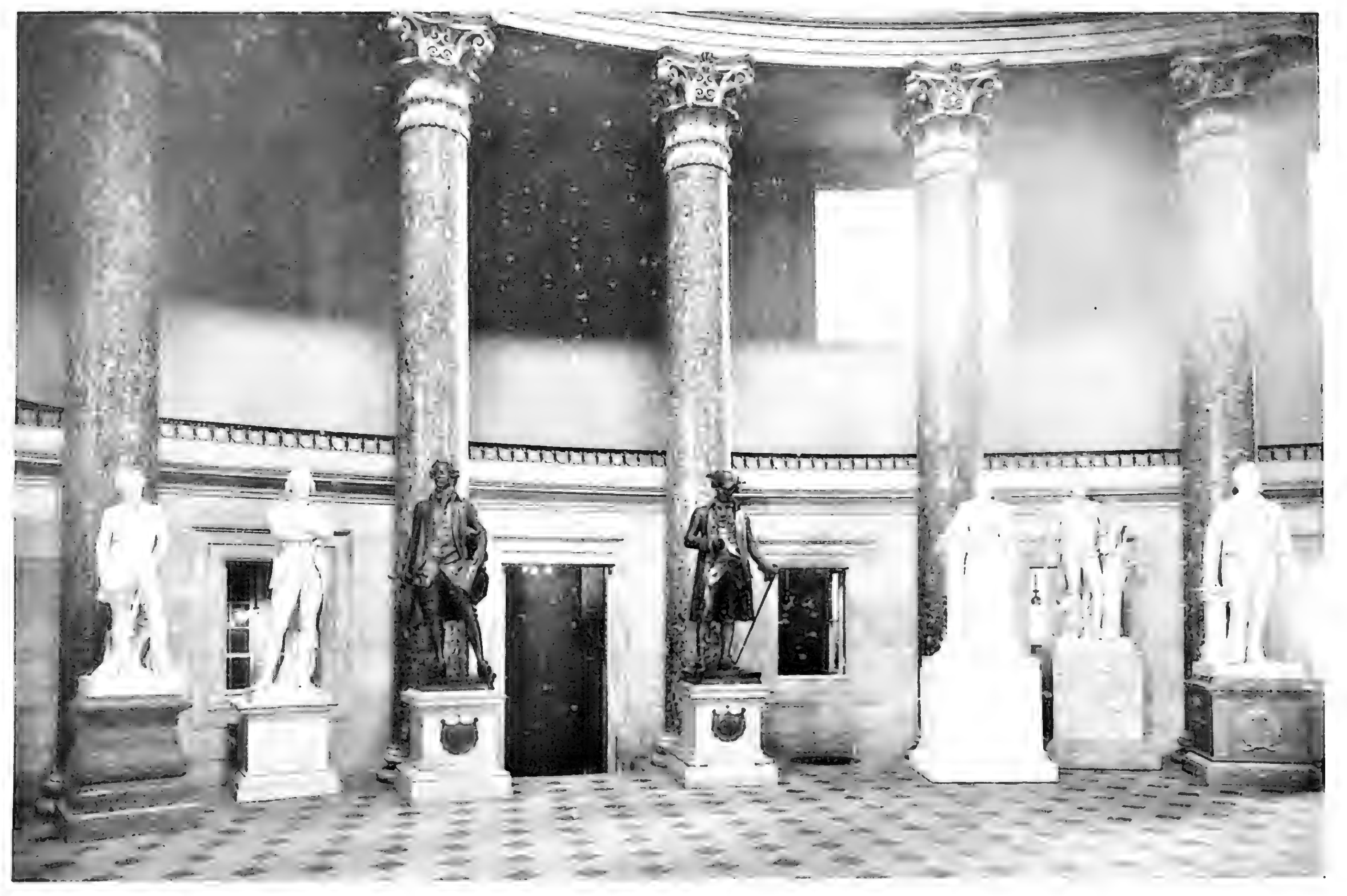
must meet all the requirements of a Nation's Capital.

The second reason why the burden of even one-half of the expenses of the city government is heavier than the total expenses of most cities is that Washington has but one industry, which is government, and that industry but one product, which is politics. With no important wealth-producing industries to swell the incomes of the people of the Capital, with every activity discouraged that would detract from the beauty of the city, per capita ability to pay taxes is correspondingly smaller in Washington than in most cities. Hence it is that even the half-and-half plan still leaves Washington a rather heavily taxed municipality.

THE ATTITUDE OF CONGRESS IN 1878

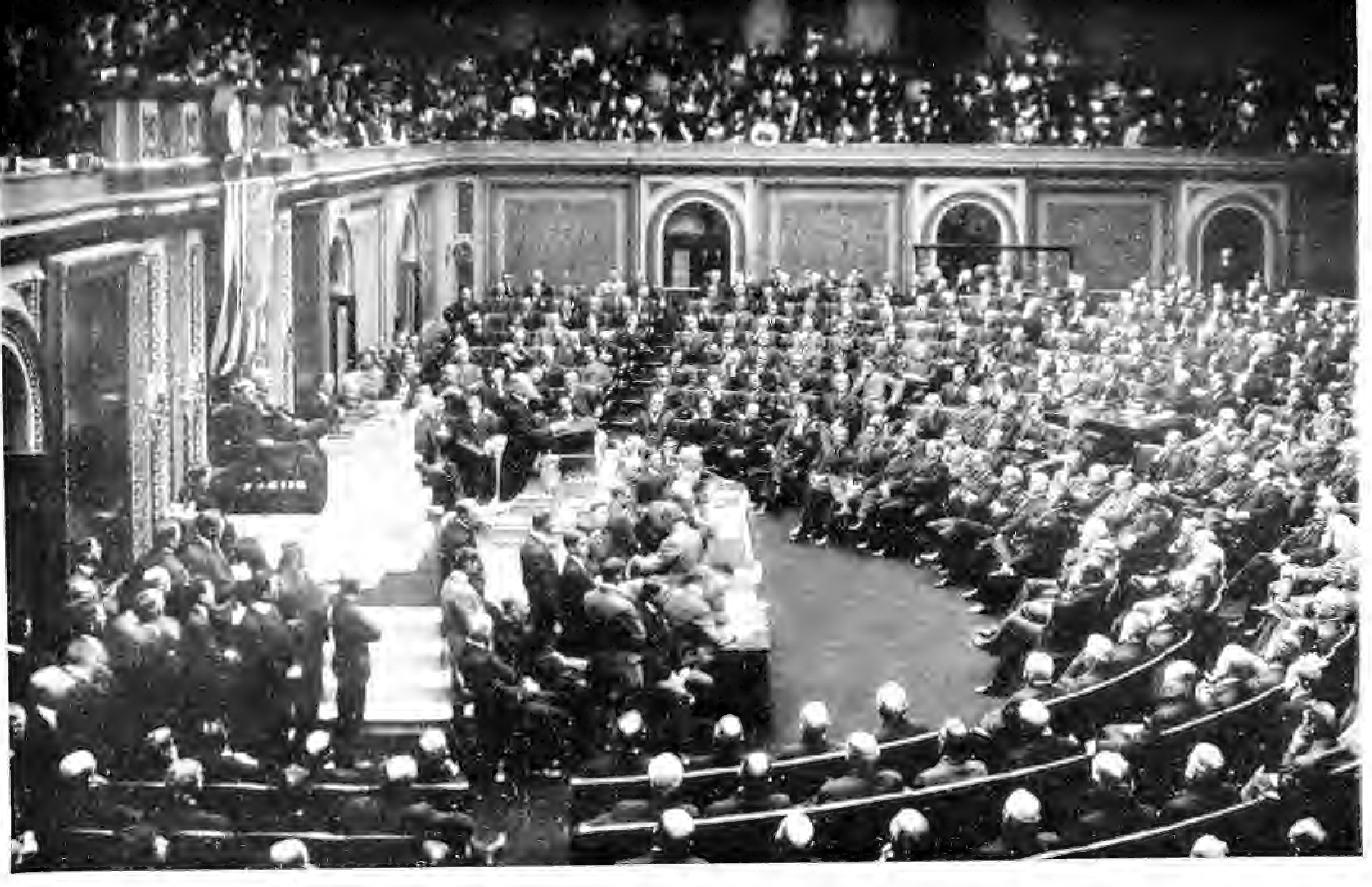
When the question of finding a fair basis for the financial resolutions between the United States government and the District of Columbia was pending in Congress during the middle seventies, a report favorable to the half and half plan was made by the Judiciary Committee of the House. Among other striking statements in that instrument was one which shows how the law-makers of that period viewed the subject. It is as follows:

"There is something revolting to a proper sense of justice in the idea that the United States should hold free from taxation more than half of the area of the Capital City and should be required to maintain a city upon an unusually ex-



THE NATIONAL STATUARY HALL IN THE CAPITOL

From 1856 to 1860 some of the most famous deadlocks and parliamentary battles in the history of the world's legislatures took place in this hall, which was then the meeting place of the House. Today it is peopled by memorials of the States to their favorite sons. Each State furnishes statues, in marble or bronze, of the two deceased citizens who have been, in its judgment, most illustrious and most worthy of national commemoration. The only woman who has been thus honored is Frances E. Willard, the founder of the World's Woman's Christian Temperance Union.



THE PRESIDENT ADDRESSING THE CONGRESS

Situated as an island in the center of the House wing of the Capitol, with no window opening to the outside world except the beautiful skylight which constitutes its ceiling, the hall of the House of Representatives is one of the most impressive of legislative chambers, as well as the largest, in existence. Beneath its galleries are the cloak-rooms. To the rear of the Speaker's desk is the members' lobby, and above it the press gallery, from whence the world gets its news, by direct wires, of the doings of the House. Formerly each Representative had a separate desk and chair, but the growth of the House, through the expansion of population, has forced the installation of benches.

pensive scale, from which the ordinary revenues derived from commerce and manufactures are excluded; that in such a case the burden of maintaining the expenses of the Capital City should fall entirely upon the resident population."

How truly Washington is a national city is revealed by the place of birth of its inhabitants. More than two-thirds of all of the people residing in the District of Columbia in 1910 were born elsewhere. No other city in the country has such a large proportion of people who were not born within its boundaries. Every State in the Union is represented by a considerable quota of people who have come to Washington with their families. In the District government, as it is constituted today, none of the higher officials are native-born. Both civilian commissioners, the engineer commissioner, the superintendent of police, and the health officer were all born outside of the Capital. The same is true of a majority of the members of the Board of Assessors, the Excise Board, and the other principal organizations of the city.

BELIEVE IN A BEAUTIFUL CAPITAL

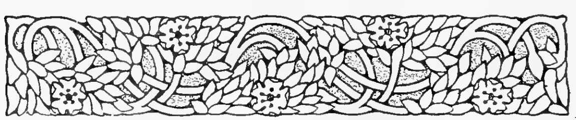
That the citizens of Washington have a disinterested enthusiasm for the beautification of the city and for its improvement in every way I can personally testify. Many of the measures for the enlargement of the public facilities in Washington or for the purchase of parking, which ought to have gone through, have either been delayed or defeated through suspicions of the good faith of those who have been active in recommending them.

As I look back now with my knowledge of Washington, covering nearly a quarter of a century, I am bound to say that several gentlemen who have been very prominent in urging congressional action for the government acquisition of greatly needed land, that could be had at a reasonable price for government purposes, have been grossly maligned. More than that, they have been sadly vindicated in the disappointment that all lovers of Washington must feel now that their advice was not followed.

The fact that the residents of Washington, now grown to 350,000 in number, are deprived of local self-government imposes a sacred obligation on Congress to see to it that they do not suffer from such deprivation.

The people of the United States love Washington. They are proud of the city. When they visit the city they walk upon her streets with a consciousness that she belongs to them, and that her dignity and beauty and the grandeur of her buildings are an expression of her sovereignty and her greatness.

The educational effect that the architectural development of Washington along proper lines will have upon our people will be most elevating. It will show itself in the plans for the improvement of other cities and it will cultivate a love of the beautiful that will make for the happiness of all.



IMPRESSIONS OF PALESTINE

By James Bryce

British Ambassador to the United States, 1906-1913

NO COUNTRY has been so often described or so minutely described by travelers of all sorts of tastes and interests as Palestine has been; and this is natural, for none has excited so keen an interest for so long a time and in so many nations.

As we have all at some time or other read much about the country, it may well be thought that nothing now remains to be said about Palestine, except by archeologists, whose explorations of the sites of ancient cities are always bringing fresh facts to light. But if all of us have read a good deal about the Holy Land, most of us have also forgotten a good deal, and our ideas of the country—ideas colored by sentiments of reverence and romance—are often vague and not always correct.

It may therefore be worth while to set down in a plain and brief way the salient impressions which the country makes on a Western traveler who passes quickly through it. The broad impressions are the things that remain in memory when most of the details have vanished, and broad impressions are just what an elaborate description sometimes fails to convey, because they are smothered under an infinitude of details.

A SMALL COUNTRY

Palestine is a tiny little country. Though the traveler's handbooks prepare him to find it small, it surprises him by being smaller than he expected. Taking it as the region between the Mediterranean on the west and the Jordan and Dead Sea on the east, from the spurs of Lebanon and Hermon on the north to the desert at Beersheba on the south, it is only 110 miles long and from 50 to 60 broad—that is to say, it is smaller than New Jersey, whose area is 7,500 square miles.

Of this region large parts did not really belong to ancient Israel. Their hold on the southern and northern districts was but slight, while in the southwest a wide and rich plain along the Mediterranean was occupied by the warlike Philistines, who were sometimes more than a match for the Hebrew armies. Israel had, in fact, little more than the hill country, which lay between the Jordan on the east and the maritime plain on the west. King David, in the days of his power, looked down from the hill cities of Benjamin, just north of Jerusalem, upon Philistine enemies only 25 miles off, on the one side, and looked across the Jordan to Moabite enemies about as far off, on the other.

Nearly all the events in the history of Israel that are recorded in the Old Testament happened within a territory no bigger than the State of Connecticut, whose area is 4,800 square miles; and into hardly any other country has there been crowded from the days of Abraham till our own so much history—that is to say, so many events that have been recorded and deserve to be recorded in the annals of mankind. To history, however, I shall return later.

FEELING PALESTINE'S SMALLNESS

Nor is it only that Palestine is really a small country. The traveler constantly feels as he moves about that it is a small country. From the heights a few miles north of Jerusalem he sees, looking northward, a far-off summit carrying snow for eight months in the year. It is Hermon, nearly 10,000 feet high—Hermon, whose fountains feed the rivers of Damascus.

But Hermon is outside the territory of Israel altogether, standing in the land of the Syrians; so, too, it is of Lebanon. We are apt to think of that mountain mass as within the country, because it also is frequently mentioned in the Psalms and the Prophets; but the two ranges of Lebanon also rise beyond the frontiers of Israel, lying between the Syrians of Damascus and the Phœnicians of the West.

Perhaps it is because the maps from which children used to learn Bible geography were on a large scale that most of us have failed to realize how narrow were the limits within which took place all those great doings that fill the books of Samuel and Kings. Just in the same way the classical scholar who visits Greece is surprised to find that so small a territory sufficed for so many striking incidents and for the careers of so many famous men.

LITTLE NATURAL WEALTH

Palestine is a country poor in any natural resources. There are practically no minerals, no coal, no iron, no copper, no silver, though recently some oil wells have been discovered in the Jordan Valley. Neither are there any large forests, and though the land may have been better wooded in the days of Joshua than it is now, there is little reason to think that the woods were of trees sufficiently large to constitute a source of wealth. A comparatively small area is fit for tillage.

To an Arab tribe that had wandered through a barren wilderness for 40 weary years, Canaan may well have seemed a delightful possession; but many a county in Iowa, many a department in France, could raise more grain or wine than all the Holy Land.

PLAIN OF ESDRAELON

There is one stretch of fertile, level land 20 miles long and from 3 to 6 miles wide—the Plain of Esdraelon. But with this exception it is only in the bottoms and on the lower slopes of a few valleys, chiefly in the territory of Ephraim from Bethel northward and along the shores of the Bay of Acre, that one sees cornfields and olive yards and orchards. Little wine is now grown.

Such wealth as the country has consists in its pastures, and the expression "a land flowing with milk and honey" appropriately describes the best it has to offer, for sheep and goats can thrive on the thin herbage that covers the hills, and the numerous aromatic plants furnish plenty of excellent food for the bees; but it is nearly all thin pasture, for the land is dry and the soil mostly shallow. The sheep and goats vastly outnumber the oxen. Woody Bashan, on the east side of Jordan, is still the region where one must look for the strong bulls.

SEEN THROUGH A GOLDEN HAZE

Palestine is not a beautiful country. The classical scholar finds charms everywhere in Greece, a land consecrated to him by the genius of poets and philosophers, although a great part of Greece is painfully dry and bare. So, too, the traveler who brings a mind suffused by reverence and piety to spots hallowed by religious associations sees the landscapes of the Holy Land through a golden haze that makes them lovely. But the scenery of the Holy Land, taken as a whole (for there are exceptions presently to be noticed), is inferior, both in form and in color, to that of northern and middle Italy, to that of Norway and Scotland, to that of the coasts of Asia Minor, to that of many parts of California and Washington.

The hills are flat-topped ridges, with a monotonous sky-line, very few of them showing any distinctive shape. Not a peak anywhere, and Tabor the only summit recognizable by its form. They are all composed of gray or reddish-gray limestone, bare of wood, and often too stony for tillage. Between the stones or piles of rock there are low shrubs, and in the few weeks of spring masses of brilliant flowers give rich hues to the landscape; but for the rest of the year all is gray or brown. The grass is withered away or is scorched brown, and scarcely any foliage is seen on the tops or upper slopes of the rolling hills. It is only in some of the valleys that one finds villages nestling among olive groves and orchards where plum and peach and almond blossoms make spring lovely.

Arid indeed is the land. The traveler says with the Psalmist: "My soul longs in a dry, parched land, wherein no water is." Wells are few, springs still fewer, and of brooks there are practically none, for the stony channels at the bottom of the glens have no water except after a winter rainstorm. There may probably have been a more copious rainfall 20 or 30 centuries ago, when more wood clothed

Photo by the American Colony at Jerusalem

VILLAGERS VISITING THE TOMB OF MOSES

Although Holy Writ tells us that the Lord buried Moses "in the land of Moab, over against Beth-peor," and that "no man knoweth his sepulcher unto this day," thousands of pilgrims annually visit what they believe to be his tomb.

the hillsides, and the country would then have been more pleasing to Northern eyes, to which mountains are dear because rills make music and green boughs wave in the wind.

THE RIVER KISHON

To this general description there are certain exceptions which must not be forgotten. The high ridge of Mount Carmel rises grandly from the sea, and on its land side breaks down in bold declivities and deep glens upon the valley through which the Kishon, an almost perennial stream, finds its way to the Bay of Acre. Here, upon the slopes of a long ridge, on the other side of the Kishon, there is a wildering forest of ancient holm-oaks, all the more beautiful because it is the one considerable stretch of natural wood in the whole country west of Jordan.

On the other side of that river the slopes of the plateau which runs eastward into the desert, the Bashan and Gilead of the Old Testament, have also patches of woodland left, and in the canyons that cut deep through these slopes there is many a picturesque scene where the brooks, Jabbok and Yarmuk, leap in tiny waterfalls from ledge to ledge of the cliffs. These are the only brooks in all the country, these and the Kishon, which itself is reduced in late summer to a line of pools.

VIEW FROM TABOR

Of the wider views there are two that ought to be noted. One is beautiful. It is the prospect from the top of Mount Tabor, a few miles east of Nazareth, over the wide plain of Esdraelon, specially charming in April, when the green of the upspringing wheat and barley contrasts with the rich red of the strips of newly plowed land that lie between.

The other is grand and solemn. From the Mount of Olives, and indeed from the higher parts of Jerusalem itself, one looks across the deep hollow where the Jordan, a little below Jericho, pours its turbid waters into the Dead Sea, and sees beyond this hollow the long, steep wall of the mountains of Moab.

These mountains are the edge of the great plateau, 3,000 feet higher than the Dead Sea, which extends into the Great Desert of Northern Arabia. Among them is conspicuous the projecting ridge of Nebo, or Pisgah, from which Moses looked out upon that Promised Land which he was not permitted to enter. These mountains are the background of every eastward view from the heights of Judea. Always impressive, they become weirdly beautiful toward sunset, when the level light turns their stern gray to exquisite purples and a tender lilac that deepens into violet as the night begins to fall.

PROSPECTS THAT PLEASE

In eastern Galilee also there are noble prospects of distant Hermon; nor is there any coast scenery anywhere finer than that of the seaward slopes of Lebanon behind Sidon and Beirut. But Hermon and Lebanon (as already remarked) lie outside Palestine and would need a description to themselves. Damascus, seen from the heights above, its glittering white embosomed in orchards, is a marvel of beauty—a pearl set in emeralds, say the Muslims. Petra, far off in the Arabian Desert to the south, is a marvel of wild grandeur, with its deep, dark gorges and towering crags; but these also lie outside Palestine.

THE SEA OF GALILEE

Though not comparable in beauty either to the lakes of Britain or to those that lie among the Alps, or to Lake George in New York and Lake Tahoe in California, the Sea of Galilee has a quiet charm of its own.

The shores are bare of wood and the encircling mountains show no bold peaks; yet the slopes of the hills, sometimes abruptly, sometimes falling in soft and graceful lines, have a pleasing variety, and from several points a glimpse may be caught of the snowy top of Hermon rising beyond the nearer ranges. A great sadness broods over the silent waters. The cities that decked it like a necklace have, all but Tiberias, vanished so utterly that archeologists dispute over their sites. There is little cultivation, and where half a million of people are said to have lived at the beginning of our era, not 5,000 are

Photo by the American Colony at Jerusalem

THE DAMASCUS GATE: ONE OF THE PRINCIPAL ENTRANCES TO THE OLD CITY AT JERUSALEM

The view from the top of Damascus Gate is one of the most striking in Jerusalem. From it one may see the Church of the Holy Sepulchre, Mount Zion, the Tower of David, the Mosque of Omar, the Mount of Olives, and the gilded domes of the Russian Church, which proclaim Gethsemane.

Photo by the American Colony at Jerusalem

THRESHING-FLOOR SCENE IN THE FIELDS OF BOAZ, NEAR BETHLEHEM

The trampled grain is tossed into the air; the fine straw separates into a neat pile by itself, while the dust and very fine particles are completely blown away

now to be found. Many a devastating war and the misgovernment of 14 centuries have done their fatal work.

PALESTINE SUMMED UP

If Palestine is not a land of natural wealth nor a land of natural beauty, what is it? What are the impressions which the traveler who tries to see it exactly as it is carries away with him? Roughly summed up, they are these: stones, caves, tombs, ruins, battle-fields, sites hallowed by traditions—all bathed in an atmosphere of legend and marvel.

Never was there a country, not being an absolute desert, so stony. The hillsides seem one mass of loose rocks, larger or smaller. The olive yards and vineyards are full of stones. Even the cornfields (except in the alluvial soil of the plain of Esdraelon and along the sandy coast) seem to have more pebbles

Photo by Charles Beery

PALESTINE "AS IT WAS IN THE DAYS OF OLD"

As one journeys through Palestine he is frequently reminded of the truth of the sayings of the Saviour about the shepherd and his sheep

than earth, so that one wonders how crops so good as one sometimes sees can spring up. Caves are everywhere, for limestone is the prevailing rock, and it is the rock in which the percolation of rain makes clefts and hollows and caverns most frequent.

HISTORIC CAVES

Many of the incidents of Bible history are associated with caverns, from the cave of Machpelah, at Hebron, where Abraham buried Sarah and in which he is supposed to have been himself interred, down to the sepulchre hewn in

Photo by the American Colony at Jerusalem

THE VILLAGE WEAVER

In some parts of Palestine the men do the spinning in their spare time, taking the yarn to the village weaver to be converted into cloth, after which the women make it into clothing. European ginghams and calico are rapidly replacing the native product.

rock in which the body of Christ was laid and over which the Church of the Holy Sepulchre was built by Helena, the mother of the Emperor Constantine.

Tradition points out many other sacred caves. It places the Annunciation by the Angel Gabriel to the Virgin at Nazareth in one cavern and the birth of Christ at Bethlehem in another, and assigns others to Samson, to David, to Elijah, and to various prophets. All over the country one finds tombs hewn in the solid rocks and pillars or piles of stone marking a burial place. Many of these rock tombs may be the work of races that dwelt here before Israel came. In a rocky land, where natural cavities are common, this becomes the obvious mode of interment. Thus here, as in Egypt, one seems to be in a land rather of the dead than of the living.

The impression of melancholy which

Photo by the American Colony at Jerusalem

A PRIMITIVE IRRIGATING WHEEL OUTSIDE OF JERUSALEM

Up to a few years ago the lifting of water from these wells in most parts of Palestine was done by a rude mechanism on the principle of the "horse-power," turned by a mule or camel. Damascus gets its water supply through the rivers that come down from snowy Mt. Hermon (see text, page 293).

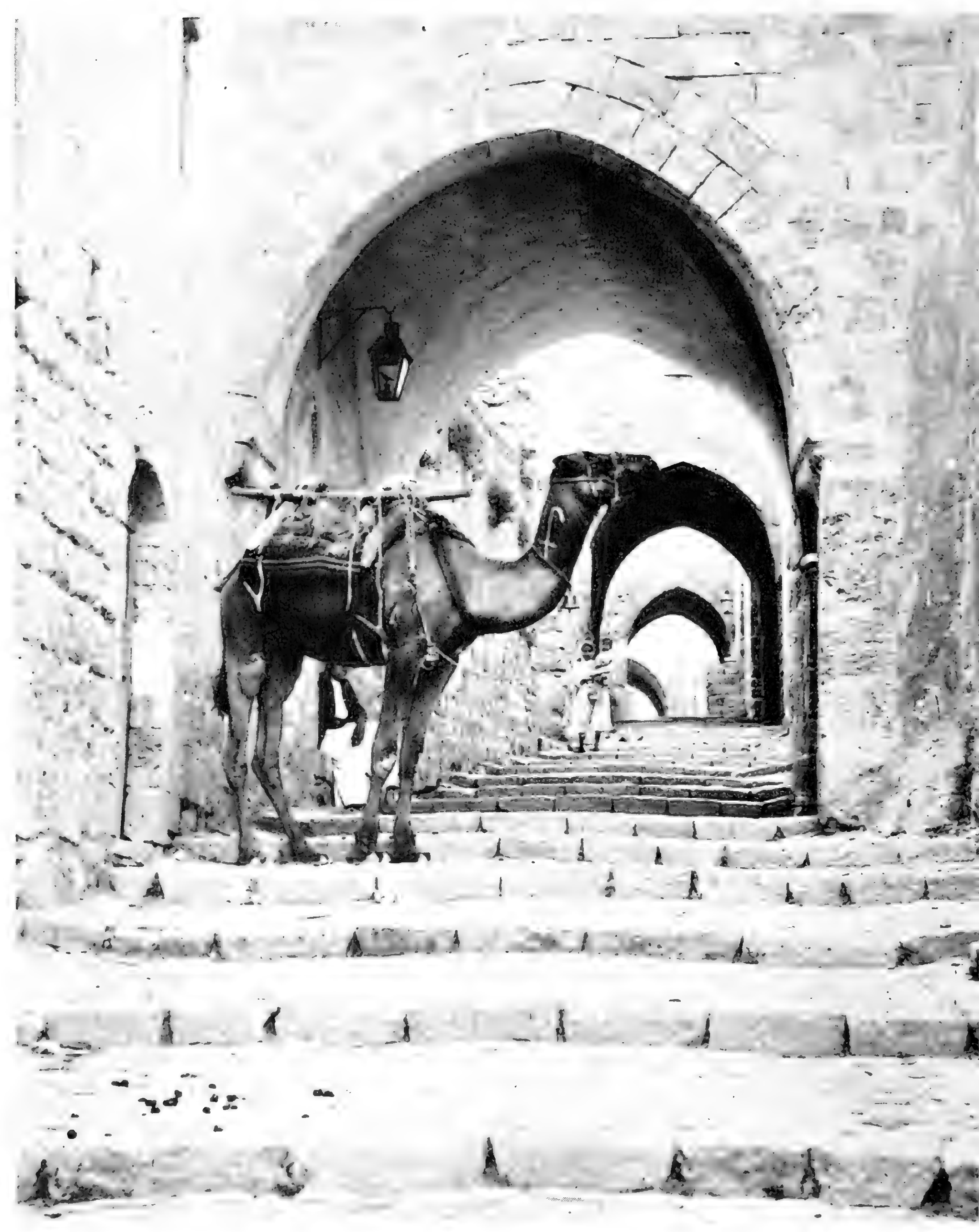


Photo by the American Colony at Jerusalem

ARCHED STREETS OF STEPS: JERUSALEM

Few streets inside the city walls admit of vehicles, and those that do have been remodeled in late years. The slippery pavements are dangerous for shod animals, while the camels, with their cushioned feet, move along with ease. Until a few years ago the streets were unlighted and the law required individuals to carry lanterns after sundown, just as we require automobile lamps to be lighted after dark.

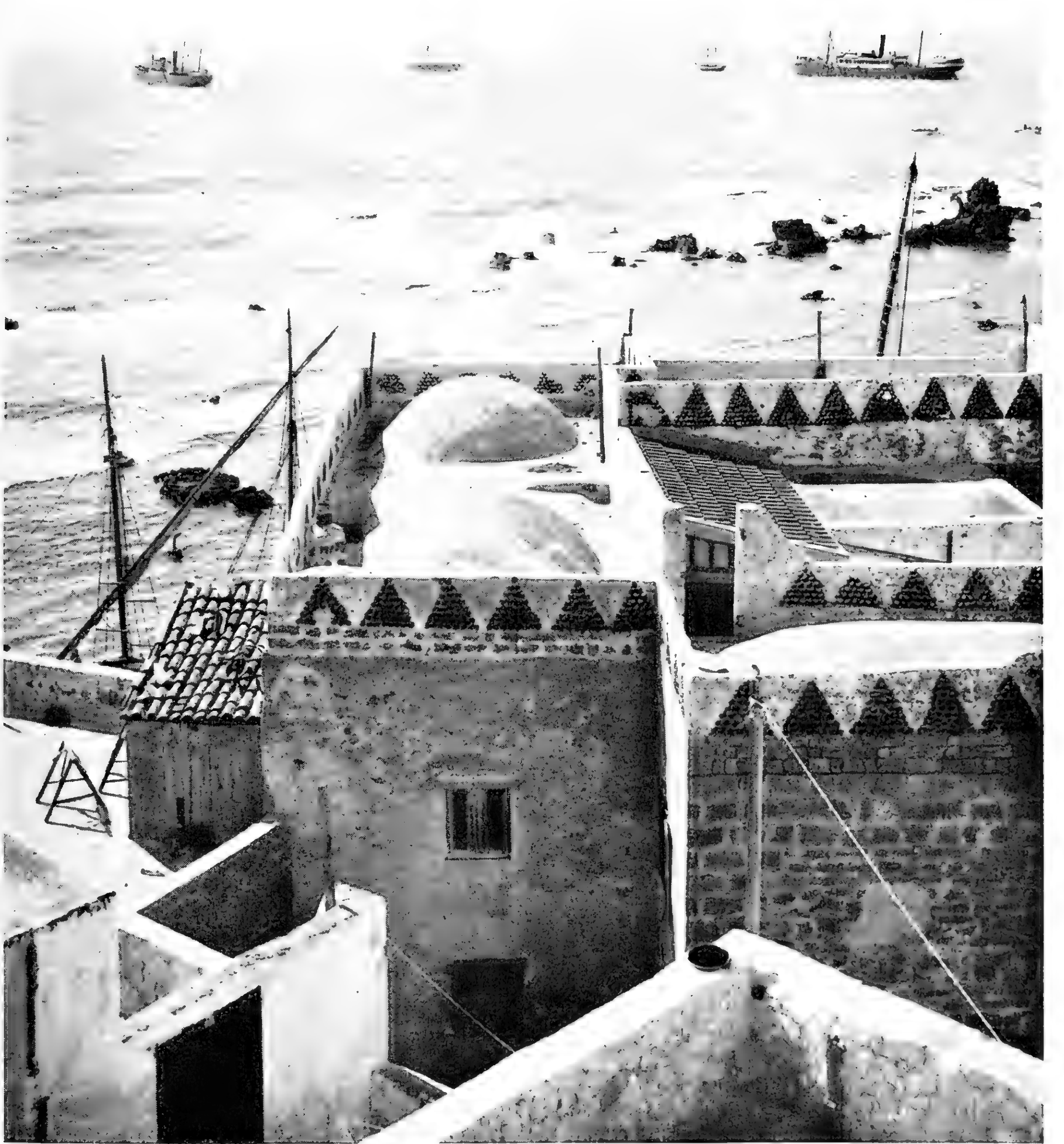


Photo by the American Colony at Jerusalem

THE ROCKY ROADSTEAD AT JAFFA

At the eastern end of the Mediterranean lies Jaffa, the principal gateway to the Holy Land. Here Cassiopeia, queen of the Ethiopians, according to tradition, boasted herself equal in beauty to the Nereids. The resulting wrath of Poseidon sent a flood and a sea monster, from which no relief could be secured until Cassiopeia's daughter, Andromeda, was chained to the rocks and exposed to the monster. The rock to which she is reputed to have been chained is visible in the picture. From Jaffa, also, Jonah set out on his adventurous voyage (see text, page 306).

Photo by Dr. H. L. Nelson

A SHAKESPEAREAN PRODUCTION IN THE HOLY LAND

A presentation of "As You Like It" in English by the students of the Syrian Protestant College at Beirut, Syria. The characters were taken by Greek, Syrian, Armenian, Jewish, Druse, Copt, Muslim, and Kurd students, showing the influence of the American system of teaching in the East. There are many American and European schools in the Near East.

Photo by Orlando J. Root

STREET SCENE IN BETHLEHEM

The beggars of Palestine are just as persistent and just as poor as when Lazarus desired to be fed with the crumbs which fell from the rich man's table

this brooding shadow of death gives is heightened by the abundance of ruins. From very early times men built here in stone because there were, even then, few large trees, and though the dwellings of the poor were mostly of sun-baked mud and have long since vanished, the ease with which the limestone could be quarried and used for building made those who sought defense surround even small towns with walls, whose foundations at least have remained. The larger among the surviving ruins date from Roman or from Crusading times. These are still numerous, though Muslim vandalism and the habit of finding in the old erections material for new have left comparatively little of architectural interest.

GRECO-ROMAN RUINS

The best preserved remains are those of the Greco-Roman towns east of the Jordan, and these cities, singularly good specimens of the work of their age, are being rapidly destroyed by the Circassians whom the Turks have placed in that region. Be the ruins great or small, they are so numerous that in a course of a day's ride one is everywhere sure to pass far more of them than the traveler could find in even those parts of Europe that have been longest inhabited, and of many the ancient names are lost.

One is amazed at the energy the Crusaders showed in building castles, not a few of them large and all of them solid strongholds, as well as churches. But none of the fortresses are perfect, and of the churches only four or five have been spared sufficiently to show their beauty. Several, among these the most beautiful and best preserved, have been turned into mosques. Of these ruins few are cared for except by the archeologist and the historian.

RELIGIOUS MEMORIALS

But there are other memorials of the past that have lived on into the present. In no country are there so many shrines of ancient worship, so many spots held sacred—some sacred to Jews, some to Christians, some to Mussulmans. Neither has any other country spots that still draw a multitude of pilgrims, not even Belgium and Lombardy, each a profusion of battlefields. It is a land of ancient strife and seldom-interrupted slaughter.

Before Isarel came, the tribes of Canaan warred with one another, and against those tribes Israel had to fight for its life. Along its western border ran the great line of march from Egypt to northern Syria and Mesopotamia, the highway of war trodden by the armies of Assyria and Babylon when they passed south to attack Egypt, and by the armies of Egypt when the great Pharaohs, Rameses, Thothmes, and Necho, led them north against Assyria.

In later days the Seleucid kings of Babylon and Antioch had fight after fight for the possession of the country with the Egyptian Ptolemies. Then appeared the legions of Rome, first under Pompey, then many a campaign to quell the revolt of the Jews. Still later came those fiercest enemies of Rome, the Sassanid kings of Persia, whose great invasion of A. D. 614 laid waste Jerusalem and spread ruin over the land.

THE ARAB INVASION

Just after that invasion the Arabs, then in the first flush of their swift conquest, descended on the enfeebled province and set up that Muslim rule which has often changed hands from race to race and dynasty to dynasty, but has never disappeared. When the Mohammedan princes had fought among themselves for four centuries they were suddenly attacked by a host of Crusaders from western Europe, and the soil of Palestine was drenched afresh with blood. The chronicle of more recent wars, which includes Napoleon's irruption, stopped at Acre in 1799, comes down to the Egyptian invasion in the days of Mehemet Ali.

From the top of Mount Tabor one looks down on six famous battlefields—the first, that of the victory of Deborah and Barak over Sisera, commemorated in the oldest of Hebrew war songs (Judges, Chapters IV-V), and the latest, that of the victory of the French over the Turks in 1799. And in this plain, near the spot where Barak overcame Sisera and Pharaoh Necho overcame Josiah, is to be fought the mysterious Armageddon (Revelation, Chapter XVI).

Photo by the American Colony at Jerusalem

A SECTION OF THE GREAT MOSAIC MAP OF PALESTINE

In 1880 a Christian settlement was founded about the mound of ancient Madeba. Ten years later the Greek patriarch at Jerusalem heard of a mosaic map at that place and promptly sent a master mason there to preserve it. The mosaic was nearly complete at that time. Instead of preserving it, the mason almost destroyed it, reporting back to Jerusalem that it did not possess the importance which had been attributed to it. In 1897 the librarian of the Greek patriarchate went down to Madeba and found the map one of the greatest archeological discoveries of modern times. It is thought that originally it included all of the country from Constantinople to Egypt. Jerusalem is plainly seen with a colonnaded street running through it, past the Church of the Holy Sepulchre. The Jordan River is shown with fish in it and emptying into the Dead Sea.

DOMINION OF THE PAST

Caves and tombs, ruins and battlefields, and ancient seats of worship are the visible signs of that dominion of the past, overweighting and almost effacing the present, which one feels constantly and everywhere in Palestine. For us English-speaking men and women, who read the Bible in our youth and followed the *stream* of history down through antiquity and the Middle Ages, no country is so steeped in historical associations.

It could not be otherwise, for in no other country (save Egypt) did history begin so early; none has seen such an unending clash of races and creeds; none has been the theater of so many events touching the mind of so large a part of mankind. The interest which Nature, taken alone, fails to give is given in unequaled profusion by history, and by legend even more than by history.

THE ATMOSPHERE OF LEGEND AND MARVEL

The Holy Land is steeped also in an atmosphere of legend and marvel. As the traveler steps ashore at Jaffa he is shown the rock to which Andromeda was chained when Perseus rescued her from the sea monster. (It is the only

Photo by the American Colony at Jerusalem

THE MARKET-PLACE AT BETHLEHEM

In the Church of the Nativity, at Bethlehem, which stands near the market-place, is the grotto which tradition declares was the manger where Christ was born. Life in Bethlehem has indeed changed but little since His day

Greek story localized on these shores.) Till recent years he was also shown the remains of the ribs of another sea monster, the "great fish" that swallowed and disgorged the prophet Jonah, whose tomb he will see on the coast near Sidon. When he proceeds toward Jerusalem he passes Lydda, the birthplace of St. George, where that youthful hero slew the dragon. A little farther comes the spot where another young champion, Samson, the Danite, had in earlier days killed a thousand Philistines with the jaw-bone of an ass.

Still farther along the railway line he is pointed to the opening of the Valley of Ajalon, where, according to the Book of Joshua, the sun and moon stood still while Israel pursued their enemies. An hour later, as the train approaches Jerusalem, he looks down on the rocky gorge in which St. Sabas, himself a historical character, famous and influential in the sixth century, dwelt in a cave where a friendly lion came to bear him company; and from Jerusalem he can note the spot at which the host of Israel passed dryshod over Jordan, following the Ark of the Covenant, and near which Elisha made the iron swim and turned bitter waters to sweet. Thence, too, he can descry, far off among the blue hills of Moab, the mountain top to which Balaam was brought to curse Israel, and where "the dumb ass, speaking with man's voice, forbade the madness of the prophet" (Numbers, Chapter XX; 2 Peter, Chapter I).

WILD MUSLIM LEGENDS

These scenes of marvel, all passing before the eye in a single afternoon, are but a few examples of the beliefs associated with ancient sites over the length and breadth of the country. All sorts of legends have sprung up among Muslims, as well as Jews and Christians, the Muslim legends being indeed the wildest. For nearly every incident mentioned in the Old or New Testament a local site has been found, often one highly improbable, perhaps plainly impossible, which nevertheless the devout are ready to accept.

The process of site-finding had begun before the days of the Empress Helena, and it goes on still. (Quite recently the Muslims have begun to honor a cave at the base of Mount Carmel, which they hold to have sheltered Elijah.) Nothing is more natural, for the number of pilgrims goes on increasing with the increased ease and cheapness of transportation, and sites have to be found for the pilgrims.

CHRISTIAN PILGRIMS

The Roman Catholics come chiefly from France, but they are few compared with the multitude of Russians, nearly all simple peasants, ready to kiss the stones of every spot which they are told that the presence of the Virgin or a saint has hallowed.

To accommodate those pilgrim swarms, for besides the Catholics and the Orthodox, the other ancient churches of the East, such as the Armenians, the Copts, and the Abyssinians, are also represented, countless monasteries and hospices have been erected at and around Jerusalem, Bethlehem, Nazareth, and other sacred spots; and thus the aspect of these places has been so modernized that it is all the more difficult to realize what they were like in ancient days.

Jews have come in large numbers; they have settled in farm colonies; they have built up almost a new quarter on the north side of old Jerusalem. But even they are not so much in evidence as the Christian pilgrims. The pilgrim is now, especially at the times of festival, the dominant feature of Palestine. It is the only country, save Egypt, perhaps even more than Egypt, to which men flock for the sake of the past; and it is here that the philosophic student can best learn to appreciate the part which tradition and marvel have played in molding the minds and stimulating the religious fervor of mankind.

WHAT PALESTINE MIGHT BE

Under a better government—a government which should give honest administration, repress brigandage, diffuse education, irrigate the now desolate, because sun-scorched, valley of the lower Jordan by water drawn from the upper course of the river—Palestine might become a prosperous and even populous country

Photo by the American Colony at Jerusalem

GALILEE FISHERMEN MENDING THEIR NETS

"A great sadness broods over the silent waters (of Galilee). The cities that decked it like a necklace have, all but Tiberias, vanished so utterly that archeologists dispute over their sites. There is little cultivation, and where half a million people are said to have lived at the beginning of our era, not 5,000 are now to be found. Many a devastating war and the misgovernment of fourteen centuries have done their fatal work" (see text, page 296).

and have its place in the civilization of the present.

The inhabitants, mostly Muslims, are a strong and often handsome race, naturally equal to the races of Southern Europe; but as Palestine stands today, it is a land of the past, a land of memories—memories of religion, but chiefly of religious war, and always rather of war than of peace. The only work ever done in it for peace was done by the preaching, 19 centuries ago, of One whose teaching His followers have never put in practice.

The strife of Israel against the Amorites and of the Crusaders against the Muslims pale to insignificance compared with the conflict between five great nations today who bear the Christian name, and some of whom are claiming the Almighty as their special patron and protector.

To one other kind of impression something remains to be said. Does travel in the Holy Land give a clearer comprehension of the narratives of the Old and New Testament? Does it give a livelier sense of their reality? This question must be answered separately for the two divisions of the Bible.

ISRAEL'S NEIGHBORS

On the Old Testament the traveler gets an abundance of fresh light from visiting the spots it mentions. The history of Israel from the time of Joshua—indeed, from the time of Abraham—stands out vividly. One realizes the position of the chosen people in the midst of hostile tribes—some tribes close to them: the Philistines at the western part of the Judean hills; the Tyrians almost within sight of Carmel, to the north; Amalek in the desert to the south, raiding as far as Hebron; Moab and the Beni Ammon on the plateau that lies beyond Jordan to the east, while the Syrian kingdom of Ben-hadad and Hazael threatens from behind the ridges of Galilee.

One sees the track along which the hosts of Egypt and Assyria marched. One feels the breath of the desert upon the prophets, for the desert comes into Palestine itself. One traverses it descending from Jerusalem to the Dead Sea. It lies in bare, brown cliffs above the gardens of Jericho. One understands what the foe of Israel meant when he said that the gods of Israel were gods of the hills, and his own gods of the valleys.

HOW NEAR WAS ENDOR!

One sees how near to the Gilboan Mountains was Endor, where Saul went to consult the witch the night before the fatal battle (1 Samuel, Chapter 28), and how near also the wall of Bethshan, to which the Philistines fixed his body and that of the gallant Jonathan. Samaria, the stronghold of Omri, and long afterward of Herod, frowns upon the plain beneath, and at Jezreel the slope is seen up which Jehu drove his steeds so furiously to the slaughter of Jezebel (II Kings, Chapter IX).

One can feel it all to be real. Elijah runs before the chariot of Ahab while the thunder is pealing above, and Naaman is bathing in Jordan on his way back to Damascus from the visit to Elisha. The historical books of the Old Testament are so full of references to localities that one uses them almost as a handbook. Napoleon, they say, had them read aloud to him in the evenings in his camp on the Syrian expedition of 1799.

And though the aspect of things has been greatly changed since those days by the disappearance of ancient forests, the introduction of some new trees and new kinds of buildings, not to speak of two railways and a few macadamized roads, still the natural features of hill and valley remain, and there is much in the ways and customs of the people that remains the same. The shepherd leads the same life, except that he has no longer to fear the lion, who has long since vanished, nor the bear, who survives only in the recesses of the northern hills.

NEW TESTAMENT PALESTINE

When one turns to the New Testament, how great is the difference. Except as regards Jerusalem and the Sea of Galilee, there are scarcely any references to localities in the Gospel narratives, and in those few references little or nothing turns upon the features of the place.

We can identify some of the spots where miracles are related, such as Nain

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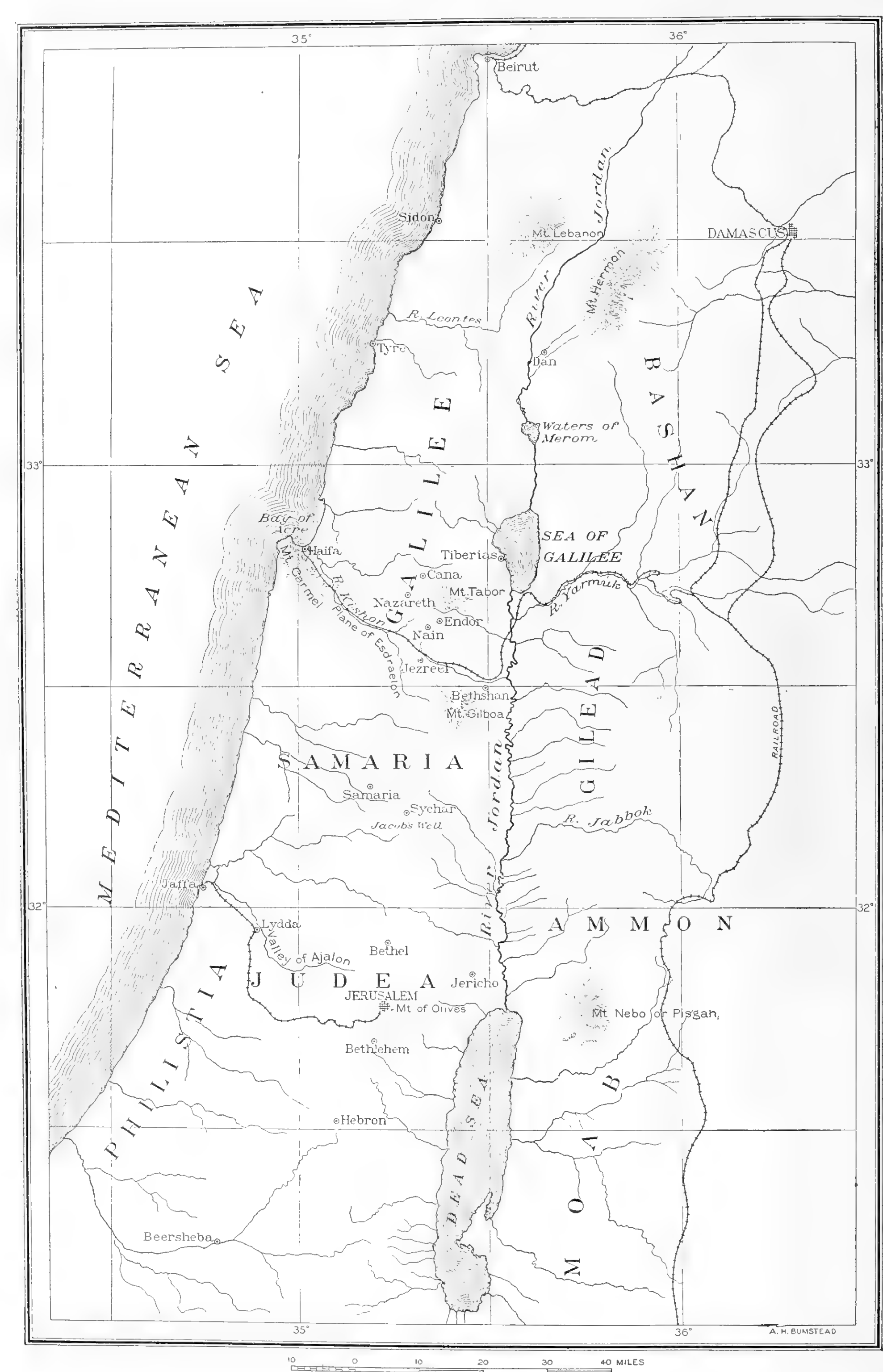
PILGRIMS OF TODAY OFFERING SUPPLICATIONS AT THE STATIONS OF THE CROSS, VIA DOLOROSA, THE ROUTE FOLLOWED BY JESUS TO HIS CRUCIFIXION

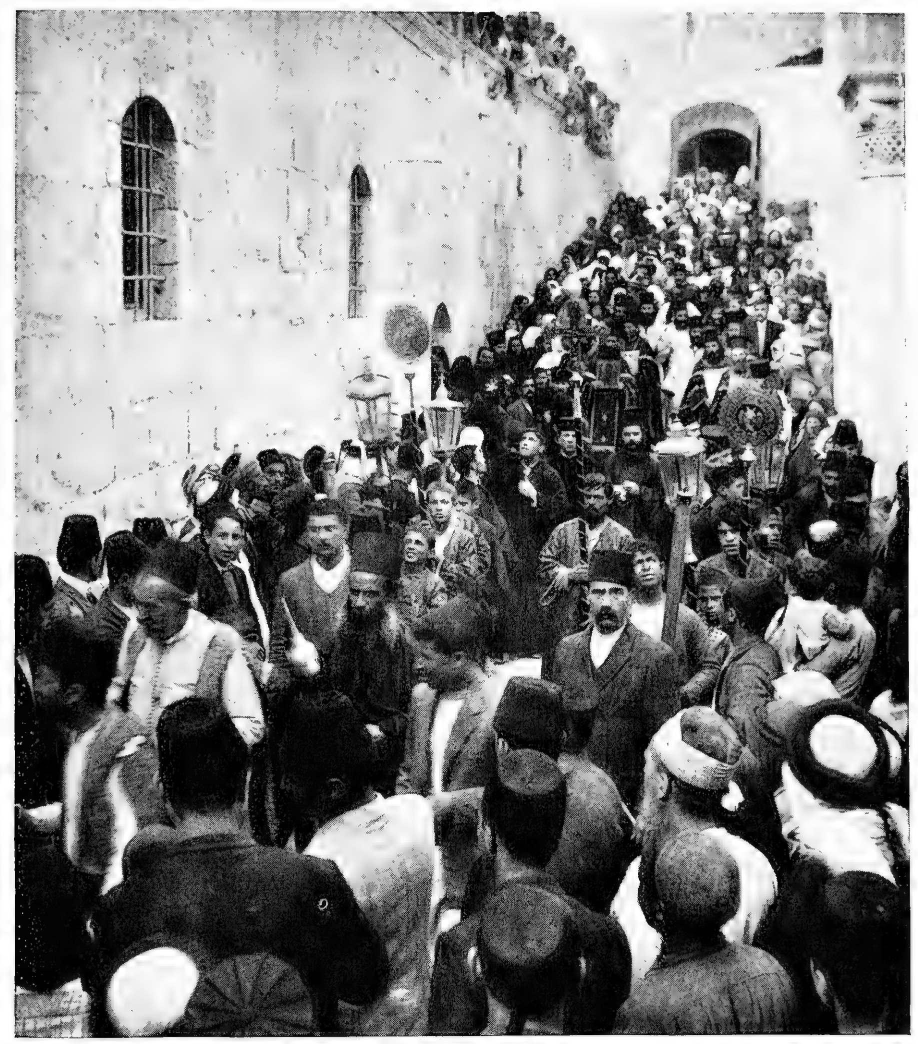
French pilgrims carrying a huge cross through Via Dolorosa, or "Street of Pain," to the Church of the Holy Sepulchre

and Cana of Galilee, but the events are not connected with any special feature of the locality. Journeys are mentioned, but not the route along which Christ passed, except Sychar, in the Samaritan territory, where was Jacob's well, one of the few sacred spots which can be positively identified. (The Crusaders erected a church over it which is now being restored by Franciscan monks.) The cities round the Sea of Galilee have, all except Tiberias, vanished from the earth, and the sites of most of them are doubtful.

The town now called Nazareth has been accepted for many centuries as the home of Christ's parents, but the evidence to prove it so is by no means clear, and it is hard to identify the cliff on which the city was built. The Mount of Olives, in particular, and the height on its slope, where Christ, following the path from Bethany, looked down on Jerusalem, and the temple in all its beauty, are the spots at which one seems to get into the closest touch with the Gospel narrative; and it is just here that the scene has been most changed by new buildings, high walls, villas and convents and chapels.



REFERENCE MAP OF PALESTINE



PILGRIMS AT JERUSALEM DURING THE LENTEN SEASON

Aided by the development of transportation facilities and the low cost of travel, the number of pilgrims to the Holy Land are increasing year after year (see text, page 308)

Even the scenic conditions and whatever we may call "the setting" of the parables belong rather to the eastern world than to Palestine. You do not feel the incidents to be the more real because they are placed in this particular part of the East.

THE ACTUAL AND THE IDEAL

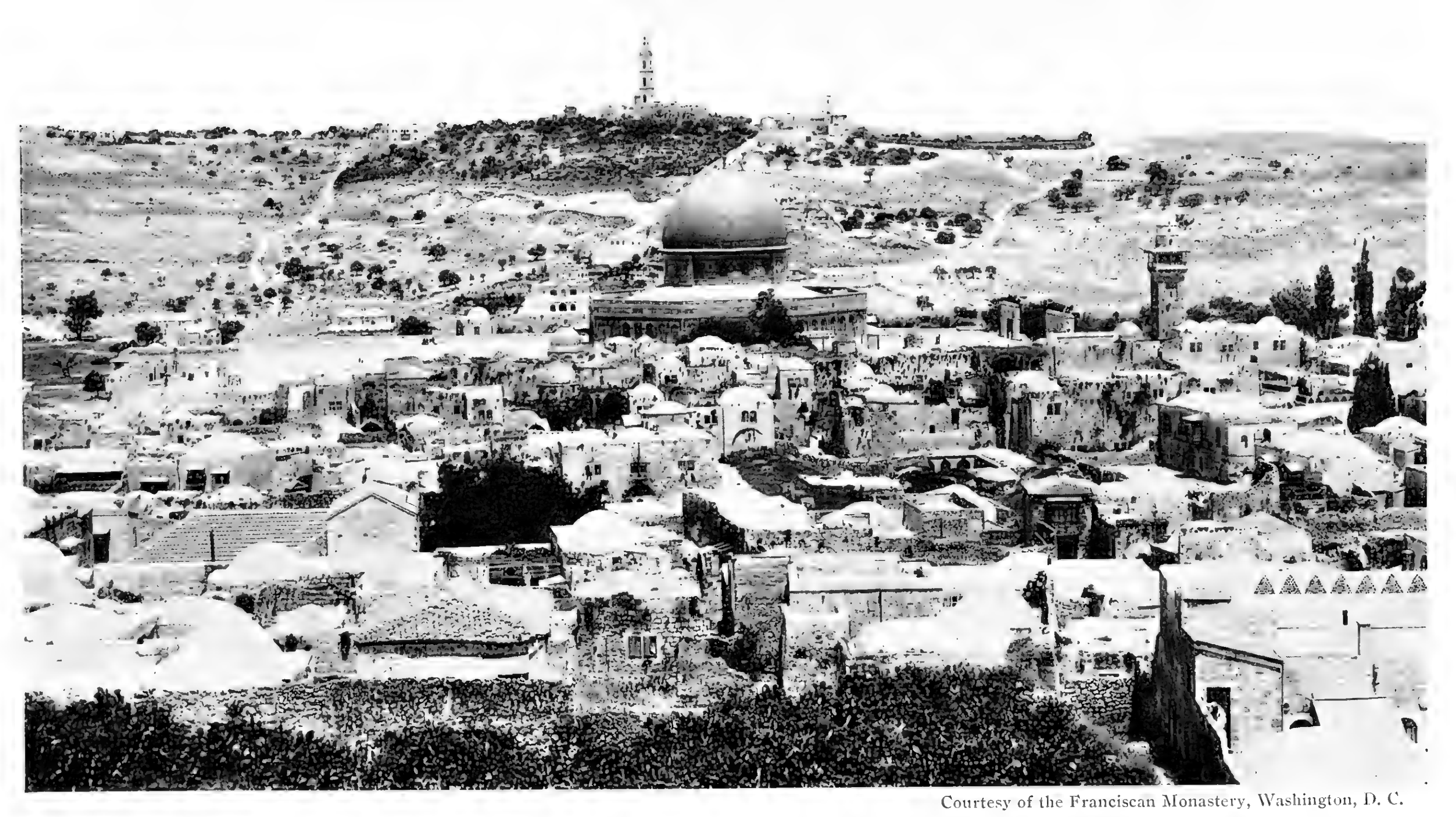
All this makes the traveler realize afresh and from a new side that while the Old Testament is about and for Israel, as well as composed in the land of Israel, the Gospel, though their narrative is placed in the land and the preaching was delivered to the people of Israel, is addressed to the world.

The Old Testament books, or at least the legal and historical books, are concerned with one people, with the words and deeds of its kings and prophets and warriors, whereas the New Testament is concerned with the inner life of all mankind. The one is of the concrete, the other of the abstract; the one of the actual, the other of the ideal. The actual is rooted in time and place; the ideal is independent of both. It is only in parts of the poetical and prophetic books that

Photo and copyright by Underwood & Underwood

EASTER WEEK AT THE RIVER JORDAN

Next to a pilgrimage to Jerusalem, the water from the River Jordan is one of the greatest things the deeply religious peasants of Russia, Greece, Bulgaria, and Turkey wish for. Thousands of devoted pilgrims come to this holy river in order to bathe in the stream, that they may be washed of their sin. Every pilgrim to the River Jordan fills a bottle with the sacred water to take home, so that those who cannot make the journey may avail themselves of its purifying powers.



Courtesy of the Franciscan Monastery, Washington, D. C.

A VIEW OF THE HOLY CITY, WITH THE MOUNT OF OLIVES IN THE BACKGROUND

The population of Jerusalem has been estimated at 60,000. The Muslims number about 7,000, the Jews 40,000, and the Christians 13,000. The Muslims are the rulers and at the head of the social scale—the aristocracy of the city—since Saladin reconquered it in the year 1187

Photo by the American Colony at Jerusalem

THE SUPPOSED POINT OF THE CROSSING OF THE JORDAN BY THE CHILDREN OF ISRAEL

Religion, history, and nature conspire to make the Jordan the most famous river of the earth. Across it the hosts of Israel were led into the Promised Land; in its waters the Christian right of baptism had its birth; up and down its valley many civilizations in the morning of history rose and fell. Perhaps the strangest thing about this famous river is that none of the ancients ever guessed that its mouth was below the level of the sea. It was not until 1874 that accurate measurements were made and the mouth of the river was found 1,292 feet below the Mediterranean, less than sixty miles away.

the teaching becomes ideal and universal, like that of the New Testament.

It ought perhaps to be added that the incidents of Chronicles in the Old Testament belong (except, of course, when the element of marvel comes in) to what may be called normal history, and can therefore be realized just as easily as we realize the wars of the Crusaders and the deeds of Sultan Saladin.

THE GOSPEL AND PALESTINE

We picture to ourselves the battle of Saul and the Philistines at Gilboa as we picture the battle of Napoleon against the Turks, a few miles farther north. It is much harder to fit the Gospel with the framework of Jerusalem or Galilee, because its contents are unlike anything else in history. An Indian Mussulman scholar or a thoughtful Buddhist from Japan might not feel this, but it is hard for a European or American Christian not to feel it.

Whether these explanations be true or not, it is the fact that to some travelers the sight of the places that are mentioned in the Gospel seems to bring no further

comprehension of its meaning, no heightened emotion, except that which the thought that they are looking upon the very hills, perhaps treading the very paths that were trodden by the feet of Christ and the Apostles, naturally arouses. The narrative remains to them in just the same ideal, non-local atmosphere which surrounded it in their childhood. It still belongs to the realm of the abstract, to the world of the soul rather than to the world of physical nature. It is robed not in the noonday glare of Palestine, as they see it today, nor even in the rich purple which her sunsets shed upon the far-off hills, but in a celestial light that never was on sea or land.

TYPICAL PILGRIM'S VIEWPOINT

These persons, however, mostly Protestants, are the few exceptions. The typical pilgrim, be he or she a Roman Catholic Legitimist from France or an unlettered peasant from Russia, accepts everything and is edified by everything. The Virgin and the saints have always been so real to these devout persons, the sense of their reality heightened by constant prayers before the Catholic image or the Russian icon, that it is natural for the pilgrim to think of them as dwelling in the very spots which the guide points out, and the marvelous parts of the legends present to them no difficulty.

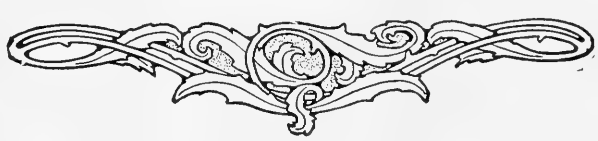
The French Catholic has probably been on a pilgrimage to Lourdes and drawn health from the holy spring in its sacred cavern. The Russian peasant has near his home some wonder-working picture. The world to him is still full of religious miracles, and Palestine is but the land in which the figures who consecrate the spots are the most sacred of all those whom Christianity knows. To him to die in it is happiness, for death is the portal to Heaven. Nowhere else does one see a faith so touching in its simplicity.

A ROMANTIC JOURNEY

To all travelers who have anything of poetry in their hearts, be they pilgrims or tourists, or critical archeologists and historians, there is, and there will always be, an inexpressible romance in this journey. Palestine is preëminently the Land of the Past—a land whose very air is charged with the human emotions and the memories of human action, reaching far back into the dim twilight of prehistoric centuries.

No one who is in any degree susceptible to the impressions of nature or of history can help feeling the glamour of the country. The colors of distant hills, seen at morn or even through this clear, keen air, seem rich and sad with pathos of ages of human effort and human passion. The imagination is always trying to body forth the men and women who lived beneath these skies, the heroes of war and the saints of suffering, the nameless poets, and the prophets who live on in their burning words, and to give them visible form and life.

Imagination always fails, but it never desists from the attempt, and though it cannot visualize the scenes, it feels the constant presence of these shadowy figures. In them, shadowy as they are, in the twilight of far-off ages, the primal forces of humanity were embodied—in them its passionate aspirations seem to have their earliest, simplest, and most moving expression.



REPORT OF THE DIRECTOR AND EDITOR OF THE NATIONAL GEOGRAPHIC SOCIETY FOR THE YEAR 1914

THE year 1914, notwithstanding the business depression throughout the United States, which was especially severe in the publication and magazine world, has been the most successful in the history of the National Geographic Society.

We did more for research and exploration than we have been able to do in previous years.* We have put more money into our Magazine per member than ever before. We added to our reserve fund twice as much as in any previous year, and in fact every activity of the Society has progressed in a gratifying degree.

The net gain in membership and subscription during 1914 was the largest numerical increase in the history of the Society, being 103,157. The per cent of increase was 48.2 per cent, the largest in recent years, with the exception of 1912. The per cent of increase in 1913 was 45.6; in 1912, 57.3; in 1911, 38; in 1910, 39; in 1909, 38; in 1908, 24.

The total membership on December 31, 1914, was 337,446.† California still leads in proportion to her population, with a membership of 25,000. The membership in New York is 55,000; Pennsylvania, 30,000; Illinois, 24,000; Massachusetts, 26,000; Ohio, 18,000.

In the 1914 volumes the NATIONAL GEOGRAPHIC MAGAZINE published 74 pages in four-color work; 64 pages in photogravure; three large maps in colors, one of Central Europe (the most compact and useful map of the scene of European war yet published), one of Mexico, 17 x 24½ inches, and one of Alaska, and more than 1,200 really wonderful illustrations in black and white, printed on a fine grade of coated paper. All this, with a series of authoritative and interesting articles, the members of the Society have received for $2.00.

*An account of the important Peruvian explorations of the Society was published in the February, 1915, Magazine.

† The membership as this Magazine goes to press is 380,000.

AN EXTRAORDINARY SHOWING

The total income of the Society for the year 1914 was $837,324.38, which is an increase of 52.5 per cent over the previous year. But notwithstanding the greater outlay for the Magazine and the purchase of material not yet used and the purchase of furniture and equipment, amounting to $18,000, all of which are charged to expenses, the Society had a surplus of $148,000, of which $20,500 was devoted to research and the balance of $127,500 added to our sinking or reserve fund.

This showing, extraordinary for a scientific society, is even more remarkable when we remember that the Society has had no endowment; that it has never asked its membership for a dollar beyond the payment of annual dues, and that its Magazine, which is now an immensely valuable asset, has been built up, unlike other periodicals, without the investment of any capital.

When the Society was young and poor and without funds to pay for the services of an editor and manager, Dr. Alexander Graham Bell for five years contributed the salary of the Editor, making a total gift of $6,000 to the Society for this purpose. This is the only money that was put into the Magazine outside of the membership fees. I do not include the advertising receipts, because no revenue was realized from this source until the Magazine had been put on its feet.

THE DAYS OF BEGINNING

The Editor is now concluding his sixteenth year of service. He can well re-

member his first visit, on April 1, 1899, to the Society's headquarters, which was half of a small room on the fifth floor of the Corcoran Building in Washington.

The little space of which he was to assume charge was littered with old magazines, newspapers, and a few books of records, which constituted the only visible property of the Society. The treasury was empty, and had incurred a debt of nearly $2,000 by the expenditure of its life-membership fees to keep alive. The Society, however, was not so poor as it seemed, for its management had a revolutionary idea, an ambition to make geography popular, and to take this great subject out of the archives of the technical physiographers. Behind the idea was an unusually strong Board of Managers, who had faith in the new policy, and who have always been willing to help and give liberally of time and suggestion. To evolve a magazine that would not lower the dignity of the Society and that would win popular support was the task that was intrusted to me.

The Society was so poor that it could employ no clerical assistance, and for a time the Editor was even obliged to address the Magazine envelopes himself. The names of the members were then printed on long slips, and it was the practice to cut these slips up with a pair of scissors and then paste them on the envelope. After addressing one edition of 900 copies in this way, the first investment in office furniture made by the Editor was the purchase, at the expense of $20, of an addressing machine.

Magazine men who were consulted said that it was impossible to develop a circulation for a geographic magazine, because the subject of geography was too technical. And no doubt this was true, for we should remember that at that time geography was to the layman an unknown quantity and meant boundaries, moraines, erosion, glaciers, wind belts, etc.

It is not necessary here to review the successive progress made in the development of the Society. A fairy tale, it is sometimes called. Today there is no society in the world comparable with the National Geographic Society in size or activities; and it has become the most far-reaching activity of its kind in the history of American educational development.

It might be well to place on record some of the principles which your Editor has followed in the development of the Magazine:

THE GUIDING PRINCIPLES

1. The first principle is absolute accuracy. Nothing must be printed which is not strictly according to fact. The Magazine can point to many years in which not a single article has appeared which was not absolutely accurate.

2. Abundance of beautiful, instructive, and artistic illustrations.

3. Everything printed in the Magazine must have permanent value, and be so planned that each magazine will be as valuable and pertinent one year or five years after publication as it is on the day of publication. The result of this principle is that tens of thousands of back numbers of the Magazine are continually used in school-rooms.

4. All personalities and notes of a trivial character are avoided.

5. Nothing of a partisan or controversial character is printed.

6. Only what is of a kindly nature is printed about any country or people, everything unpleasant or unduly critical being avoided.

7. The contents of each number is planned with a view of being timely. Whenever any part of the world becomes prominent in public interest, by reason of war, earthquake, volcanic eruption, etc., the members of the National Geographic Society have come to know that in the next issue of their Magazine they will obtain the latest geographic, historical, and economic information about that region, presented in an interesting and absolutely non-partisan manner, and accompanied by photographs which in number and excellence can be equaled by no other publication.

The following table shows the growth of the Society for each year since 1907:

Table showing Progress of the National Geographic Society since 1907

Year.	Members.	Receipts.	Surplus after payment of all expenses of the year except research.	Appropriated for research.	Invested.
December 31—					
1914	337,446	$837,324.38	$147,910.13	$20,712.91	$127,197.22
1913	234,284	549,231.33	67,222.19	2,732.00	64,490.19
1912	160,565	369,829.34	64,564.31	13,740.76	50,823.55
1911	102,051	224,927.12	43,886.96	5,200.94	38,686.00
1910	74,018	168,863.43	36,872.00	8,766.00	28,096.00
1909	53,333	127,275.70	25,466.07	5,746.39	19,719.68
1908	38,698	84,083.54	16,898.00	None	16,898.00
1907	31,272	80,707.29	19,013.00	1,729.15	17,283.85

THE SOCIETY'S RESERVE FUND

I beg once more to call attention to the great wisdom of the Board of Managers in adding to the reserve fund of the Society a large per cent of its income each year. If this policy had not been pursued, we would not have been able to erect our new building, and the present accommodations for the greatly increased business of the organization would have been lacking.

In view of the increasing activities of the Society, the Board of Managers deemed it advisable in 1914 to purchase a large unimproved property fronting on 16th street and adjoining its present buildings (see page 262).

The present assets of the Society, of $368,650, are divided as follows:

Cash	$35,766.70
Bonds and mortgages	51,238.90
Administration building and land	165,886.32
New land	105,188.13
Publications at cost	10,570.00
	$368,650.05

While the sum total is gratifying, it is very small compared to what a society of the size and influence of the National Geographic Society ought to have if its work is to become permanent. The reserve represents about one dollar per member.

The recommendations for research for the coming year call for an appropriation of $35,000. This is the equivalent of 5 per cent on $700,000. In other words, our Magazine represents an endowment for exploration and research of three-quarters of a million dollars.

DISTINGUISHED SPEAKERS

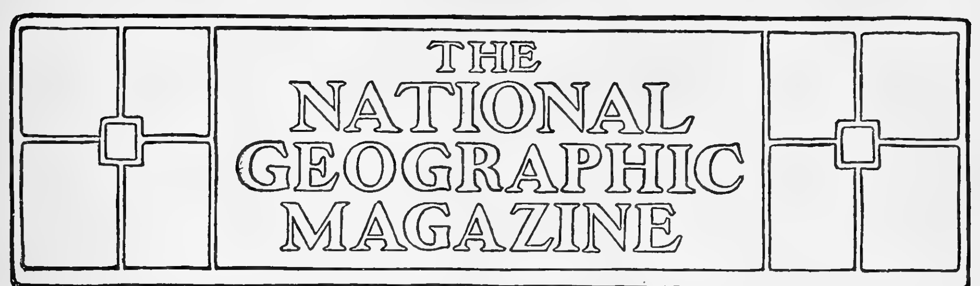
During the year the National Geographic Society has been addressed by President Wilson, ex-President Taft, ex-President Roosevelt, Colonel Goethals, and many travelers and explorers, and the lecture course has been made practically self-supporting by the action of the Board in slightly increasing the price of the lecture tickets to resident members.

During the year 2,100,000 letters and 100,000 postal cards were mailed from the office to the members of the Society, an average of over 700 letters for each working day.

In conclusion, the Director and Editor wishes to express his hearty appreciation of the efficient and faithful assistance of the Associate Editor, John Oliver La Gorce; of George W. Hutchison, Assistant Secretary; of Frederick Eichelberger, Assistant Treasurer, and of every other member of the staff.

GILBERT H. GROSVENOR,
Director and Editor.

VOL. XXVII, NO. 4 WASHINGTON APRIL, 1915



AUSTRO-ITALIAN MOUNTAIN FRONTIERS

BY FLORENCE CRAIG ALBRECHT

Illustrations from Photographs by Emil Poole Albrecht

TWO summers in the mountains—two summers of sunshine and flowers, of clear blue skies and dazzling snow peaks, of bristling rock and rich green valley. Unforgettable lessons in botany and astronomy, in history and geography, learned in the loveliest of schools. But one summer faded with rich promise of many happy days to come, while the other ended abruptly in the crash of war.

Then only the real meaning of those grim fortifications which face each other in long rows across Alpine valleys came home to us; then only we sensed the bitter reality of the soldier's calling—we, to whom the horrors of war were happily all unknown. Forts until then had been unconsidered save as they interfered with picture-making; the soldier's life had appealed solely from its picturesque side. Today it is a different matter.

NATURE'S BULWARK

One might think that the great chain of the Alps would themselves be sufficient fortification, a natural bulwark between north and south, between Saxon and Latin. But the pine has ever yearned for the palm, the palm for the pine; invaders there have been from either side; so today a line of forts runs bristling over peaks, passes, and highways like catteasers upon a stone wall.

Sir Henry Norman, writing of Briancon and its forts, remarks: "On the Italian frontier, seven miles away, there is, of course, a similar outfit of fortifications, and one naturally reflects that if the two countries had spared themselves this vast cost they would be in a precisely similar relative position." Precisely. But each hoped to deceive the other as to the number and strength of his forts, and having begun building them, neither could stop.

While the forts upon the Swiss-Italo borders are inconspicuous, those in the countries to the east and west thrust themselves arrogantly upon one's notice. Possibly Italy maintains as many proportionately upon her Swiss as upon her Austrian or French frontiers, but she is discreet about it. Nowhere does she call the traveler's attention to her fortifications by signs forbidding him to look at them; and, as a consequence, he rarely sees them.

France is a little more sensitive in that respect, and modestly requests the kodaker not to trespass upon certain territory nor photograph in certain directions. If there be an unwitting transgression, however, the photographer is not treated as a hardened malefactor, but is courteously instructed why that particular shot had best not be tried again.

WHERE THE EYE MUST NOT SEE

But in Austria! Make no excuse, for there is none! "Verboten," expressed wordily in four languages, lines the road

IN THE HAY-FIELDS: CORTINA

The picturesque costumes of the women, who work as hard as the men in the harvesting, add much to every view. "A mountainous land makes tribes; a plain welds a nation" (see text, page 332).

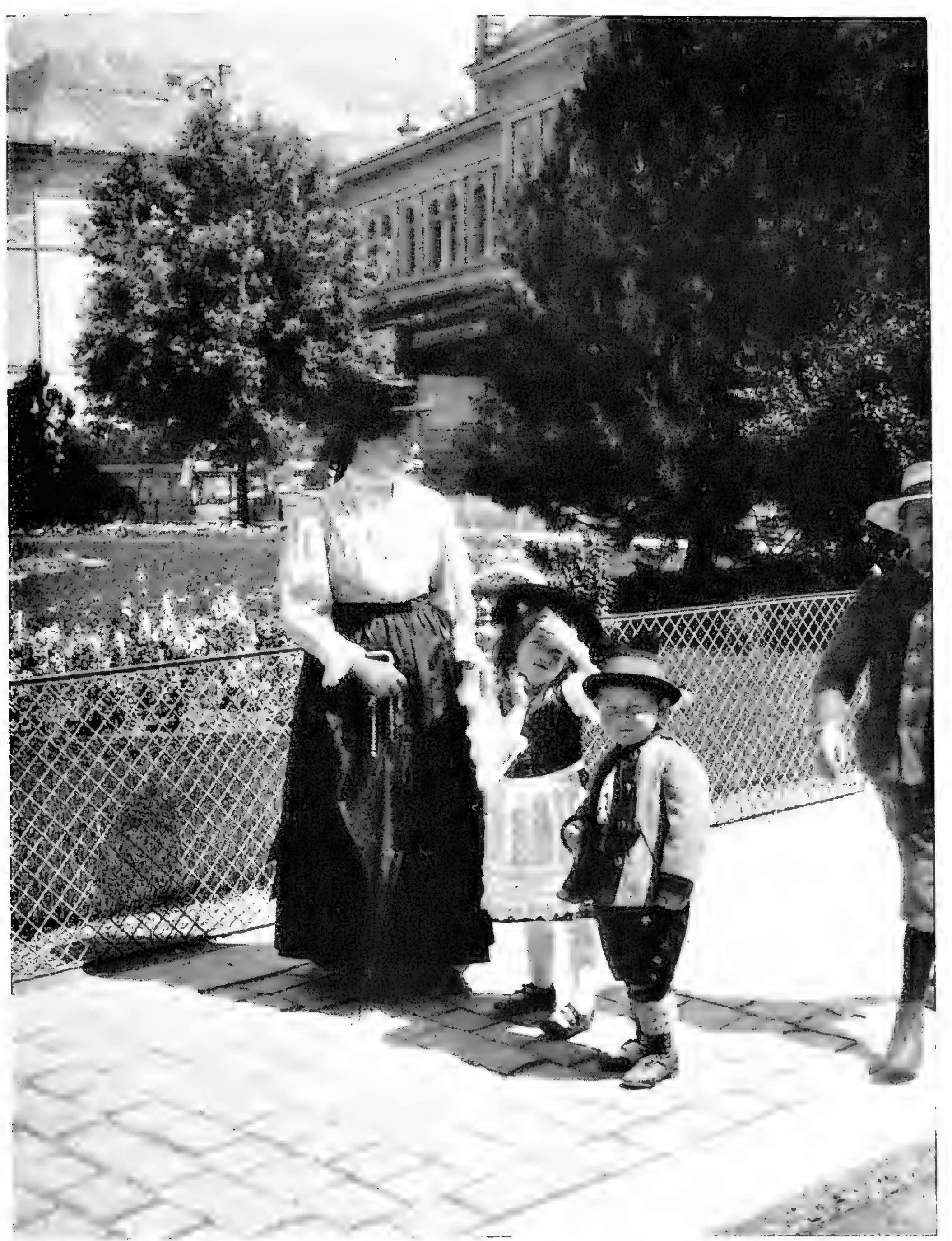
for a mile on either side of fortifications or frontier. One may not only not sketch or photograph in that direction, but is forbidden to do so in any other direction from that vicinity.

Before two thoughts have been assembled a soldier appears out of nowhere, and a more or less gruff voice admonishes the lingerer to move on. In all fairness it must be stated that the experiences of one, two, or a half dozen travelers do not constitute a rule and frequently contradict each other.

Rigid as are the orders in Austria and peremptory the notices, I have nevertheless photographed more than once in the shadow of a fort with no more rebuke than a mischievous threat from the finger of an observant officer; yet a friend who merely lingered for a moment to study the geological conformation near Pieve di Livinallonga was passed literally from hand to hand by soldiers until he was safely away from the frontier. An acquaintance lost his camera and films for photographing some Italian soldiers; we have snapped them repeatedly, with no worse result than some merry grins, burlesque poses, and jibes.

WHEN SEASONS CHANGE

Nevertheless, if one goes by the printed word, as one must, Austria was more jealous of her rights, more stern in de-



A TYPICAL TYROLEAN WOMAN OF THE CITY AND HER CHILDREN

Her hat has long streamers of watered ribbon reaching to her skirt-hem and is faced under the brim with a thick gold embroidery. Few of the women wear the velvet bodice and kerchief of earlier days, except in very remote villages or for some special festival, but the little children of both rich and poor are frequently seen in the picturesque costume of the country in its entirety.

IN THE MARKET-PLACE AT CORTINA

This little town, situated in the Ampezzo-Tal, 4,000 feet above the sea, has a population of only about 800; yet here boys may be seen painting and drawing from nature, making filigree work, wood mosaics, and other artistic objects in the cabinet-making school, where the highest art of the wood-worker is taught. The women devote their spare time to lace-making, and the artistic quality of the product is of a high order.

fending them, than her neighbors in those sunny days "before the war." The snow lies deep now upon all those lovely roads and high, steep passes; no one is tempted to walk there as upon those summer days when, in spite of forts and soldiers, they made such delicious playgrounds. Each one who knows them, however, or even one of them, turns back wistfully in thought to those happy, care-free hours and wonders if they are to come no more.

Originally our plan had been to follow roads "to motor-cars unknown." There are such—either because of a beneficent government or an impossible grade—but there are not many. This is an age of rapid and incessant motion. One goes for a drive, not to see the land, but to annihilate space; it is as exhilarating as coasting. With tight-shut mouth and wide-fixed eyes, he awaits the end of the journey, draws a long breath, and recommences.

It is very delightful, this bird-like flight, this panoramic grasp of miles of beautiful earth.

THE FEATHER-HATTED TYROLEAN GUARD

But it is along the wayside that one makes acquaintance with flower and fern, with beast and bird, and with one's fellow-man. No one who has tramped Tyrolean roads from Venice to Cortina and the Brenner, from Sterzing to Meran, from Cortina to Bozen, over Tre Croci to Misurina, down the Eggen-Tal, has failed to notice and to remember the Kaiserjäger, the feather-hatted Tyrolean guard. Recruited solely in Tyrol, accustomed to its high altitudes and its steep mountain sides from babyhood, hunters by birth, they need little drill save in the code and manual of arms. Up the thickly wooded, steep mountain sides they scramble quicker than the sturdy, sure-footed ponies which carry the light artillery they

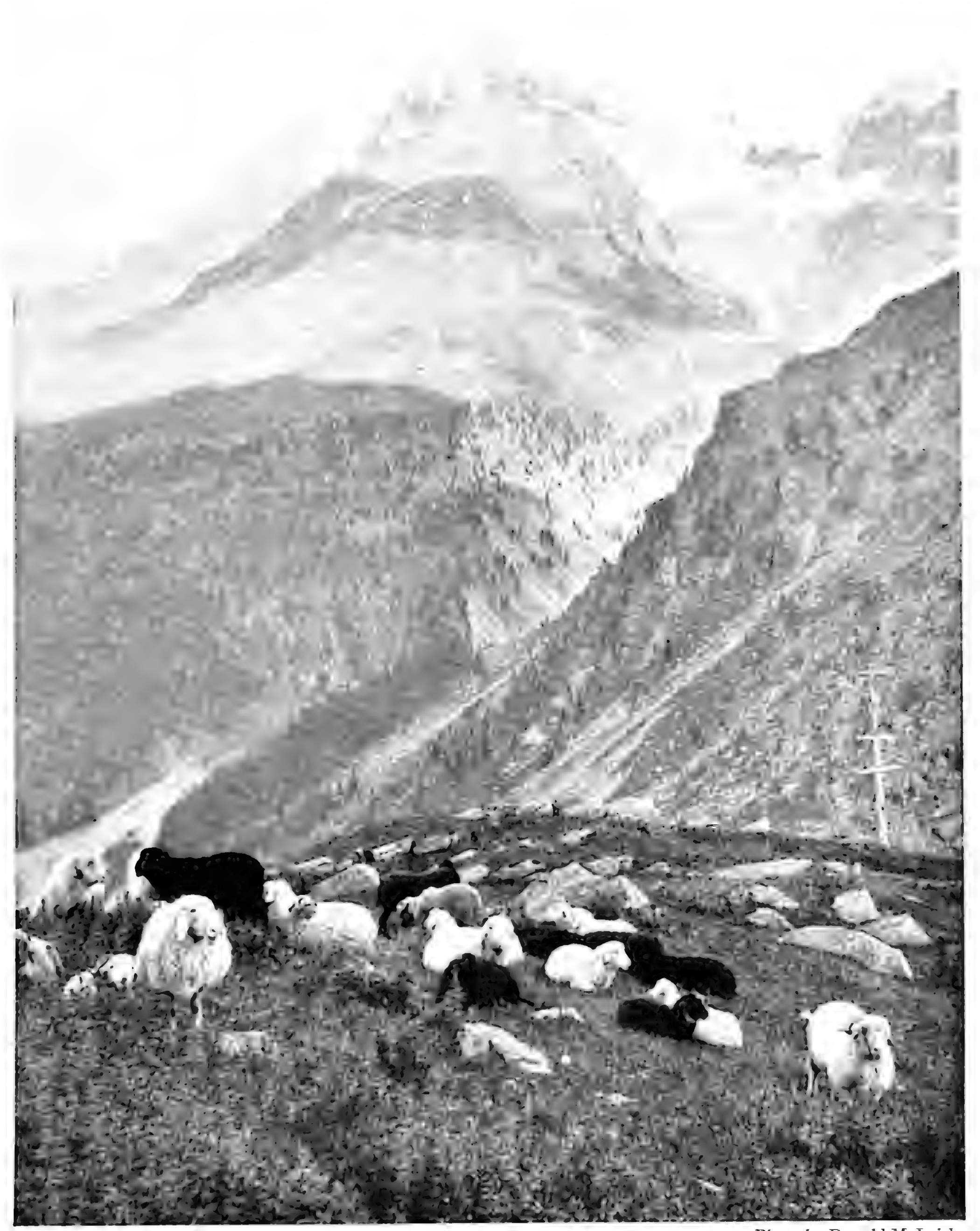


Photo by Donald McLeish

A TYROLEAN PASTURAGE: THE VELAMSPITZE

Perhaps no other like area in the world is more famous as a resort for pleasure-seeking and health-seeking people than the Tyrol. Within its confines no less than 351 places, with altitudes ranging from 1,300 to 9,400 feet above the sea, are registered as health resorts. Scores of these have world-famous names.

A ROAD UPON WHICH ONE IS NEVER LONELY OR ALONE: IN THE EGGEN-TAL

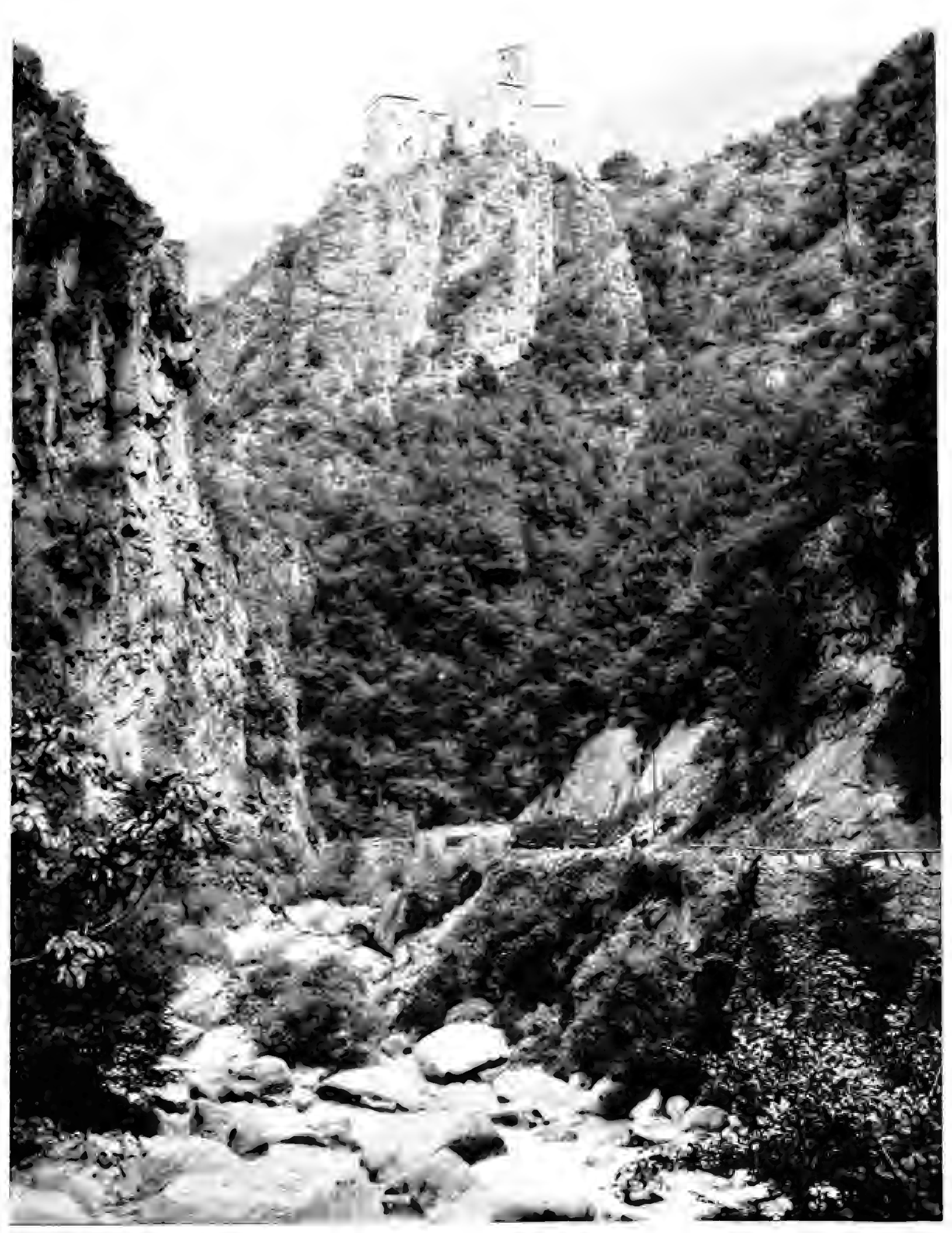
Heavy lumber wagons plod in its ruts perpetually. Carriage-loads of tourists, an omnibus or two, and a big diligence go regularly up and down it, and pedestrians innumerable pass up it into the mountains or down it from them; a true Tyrolean road—rough, narrow, stony, but framed in loveliest scenery, and so companionable (see text, pages 332 and 335).

IN THE EGGEN-TAL: AUSTRIAN TYROL

"Narrow, stony, dusty or muddy, steep in gradient, going straight up where they can, turning abruptly where they must, they (the roads) are everything that a road ought not to be, yet they are glorified by the wonderful country they traverse. . . . Loveliest perhaps of all is that through the Eggen-Tal (valley), with the Rosengarten and the peaks of Latemar at one end, Schloss Karneid on its proud eyrie at the other, and the noisy little river running between rocks hand in hand with the road" (see text, pages 341 and 348).

THE CASTLE OF THE COUNTS OF TYROL, AT MERAN

This castle was once a monastery, but about 1200 A. D. was changed into the residence of the counts of Tyrol. The town near which it is situated is 1,100 feet above the sea and is one of the famous air-cure resorts of the Alpine region. The mountains around Meran rise to 10,000 feet and screen it from all winds save those from the Mediterranean. A ten-year record of sunshine and shadow in Meran showed a yearly average of 197 days of full sunshine, 32 of slight sunshine, and only ten rainy and seven snowy days during the autumn season.



SCHLOSS KARNEID (1,525 FEET), ON A PRECIPITOUS ROCK HIGH ABOVE THE VALLEY AND ALMOST AT ITS BEGINNING: IN THE EGGEN-TAL

There is no carriage road to the castle; its inhabitants—and it is occupied for two-thirds of the year—go up to it on their own feet. Tyrol from end to end is noted for its castle-crowned peaks.

ON THE DOLOMITEN STRASSE: LOOKING INTO ITALY FROM THE AUSTRIAN ROAD

High above the ravine of the Cordevole one has a view far down this wonderful Italian valley, with its overlapping mountains. Through the green valley threads a tiny river, and at the base of Monte Civetta (10,565 feet), which bars the southern horizon, lies Caprile, most picturesquely situated, and the lovely Lago d'Alleghe.

AUSTRIAN OFFICERS OUT FOR A PLEASURE "HIKE" OVER FALZAREGO PASS, ON THE DOLOMITEN STRASSE

The snow-cap of Tofana (10,635 feet) is seen on the left. "Americans have no need to hang their heads in Tyrol. It has some fine, well-laid historic highways, like the road through Ampezzo-Tal or the Brenner; it has some fine new roads, like the Dolomiten Strasse, built with military forebodings" (see text, page 341).

use; and, in case of need, many of the men can themselves shoulder a small cannon on a day's climb.

THE SPIRIT OF THE MOUNTAINEER

At Innsbruck one sees them literally in "Sunday best," standing at ease before the door of the Hofkirche, where a company or two attend mass on Sundays and feast days, or marching through the public gardens; but to see them at work one must meet them on the mountain roads or along the frontiers. A hardy, healthy-looking lot, rarely ill. According to their surgeon, "If one did not break a leg or mash a hand now and then, I should have nothing to do." Inured to the hardest of beds and of fare, imbued with a deep love of country, pious almost to superstition and superstitious almost to the point of uncanny fear, fond of a rough joke and rougher dancing, singing marvelously sweet and true, not very quick-witted possibly, but swift-footed and thorough, they are an effective body of men, both in appearance and service.

AN INTENSE LOVE OF THEIR MOUNTAINS

We were told repeatedly that they served only their "own country"—that is, Tyrol; that men from other States might never be sent there, nor they to defend other States. A marked exception to the rule of military service in Germany or Austria, it was a necessary concession, so said a Tyrolean officer, to a people intensely loyal to their Emperor "in their own land."

War breaks all rules. We heard last autumn that the Kaiserjäger were serving on the Austro-Russian frontier; that German troops were massed on the Austro-Italo border. Is it true? It is said the Kaiserjäger would far rather fight Russia than Italy, and perhaps volunteered for that service when, as then seemed inevitable, Italy must join the Allies. North Tyrol is quite Austrian, but the South borders Italy. In the Ampezzo-tal, where Cortina lies, the people speak a curious dialect, more Italian than German; and while the schools teach German and all the people are able to use that tongue if they will, they revert to Italian whenever the stranger can understand it. "Si, signora, si—I speak German, but Italian is my mother-tongue; the German, it is a stepmother."

A DISTINCTION AND A DIFFERENCE

But their land, that is their real mother, and how narrowly they describe it. Toiling one day up that loveliest and steepest of roads leading from Cortina to Tre Croci, "Jorg," I asked idly, "Jorg, do you love your country?"

And Jorg, the ever-cheerful, trusty companion of many a mountain excursion, answers, beaming, "Ach ja, gnädige Frau," while the red mounts darkly under his sunburnt skin. Then his face saddens. "But this, this is not my country, dear lady; I am a stranger here." We are coming under Monte Cristallo and I look up and around for soldiers. "What! have we already crossed the Italian frontier?" "Nein, nein, das nicht, gnädige Frau; but it is in Cortina that I am a stranger; my home is at Buchenstein." Now Buchenstein lays in another valley, but a fairly close neighbor to Cortina; one pass alone and 20 hilly miles separate them. But Jorg is a stranger in Ampezzo-Tal, and "his land," of which he is so fond, is merely the green ravine of the Cordevole. "A mountainous land makes tribes; a plain welds a nation." The Tyrolean loves his country, but it is his own corner of it; he serves his Kaiser and his flag there; he pines of homesickness elsewhere. And I doubt other legs and lungs could long defend its mountains. One must be born to them.

Jorg is still marching head erect, shoulders back, step springy beside my carriage, while the horses strain at the traces on the steepest part of a steep road. It is that one which rises from Cortina (4,000 feet) through the hamlets of Laretto and Alverà, the lovely Bigontina Valley, straight to the pass of Tre Croci (5,930 feet). Two things do greatly endear it to us: its unmatchable loveliness and its lack of motor-cars. A true Tyrolean road, narrow, steep, and stony, going to its destination by the straightest possible line. Each summer morning a long procession of carriages and pedestrians starts up it, and while it accommodatingly spreads great carpets of forget-me-nots, huge clumps of Alpine roses,

PIEVE DI LIVINALLONGO, OR BUCHENSTEIN (4,815 FEET AND 300 INHABITANTS) : DOLOMITEN STRASSE

In the dark valley below a tiny river marks the dividing line between Austria and Italy, and the forests upon both sides screen forts ready to defend the frontier. Consequently, although delightfully picturesque as is this valley—the hamlets clinging like swallows' nests to its mountain sides, the radiant blue lake and dazzling snow-caps, which are Italy—photography is most rigidly forbidden here (see text, pages 321 and 322).

CASTLE MARETSCH, NEAR BOZEN, AUSTRIAN TYROL

This fine old castle, with its four round towers, is situated near the old medieval town of Bozen, which is now linked with the new town of Gries, lying across the River Talfer. Although only 850 feet above the sea, Bozen is in the midst of a district of ice and crags. It is the home of a great flower and fruit industry—peaches, apples, pears, to say nothing of roses, violets, and other flowers here scientifically cultivated, and in peace times sent far and wide over Europe.

VIGO DI FASSA (4,565 FEET): DOLOMITEN STRASSE

"North Tyrol is quite Austrian, but the South borders Italy. In the Ampezzo-Tal, where Cortina lies, the people speak a curious dialect, more Italian than German; and while the schools teach German and all the people are able to use that tongue if they will, they revert to Italian whenever the stranger can understand it. 'Si, signora, si—I speak German, but Italian is my mother-tongue; the German, it is a stepmother'" (see text, page 332).

stretches of alluring forest, all soft, flower-filled turf and drooping larches to tempt and to excuse the short-breathed pedestrian who would linger by the way, the carriage which leads the procession out heads it to the end, since for vehicles there is no passing upon the way.

WHAT CONSTITUTES A REAL PEDESTRIAN

It will have been discovered ere this that my pedestrianism is of the most amateurish sort, disdained undoubtedly by every Alpinist. In the four great classes of Alpine tourists I am not sure of my place. Three would incontinently reject me, and I would rebel against being set in the other, while admitting that I only at times belong to any of them.

Is it first or last that I should place the "Sommer-frischler"—the summer guests, the idlers on hotel terraces and in village tea-rooms, who take leisurely motor drives or gentle-paced walks to Casino or post-card shop? After them come the great army of "Pässenbummler"—pass-loiterers, the Rücksack brigade—energetic, cheerful, vigorous, sunburnt, a bit blowsy perhaps, but full of the "joy of living" and seeing. How they would disdain me! Let me confess, ere they find me out, that many a time I have ridden up to the top of a pass and strode down triumphantly upon the other side! Could one do worse?

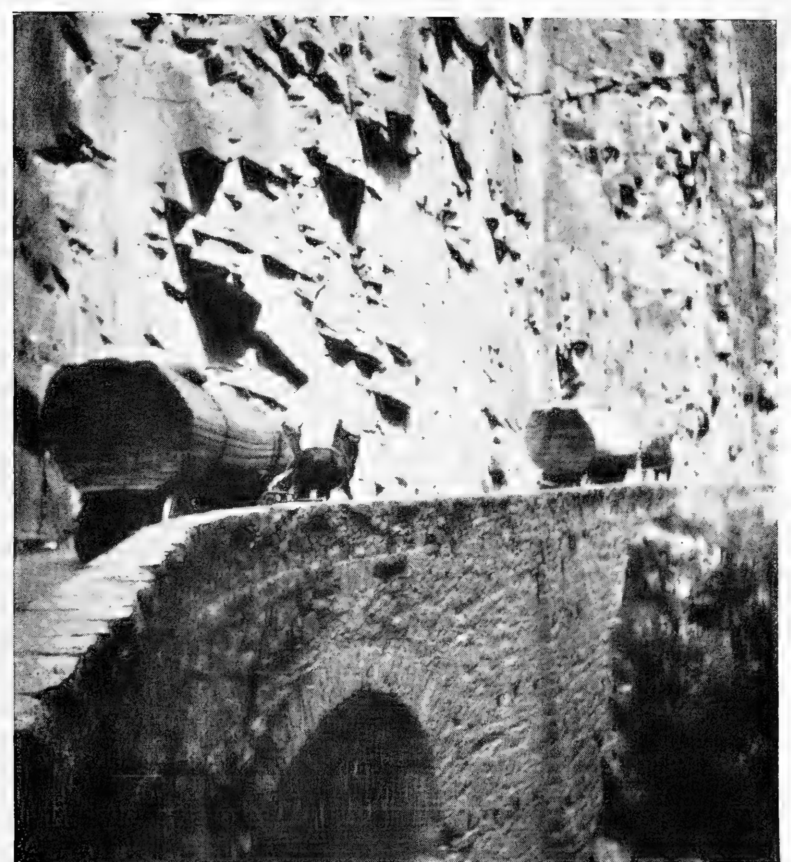
THE DIFFERENCE OF CASTE AND CLASS IN SHOE LEATHER

Hoch-touristen (high-tourists) will never notice me. They see nothing; no one but their own kind, their own ideals. Earnest people these, conscious of the danger of their enterprise, full of strange

Photo by Emil P. Albrecht

THE ENTRANCE TO EGGEN-TAL, THROUGH THE OLD FORTIFIED GATEWAY OF KARDAUN

A mile and a half toward Innsbruck from Bozen is Kardaun, with its picturesque entrance to the beautiful, ravine-like valley, the Eggen-Tal. This little valley is watered by the Karneider Bach, famous for its silvery waterfall. Walking is the great outdoor pastime and during the season one sees every kind and color of pedestrian trudging along, happy and care free, drinking in the splendid mountain air, which rivals the famed "Fountain of Youth" of De Soto.



IN THE EGGEN-TAL: TIMBER WAGONS GOING DOWN FROM THE SAWMILLS INTO BOZEN

The cliffs of this narrow valley are of porphyry. The road gets through it as best it may, sometimes on terraces in the cliff, sometimes carried upon arches, now tunneling through a spur, and again leaping over the stream to avoid one. It is wide enough usually for but one team; turnouts at fairly frequent intervals allow passing, but there is necessarily much whip-cracking and shouting about the never-ending turns and tunnels.

exhilaration over difficulties, utterly indifferent to roads and motors, their paths lying high above them, on slippery rocks or in the trackless silences of eternal snows. In the wee sma' hours before the dawn these Alpinists depart with ropes and guides and ice-axes to come in triumphantly at dusk—sunburnt, red-eyed, a sprig of edelweiss in the cap. With me they have nothing to do, nor I with them.

These are the three immemorial classes of Alpine visitors; but a witty American some summers ago added a fourth—Honk-touristen — those whose horn is now "heard on the hills," making every Pässenbummler and "average walker" jump for their lives.

The "average walker"—the "filler-in" of all these classes perhaps, of two most certainly—ah! he needs no classification; there are too many of him.

And he toils up this Tre Croci road sometimes most cheerfully; and at others he rides; for, being committed to no class or rule, he may do as he pleases.

THE LURE OF THE OPEN ROAD

And the kindly road treats him to a succession of enchanting views however he goes, while by turning aside for a few steps one may visit the little Lago di Scin, very tiny, very clear, set in soft turf and mirroring larches and snow-peaks. None of the Tyrolean lakes are large, and this is of the tiniest; but so beautiful, so calm

CASTLE RIED AT BOZEN

Bozen is an exuberantly progressive commercial city of nearly 14,000 inhabitants, situated in a beautiful niche in the south Tyrolese Alps. Although hard upon the Italian border, it is German-speaking, a thoroughly Teutonic town amid Italian surroundings. The famous German Minnesinger, Walther von der Vogelweide, according to some accounts, was born on a farm just above this city in 1170. A statue has been erected in Bozen to his memory.

STERZING, BETWEEN INNSBRUCK AND BOZEN

This little town, with its picturesque old buildings and arcades, was once the seat of much wealth, produced in the neighboring mines. Its main street is the old highway that leads over the Brenner Pass from Austria to Italy, one of the earliest built of the highways across the Alps.

AT VIGO DI FASSA: DOLOMITEN STRASSE

Most of the inhabitants in summer are busy with the seed-time and harvest, women, both old and young, working with the men in the fields, often miles away from the village. All the day long it is practically a deserted village; a few attendants at the poor, plain inn, a priest, and a score of merry children, too tiny to labor, are all its population from dawn until dusk.

in its flowery forest, that one feels himself in some great, high-vaulted cathedral, before some lofty shrine, and fears to break the stillness by a word.

On we go and upward, coming into the shadow of Monte Cristallo. "Jorg, have you ever climbed that?" I ask, nodding toward the jagged summit, 10,495 feet in the air." "Ja wohl, gracious lady, and many others; but not now; I must work now." "Is it *very* difficult?" regarding its rocky steepness from a comfortable cushion. "Oh no, gracious lady; not at all; it's just walking." Oh ye Hochtouristen all! Lower your haughty heads; no more do ye triumph over me! There is no merit, no glory in your achievement; it is "just walking!" And Jorg just walks all the long day and every day, and as he walks, reins in hand, he talks, laughs, sings; occasionally makes a wild leap to some high rock for a flower that he brings to my ever-greedy hands. The horses get hot and breathless; a gradient of 28 per cent or 32 per cent is hard upon them, Jorg admits, and they must be rested; but he is busiest then, rubbing and brushing, feeding and watering, and has no rest at all, all the long summer day.

OF SUCH STUFF ARE MOUNTAIN SOLDIERS MADE

It is from men like this that the Kaiserjäger are recruited. Jorg had already served his term of enlistment. The officers may be older men, but the rank and file are young—very young—and Jorg's "dienst" was over before he was 22. Undoubtedly he has gone back now to service with the reserves, he and many another sturdy, grave-eyed young fellow

THE INN AT LA GRAVE

It was a long, strong pull from St. Christophe, and this mule is evidently ready for dinner, or maybe he disapproves of the place

from these deep, high valleys. All along the mountain tops here there are forts, but one seldom sees them, nor troops in great number; but the soldiers come into the towns occasionally for supplies, and the uncountable loaves of bread prove that there are many mouths to feed.

NEARING THE FRONTIER

On the pass of Tre Croci is the Austrian customs-house, for the boundary is only a short distance beyond. A mile on its other side is the Italian customs-house. But neither pays much attention to the tourists, who come and go unceasingly; it is the natives and the stage-coach they use that come in for suspicion. Smuggling is a favorite pastime on this border.

Here our English and German companions berated the road soundly. We, remembering others very close to home, kept a discreet silence; but Americans have no need to hang their heads in Tyrol. It has some fine, well-laid historic highways, like the road through Ampezzo-tal or the Brenner; it has some fine new roads, like the Dolomiten Strasse, built with military forebodings and about to prove their worth; and it still has some of its ancient native roads, of which this over Tre Croci is perhaps the best, while the worst is that from Meran up to Schloss Tyrol.

THE SENTINELS OF FRONTIER

Narrow, stony, dusty or muddy, steep in gradient, going straight up where they can, turning abruptly where they must, they are everything that a road ought not to be, yet they are glorified by the won-

FROM ABOVE LA GRAVE: FRENCH-ITALO FRONTIER

The loveliest of French snow-peaks, La Meije (a corruption of Midi, south) reaches high into the sky above the green slopes and rocks of its lowlier neighbors

AN OLD HOSPICE AT THE SUMMIT OF LAUTARET PASS: FRENCH ALPS

It was in this vicinity that Captain Scott, who lost his life in the Antarctic, spent his last winter before sailing for the South, experimenting with food and clothing suitable for the Arctic climate, and inured himself to wind, snow, ice, and cold. Back of the hospice are the great barren peaks of Galibier, through whose saddle the second highest carriage road in Europe winds its way.

THE SCREE SLOPE ON THE COL DU LAUTARET: FRENCH ALPS

With the freezing and thawing of winter the mountain rock-decaying processes take place, loosening up a vast amount of material which is very unstable, very treacherous, the bane of mountain-climbers, and more dreaded than ice. It is gradually washed down to the valleys and becomes a part of their soil.

ON THE PONALE ROAD NEAR RIVA: LAKE GARDA

A trip by boat on the lake brings you to the foot of the Ponale Falls, but to reach the road for the walk back to Riva there is a steep climb of almost a thousand feet up to the bridge which spans the gorge. From this point you can climb still higher if you wish to go back into the country to the beautiful but tiny Lago de Ledro; or, by a shorter climb, you may reach the highroad along the face of the mountain leading down to the town.

THE VILLAGE CHURCH : LA GRAVE

The Route des Alpes is the main street of the village of La Grave. Across the valley lies La Meije, with its glacier, one of the highest in the French Alps.

FRENCH OFFICERS OF THE CHASSEURS ALPINS : LA GRAVE, FRANCE

"In the long summer days upon the higher passes one meets this light mountain artillery (the Chasseurs Alpins) marching gaily upon long practice hikes or climbing tests, taking ranges, making maps, or resting lazily on the soft, elastic turf. . . . They are not like the Kaiserjäger, born mountaineers, but are drawn from all France for this service" (see text, page 356).

A MILL IN EGGEN-TAL: AUSTRIAN TYROL

Nowhere can one find more picturesque little valleys than in Austrian Tyrol, and nowhere in Austrian Tyrol a more delightful one than in quaint Eggen-Tal—here a narrow, cliff-walled gorge, there a series of terraced vineyards, and farther on a narrow, beautifully carpeted meadow

REPORTING TO HEADQUARTERS: LA GRAVE, FRANCE

The leader of the detachment of 125 men who crossed the Col de la Lauze making up his report ten minutes after their arrival. "Pardon, madame," he said to an interested tourist, "but this is my office."

derful country they traverse. How many of them there are, and all so beautiful! Loveliest perhaps that through the Eggen-Tal, with the Rosengarten and the peaks of Latemar at one end, Schloss Karneid on its proud eyrie at the other, the noisy little river running between rocks hand in hand with the road; but when I think of Tre Croci's flower-clad slopes I hesitate. Nowhere, I was about to say, are there so many flowers as about Cortina di Ampezzo, but a memory assails me—a great pasture high in the French Alps, gay as a Persian carpet and fragrant with millions of violets. Ah well! each in its own time and place.

The Eggen-Tal leads down to Bozen from Karersee, and in and out of Bozen run many fascinating little roads, up the Ritter, to Schloss Runkelstein and its frescoes; and that broad, smooth white one, the Dolomiten Strasse, which comes from Cortina di Ampezzo, but turns aside at Vigo di Fassa to avoid the Eggen-Tal, which forbids motor-cars.

A STRONGHOLD OF BYGONE DAYS

From end to end, but especially in the valley of the Cordevole, the Kaiserjäger keeps guard. In this valley—the first beyond the Falzarego Pass and Ampezzotal as one leaves Cortina—the tiny silvery stream trickling through the grasses at its bottom marks the dividing line between Austria and Italy. The Dolomiten Strasse clings to a terrace now high above the

ENTERING LA GRAVE FROM A HIGHER VILLAGE

La Grave is a village of 999 inhabitants, picturesquely perched on a terrace above the valley of the Romanche. It is a favorite point of departure for high Alpine excursions, the Pelvoux group of the Alps of Dauphine being in full view across the valley.

Photo by Donald McLeish

ON THE ROAD FROM TOBLACH TO CORTINA

The highway between Toblach and Cortina, crossing Tre Croci (Three Crosses) Pass, skirts the beautiful light-green lakelet Misurina, whose waters are 5,760 feet above the sea. The pastoral scenes in these remote highlands are charming in their quiet and simplicity.

VIEW FROM THE PASS OF TRE CROCI (5,930 FEET), LOOKING WESTWARD TO TOFANA AND THE NUVOLAU

On the pass of Tre Croci is located the Austrian customs-house, the boundary between Austria and Italy being only a short distance beyond. A mile on its other side is the Italian customs-house

KAISERJÄGER IN FRONT OF THE HOFKIRCHE AT THE END OF MASS: INNSBRUCK

"At Innsbruck one sees them literally in 'Sunday best' standing at ease before the door of the Hofkirche . . . or marching through the public gardens. . . . A hearty, healthy looking lot, rarely ill. According to their surgeon, 'If one did not break a leg or mash a hand now and then, I would have nothing to do'" (see text, page 332).

valley, now low enough to hear the ripple of water, and from it one looks across to the mountains and forest, the village and lake, the snow and the flowers, which is Italy.

Here, by the wall, is the ruined castle of Buchenstein, which looks its German name. A little farther on the village, which is distinctly Italian in appearance, repudiates it and calls itself Pieve di Livinallonga. It clings to the road and to the rocks above it, glaring over at Italy from the midst of its forts. They sit upon either side and above it like huge spiders, watching from vicious webs of barbed wire. The road narrows to a track admitting but one vehicle to thread the little town. One can touch the houses upon either side with one's hands as they lean over the street, for sidewalk there is none.

Soldiers watch you enter and soldiers watch you leave, and more soldiers whom you do not see are posted high on the hills to see that you do not loiter by the way. It is a most enticingly picturesque

THE STREET OF MARIA THERESIEN: INNSBRUCK

Innsbruck, the capital of Tyrol, with a population of some 60,000, lies on the River Inn, and rivals Salzburg as one of the most picturesque cities of all of the Teutonic Alps. The column of St. Anne, erected in 1706, and shown in the right of the picture, commemorates the victory of the Tyroleans over the Bavarians and French three years before.

LOOKING ACROSS THE AMPEZZO-TAL AND CORTINA TOWARD THE FALZAREGO PASS

The Dolomite road crosses the River Boite before leaving Cortina. It then passes onward through Falzarego Pass and thence skirts the north side of the beautiful Buchenstein Valley. In the picture Monte Tofana lies in the background.

CHASSEURS-ALPINS ON THE MARCH IN THE FRENCH ALPS

"Swinging toward you upon the open road, they present a curious appearance, for an Alpine stick thrust in a knapsack sticks far above each head. At a distance they look like little toy soldiers with hook all ready to fasten them to a Christmas tree" (see text, page 356).

FARMERS' HOUSES IN THE AMPEZZO-TAL

The Ampezzo Valley, watered by the Boite River and bordered by the wonderful mountains of Austrian Tyrol, has a beauty all its own, and its population is made up of a race of hardy mountaineers, possessing many of the characteristics of the Teuton of the North and the Latin of the South.

TWO YOUNG TYROLEANS: INNSBRUCK

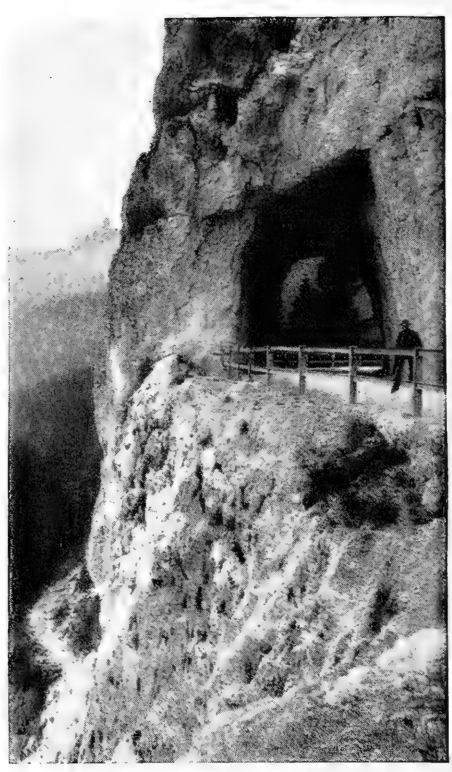
The imprint of the sturdiness of the mountain-climber is plainly in evidence in the children of Tyrol. Their erect carriage and elastic gait cannot escape the attention of even the casual observer.

A STREET SCENE IN MERAN: AUSTRIAN TYROL

Wherever one travels in Austrian Tyrol he encounters yokes of large, well-fed oxen, which are the pride of the peasantry of that region

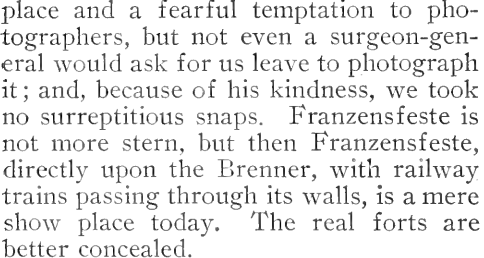
CHASSEURS-ALPINS' BAGGAGE: LA GRAVE, FRANCE

Dunnage bags brought by mules from St. Christophe. Their owners came over the Col (pass) de la Lauze (11,625 feet) in a practice climb. They made the trip in twelve hours, seven of which were spent crossing ice and snow.



ON THE DOLOMITEN STRASSE

A tunnel high above Ampezzo-Tal, where one takes a last look at the beautiful valley, the white patch that is Cortina, and the road that parallels the tiny river into Italy before turning into the high, wild Falzarego-Tal.



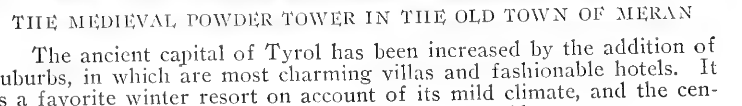
place and a fearful temptation to photographers, but not even a surgeon-general would ask for us leave to photograph it; and, because of his kindness, we took no surreptitious snaps. Franzensfeste is not more stern, but then Franzensfeste, directly upon the Brenner, with railway trains passing through its walls, is a mere show place today. The real forts are better concealed.

Then, too, although Franzensfeste sits by the classic highroad from Austria to Italy, it is not upon the frontier; nor are the forts about Bozen, although they are nearer to it; but those at Schluderbach, Tre Croci, and Buchenstein face the enemy directly. In view of recent events, it would seem that no forts are of great service—men and guns are the real munitions of war.

Austria and Italy both have believed in their efficiency—fort opposes fort along the frontier—only, as said before, those Italian are not so obvious. France built them, too, along the line of her great mountains facing Italy, and trained her Chasseurs-Alpins for their defense.

THE MOUNTAIN SOLDIER IN THE FIELD

In the long summer days upon the higher passes one meets this light, mountain artillery marching gaily upon long practice "hikes," or climbing tests, taking ranges, making maps, or resting lazily on the soft, elastic turf. Pleasant lads they are, none five and twenty, flashing white teeth and dancing eyes on the stranger. Swinging toward you upon the open road, they present a curious appearance, for an alpenstock thrust in the knapsack sticks far above each head. At a distance they look like little toy soldiers, hook all ready to fasten them to the Christmas trees. I may be pardoned



THE MEDIEVAL POWDER TOWER IN THE OLD TOWN OF MERAN

The ancient capital of Tyrol has been increased by the addition of suburbs, in which are most charming villas and fashionable hotels. It is a favorite winter resort on account of its mild climate, and the center of the so-called grape-cure for pulmonary troubles.

A MONASTERY NEAR SALZBURG

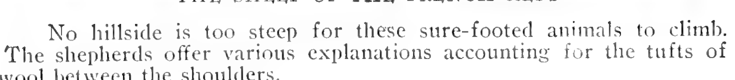
The Capuchin monastery upon the Kapuzinerberg (2,130 feet) is reached by two routes; one, the picturesque Route de Calvaire, with its 125 steps, or its inclined planes punctuated by stations of the cross; the other, the steep, close-walled staircase known as the Kapuzinerstieg.

ON THE MISURINA ALP (5,760 FEET), CLOSE TO THE LAKE OF THE SAME NAME

The Italian border is crossed between the Tre Croci and Lake Misurina, but the scenery has undergone no change. Large herds of cattle are brought here for the summer grazing

RIVA: ON BEAUTIFUL LAKE GARDA

From our window we had the most beautiful view of garden and lake; roses, oleanders, and other flowers were in luxuriant bloom, trees of many varieties making a background of deep green, with the blue lake and the rocky shore in the distance.



THE SHEEP OF THE FRENCH ALPS

No hillside is too steep for these sure-footed animals to climb. The shepherds offer various explanations accounting for the tufts of wool between the shoulders.

THE VILLAGE OF ANDRAZ (4,660 FEET): DOLOMITEN STRASSE

This hamlet is prettily situated at the base of the Col di Lana (8,085 feet). In summer it possesses a veritable carpet of flowers and in winter is buried in snow.

RIVA AS CHARMING AS LAKE GARDA ITSELF

At the north of the harbor is the Piazza Benacense, in which rises the Apponale Tower (115 feet). Formerly one of the towers of the old city wall, it was converted into a belfry in the early part of the sixteenth century.

ON THE PONALE ROAD OVERLOOKING LAKE GARDA

This road has no equal for beauty save the famous Corniche Road and the Amalfi Drive, which it resembles in all but length. Like them, it follows as best it can the contour of overlapping cliffs. Here it tunnels straight through the rock, and at every turn it presents another enchanting view, until one grows bewildered with so much beauty and knows not which is loveliest

ON THE SHORES OF LAKE GARDA

Many towns line the shores of this gem of Tyrolean lakes. All of them are Italian except Riva. This picture shows the steamer landing at Maderno. Lake Garda covers an area of 143 square miles

HARBOR AT MALCESINE: LAKE GARDA

This harbor is usually crowded with picturesque boats, with patched sails of gay colors flapping lazily in the light breeze. As a background, there are pink and blue houses crowding in greenery at grim Monte Baldo's base

KÖNIGSEE: THE LOVELIEST OF BAVARIAN LAKES

It lies nearly 2,000 feet above the sea, surrounded by precipitous mountains whose cliffs drop five and six thousand feet to its clear, dark-green waters. It lies near to Berchtesgaden, a favorite mountain resort, both in summer and winter, and not far distant from the Austrian border

Photo by A. Nelen

THE REAPERS AT VIGO, ON THE AUSTRO-ITALO BORDER

In Austrian Tyrol agriculture is carried on just as though the era of farm machinery had never yet dawned. The sickle, as far behind the cradle as the cradle is behind the self-binder, is still the harvesting machine of the mountain farm; yet health and sweet content, simple tastes and wants that are few, bring long years and a serene old age even to those who must toil to the end.

A VIEW OF LAKE GARDA FROM RIVA

Lake Garda here is quite narrow and walled in by precipitous cliffs, like a Norwegian fjord. Farther south the lake widens, but at Riva the cliffs are stupendous ramparts, shutting out all horizon and enclosing the blue water as in a bowl

this levity when I supplement it with the statement of the very profound respect I cherish for these gay "toy soldiers," many of whom have since laid down their young lives at their country's call.

Certainly no grave apprehensions, no grim cares dulled the sunny days of last July to these merry youths. The service was sometimes "bien dur" to unaccustomed legs, for these Chasseurs are not recruited merely from Savoy and Dauphine; they are not, like the Kaiserjäger, born mountaineers, but are drawn from all France—from the low, sunny Midi, the high tableland of Auvergne, the apple orchards of Normandy, and from city streets; thus in the summer each must get his training upon mountain roads. In winter there is snow practice with skis and, of course, always gun drill.

We met them everywhere. At La Grave in number, for a detachment made a two days' halt there; at St. Christophe, whence a party started on a practice climb over the snow and ice of the Meije, the "classic" snow peak of the French Alps; on the Col du Galibier, busy with theodolite and range-finder; holding impromptu wrestling matches on the turf by the Alpine garden of Lautaret; marching briskly in heavy equipment through Valloire; kneeling devoutly in the old cathedral at St. Jean de Maurienne. We are accustomed to hearing accounts of religious indifference, even of intolerance, in France; but observation in the south, in Provence, Savoy, Dauphine, did not prove it. I never deliberately counted, but certainly the balance between men and women in the churches, at mass or in private devotion, seemed better than at home and the congregations larger. One can fancy how many candles burn today before Jeanne d'Arc, there in the dim churches, where many a gay young soldier has reverently bent the knee.

Now mother or sister, sweetheart or wife, implore the soldier-maid's protection with bitter tears; then Jean or Louis, André or Martin asked it blithely and strode out gaily into the sunshine.

LOVE OF COUNTRY IN VARYING DEGREES

If the Kaiserjäger love Tyrol because it is "their own land," the Chasseurs-Alpins love Dauphine because they have chosen it. The old provincial divisions do not divide as once they did, although one proud batelier on the Tarn did insist, arrogantly, "I—I am a Frenchman" that we might not think him of Cevennes or Auvergne.

When asked his native place he said, proudly, "Havre!" puffing out his already well-inflated chest; but on the suggestion that he was then a Norman, he turned his back upon me and spoke no other word. I learned from that not to dispute a provincial's claim on France.

Apparently the Chasseurs enjoy their term of service in the mountains. If occasionally it is hard, it has compensations to those appreciative of natural beauties, and many of these lads seemed very keenly alive to them. Many an enthusiastic comment we heard on the splendor of a great glacier glistening in the moonlight, of a tall rock-needle glowing in the setting sun; a high, sunny meadow spread with a million blossoms, all swaying in the breezes; a great ravine, dusky, grim, where noisy waters ran.

AFTER WORK—PLAY

There was much hard work, but there was some play. Often after a hard day's climb a good whistler could set a dozen couples dancing on the soft, springy turf, while wrestling matches came off at most unexpected moments and without formalities.

WHERE PHYSICAL STRENGTH COUNTS

The soft, dark blue tam-o'-shanter, even when worn at a rakish tilt over one snappy eye, is not as picturesque as the Tyrolean feathers; nor are the men, as a whole, so well uniformed. The best-dressed officers, the worst-clad privates in Europe—that has always been France's reproach. The Chasseurs-Alpins, however, are trimmer in appearance and less conspicuous in color than other French troops. They are selected for physical strength apparently and love to test it by lifting and carrying cannon or incredible rounds of ammunition. They figure proudly upon post-cards as veritable Samsons in strength, posing not only with cannon, but two or three comrades nonchalantly grouped on their shoulders.

DOWN THE GORGE AT PONALE TO LAKE GARDA

An almost sheer drop of 1,000 feet from the bridge over the gorge to the lake. The path up from the lake is quite steep and very lovely—two things which compensate each other. One is fully justified in pausing for views and breath by the way.

Photo by A. Nielen

DAUGHTERS OF THE TYROL: TOBLACH, AUSTRIA

It would be difficult to find more splendid specimens of young womanhood than one meets on every hand in the Tyrol. Sturdy, bright-eyed, and rosy-cheeked, they store up treasures of health early in life by living much in the open, walking, climbing, and exercising. They marry young and make fine housewives and mothers.

MALCESINE: LAKE GARDA

Across the lake from Limone lies Malcesine, picturesquely huddled at the foot of Monte Baldo, her time-worn castle perched defiantly upon a rock

SANTA MARIA DELLA SALUTE: VENICE

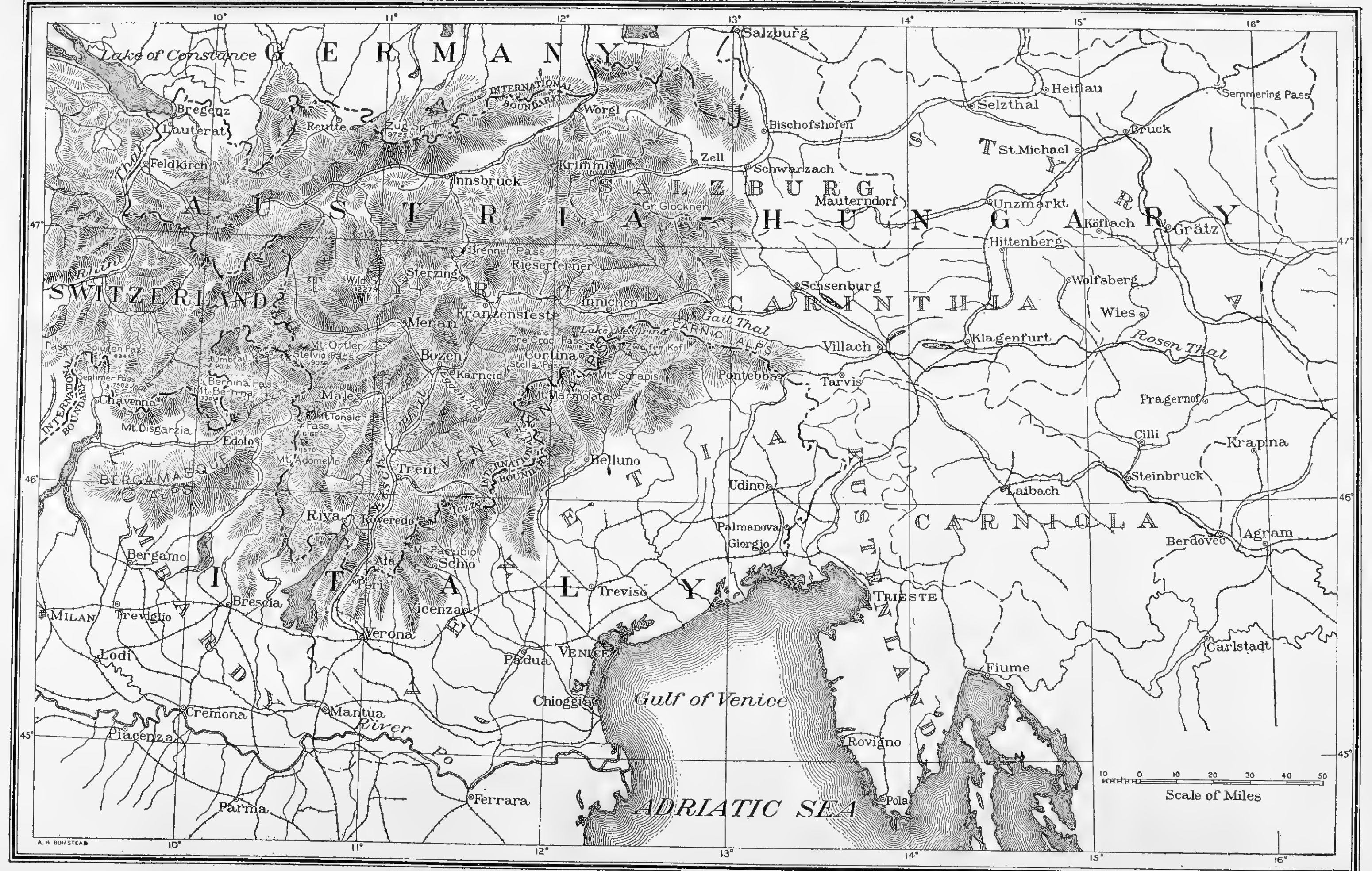
One of the four "plague" churches of Venice, erected 1631-1656, in commemoration of deliverance from the pestilence of 1630, and a famous water-mark upon the Grand Canal near its merging into the canal of San Marco and the sea.

THE PONTE DEI SOSPIRI (THE BRIDGE OF SIGHS), FROM THE PONTE DELLA PAGLIA (THE BRIDGE OF STRAW): VENICE

One name is as whimsical as the other. The Bridge of Sighs connects, it is true, the Palace of the Doges with the prisons (*carceri*) of San Marco, but it was a bridge of communication merely. It is doubtful if any noted prisoner ever crossed it, and the sentimental sighs it evokes are a tribute rather to poetry than to history.

SAN GIORGIO MAGGIORE: VENICE

St. George the Greater—to distinguish the church from its little brother, San Giorgio dei Greci—floating on its little island in the broad canal, San Marco, a quarter of a mile from the Molo, in front of the Doges' palace, a quay where innumerable gondoliers frantically solicit patronage. San Giorgio was begun in 1565 and terminated about 1610. The Campanile is 195 feet high. The view from it is the finest in Venice. The adjoining monastery is now a barracks.



MAP OF THE AUSTRO-ITALO ALPINE REGION, WITH SURROUNDING TERRITORY

THE GOLDNE-DACHL, OR GOLDEN ROOF: INNSBRUCK

This is a rich Gothic balcony, with roof of gilded copper, added to the "Furstenburg," an old palace, by Count Frederick of Tyrol, in 14–5. This count is sometimes known as Frederick of the "Empty Pockets," his love for building keeping his perpetually empty.

Photo by A. Nielen

STILFSERJOCH PASS, ON THE BORDERS OF AUSTRIA AND ITALY, THE HIGHEST CARRIAGE ROAD IN EUROPE: ITS SUMMIT IS 9,055 FEET

One sees them, too, at sterner practice than facing a photographer, lined up before an officer, very rigid, very precise, conscious that their comrades are joking and jibing at the rear. It does not soothe susceptibilities to stand under the weight of a piece of ordnance, however small, while one's superior makes sarcastic comments upon one's ability or fires rapid peremptory questions as to what one would do in various emergencies one has never met; while one's chosen comrades, grouped at a safe distance behind the drill-master's back, are making uncomplimentary remarks concerning one's appearance. Each takes his turn, however, and in the long day all come out even.

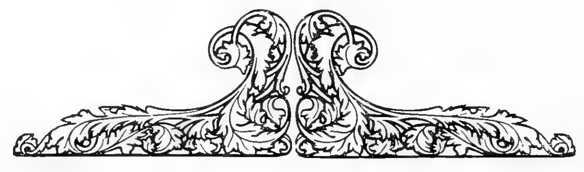
It seems so long ago—so drearily long ago—since those radiant days on mountain tops near the sky.

In the great peace, the indescribable stillness of those high places, the possibilities of war seemed too remote to contemplate. The soldiers stood for grim realities, but we did not comprehend it. Our eyes, looking for loveliness, saw them as picturesque concomitants of a wonderful landscape, sometimes as delightful playfellows. We were deaf and blind to all the uniforms meant.

The cry to arms echoed and re-echoed through these mountains. War has not yet violated their majestic fastnesses, but the gay young soldiers have marched away to defend the bitterly contested passes in the Vosges; not again will they come to their Alpine drill ground.

The snow lies soft and deep and thick there, the valleys are filled to the brim, the brooks are stilled beneath the ice. The flowers are buried, the passes closed, the villages isolated. No one comes and no one goes away. Life is at a standstill awaiting the spring.

The Chasseurs-Alpins will come again, perhaps, but they will look at us with other eyes. The merry boys of last summer are old or dead.



BULGARIA AND ITS WOMEN

By Hester Donaldson Jenkins

AMONG the Oriental girls with whom I lived in my nine years' residence in the Near East, none interested me more than the Bulgarians. They are perhaps the least Oriental of the eight or more nationalities to be found in Constantinople College, of which I was a professor. They are fairer and brighter in coloring than the Armenians, Greeks, or Persians, rather taller and larger on an average, and have more energy and less languor than the Turk.

Bulgarian girls incline to roundness of contour and figure, many of them having round, full face, ripe, rosy mouths, and dimples. This effect is heightened by the fashion of wearing the hair in braids wound about the head. One sees plenty of dark hair in Bulgaria, but one also looks with pleasure on warm brown tints, chestnut tresses, and occasional auburn heads. One of the most beautiful girls I ever saw was a Bulgarian, with a glorious mass of copper-colored waves, a clear pale skin, handsomely set gray eyes, a delicate mouth, and small white teeth, and the height and carriage of a princess.

The bright cheeks that so many of the Bulgarians have are a pleasant change from the dark or pale skins of the Armenians and Greeks. Their eyes are generally less large and languorous than Oriental eyes, looking you squarely in the face, with more frankness and less seduction.

THE LANGUAGE OF THE COUNTRY

The origin of the Bulgarian people and their relationship to the other Balkan nations is naturally of interest in these times of stress. The Bulgars are a branch of the great Slavic race, just as are the Russians, the Servians, the Rumanians, and the Croatians. They are, however, not pure Slavs, having received an admixture of Tatar blood many centuries ago, a fact which is occasionally betrayed by the upward slant of the eye and the high cheekbone.

All of these Slavic peoples except the Rumanians speak languages derived from a common old Slavic, and sufficiently alike so that an educated Bulgarian can read Russian or Servian with little difficulty; and they use a common alphabet, which is a modification of the Greek, including some queer compound sounds not in the Greek tongue, such as the first letter of the name Tschaikowsky, which we transliterate by *Tsch.* The Bulgarian language is full of sibilants and English gutturals, but does not include the deep German or Armenian guttural.

The names of some Bulgarian girls may give an idea of the sound of the language: Nadezda, Nadelka, Xarafinka, Blagoya, Vesselina, Goonka, Zdravka. The last names all end in *off* for the men and *ova* for the women, meaning son of or daughter of. Thus Magthalena Petrova is Magdalen, daughter of Peter; Mara Angelova is Mary, daughter of Angelo. Family names are just coming into fashion, so that Peter Dimitroff's son may call himself either Dimitroff or Petroff, in the former case making the name Dimitroff permanent in his family.

EVER A WARLIKE NATION

When Russia was an insignificant country under Polish or Tatar dominion, and Byzantium ruled the Eastern Roman Empire, the Serbs and Bulgars were warlike nations on the northern frontier, continually taking advantage of Byzantine weakness, often in bitter rivalry. Thus at one time a Greater Servian Empire occupied what is now Macedonia and pressed to the gates of Constantinople; and twice a Bulgarian Tsar extended his empire of conquest close to the Bosporus, menacing Greek sovereignty.

Bulgaria and Servia both, therefore, have what they regard as a glorious past to inspire them, and the country that was the arena of the recent Balkan-Turkish war had been possessed and governed in turn in the past by Greek, Serb, and Bulgar. When Constantinople finally fell into the hands of the Turks, in 1453, the Greeks of that city, haughty in their humiliation and isolation, gathered them-

A TYPICAL UPPER-CLASS BULGARIAN GIRL: NOTE THE BROAD FACE, THE ABUNDANT HAIR, AND THE CANDID EYES

Photos by Hester Donaldson Jenkins

READING THEIR FORTUNES: GROUP OF BULGARIAN GIRLS IN THE COLLEGE GARDEN

Photo by Hester Donaldson Jenkins

BULGARIAN STUDENTS OF CONSTANTINOPLE COLLEGE IN A PAGEANT OF THE NATIONS GIVEN AT THE OPENING OF THE NEW BUILDINGS: THEY ARE DRESSED IN THEIR NATIVE BULGARIAN PEASANT COSTUMES

BULGARIAN GIRL GOING TO THE WELL FOR WATER

selves in the quarter known as the Phenar, where stood their cathedral church. (Santa Sophia had been taken from them and converted into a mosque.)

THE QUESTION OF RELIGION

As all Moslem churches are ruled very largely by religious law, and it was not possible to apply that to Christians, the Greeks were allowed to keep their own laws, and were practically governed in all their personal ways by their church, the Orthodox Greek Church, the head of which was the Patriarch of Constantinople. The Bulgarians, who also had been conquered by the Turks, were members of this church, thus coming under Greek domination.

When the Greeks, accustomed to rule, found themselves subjects of the Turk, they laid hands on all the power they could get, and the Bulgars and Serbs claimed they were oppressed through the church quite as severely as the Turk oppressed them through the state. The Slavs, badly treated, resented it bitterly, and a hatred grew up between Greek and Slav that has persisted to this day.

When the Balkan States were freed from Turkey, in the middle of the nineteenth century, they demanded and obtained separate churches — a Servian

Photo by Frederick Moore

BULGARIAN TROOPS QUARTERED AT THE RILO MONASTERY, SITUATED ON THE THEN TURKISH BORDER: TROOPS SAYING GRACE BEFORE THE EVENING MEAL

Photo by Theron J. Damon

UNEDUCATED BUT HAPPY: BULGARIA

Photo by Hester Donaldson Jenkins

BULGARIAN COLLEGE STUDENTS: IS NOT EDUCATION WORTH WHILE?

"Often the daughter of an unlettered peasant, living in a remote village, after some years of schooling, will take her place in Sofia or Varna as a teacher or leader in civic betterment. Her peasant costume and knitted footwear she exchanges for a European dress in excellent taste. The heavy, falling braids of her hair she now arranges in the fashion of the day. Her manner becomes assured, yet modest, and she takes her place as a leader of a woman's reading club or a member of a hospital board with proper dignity. . . . I was told in Sofia that women from the college were the greatest influence for higher ideals that the city possessed" (see text, page 398).

A GROUP OF COUNTRY BELLES: SOFIA, BULGARIA

Orthodox Church and a Bulgarian Orthodox Church. For this the Greeks have never forgiven them, and even now we hear of a Greek priest in a Greek Macedonian village refusing marriage or burial rites to an isolated Bulgarian.

Another cause of friction between Bulgarians and Greeks is the difference in character. The Greek thinks himself superior to the Bulgarian in every way; the Bulgarian, on the other hand, regards the Greek as his inferior; so it is the world over.

A Greek schoolmaster has been quoted as saying that as the Turkish conqueror had the claws and fangs of the tiger the Greek had been forced to acquire the qualities of the fox. If the Turk at his worst had tigerish qualities and the Greek a foxy nature, the Bulgarian, in his persistence and solidity and lack of subtlety, might be compared to a bulldog.

These peasant people have very solid qualities, qualities that should take them far, and should never let them retrograde, for a gain made by persistence and sheer weight cannot be lost, as can that won by a trick. There is an initiative and a power of organization in the Bulgarians that is unusual in the capricious and fatalistic Orient.

Our Bulgarian students had a certain sturdiness, an out-of-doors quality, a sanity which marked them as different

GOSSIP IN THE MARKET-PLACE: SOFIA, BULGARIA

from the fanciful, sentimental, and weaker-nerved girls of some other nationalities. Sometimes a roughness accompanied this greater strength, and a Bulgarian hoyden was much more common than a Turkish hoyden. The Greek girls stood somewhere between Turks and Bulgarians in the quality of breeziness.

In Constantinople College, despite these racial and historical causes for friction, there has been a surprising amount of harmony between the Bulgarians and Greeks, and even one or two good friendships. But the feeling, so deep in their nature, would occasionally find exercise, sometimes rather amusingly. For instance, when Greek Chrysanthe accused Bulgarian Blogoya of having burned the Alexandrian library some thirteen centuries before, it seemed rather an ancient grudge. But when Antigone and Thalia, who had lived peaceably among Bulgarian friends in Philipopolis, were driven from their home by an anti-Greek uprising a few years ago, it is not strange

that they dropped their correspondence with Bulgarian school friends and expressed themselves bitterly, although, as Tinka said with a shrug, "What had I to do with it?"

This antagonism of which I have spoken was at the bottom of the devastating little war that followed the war of the Allies against Turkey. No one who knows the so-called Allies could conceive of their working together harmoniously after the war with Turkey was over.

EDUCATIONAL STRIDES OF THE PEOPLE

Youngest among the nations of the Balkan Peninsula to be freed from Turkish domain, it being less than forty years since they threw off the Turkish yoke, illiteracy is less common in Bulgaria than in any other country in that region. In 1880 only one out of ten soldiers in the Bulgarian army could read and write; today only one in twenty cannot. An excellent system of public instruction has been established, with nearly 5,000 primary schools, a large number of secondary schools, and the University of Sofia. The amount spent for educational purposes in 1912 was $1.20 per capita, as compared with 67 cents in Servia, 50 cents in Greece, 40 cents in Montenegro, and 20 cents in Turkey.

The Bulgarians are mainly a peasant folk, living on the land and cultivating the soil. Under Turkish domination there was nothing else open to them. But since they obtained their freedom, in 1876, they have developed along other lines also, a small part of them becoming dwellers in cities, soldiers, merchants, and officials.

One keen observer of the Bulgars says of them as a race: "The Bulgarian is truly a son of the soil, wedded to the uncompromising earth, whose very qualities he seems to have drawn into his being—unequaled obstinacy and tenacity of purpose, combined with the most practical point of view, promise great things for his race. Frugal and taciturn, he has none of the thoughtless cheeriness of the Rumanian or the expansiveness of the Serb."

ECONOMIC CONDITIONS

There are neither the idle rich nor the abjectly poor in Bulgaria. The high and the low lead the simple life and luxuries are hard to find. The men of the country are mainly peasants, but the women nurses during the Balkan war all paid tribute to their courteous and respectful demeanor. Mrs. St. Clair Stohart, in her "War and Women" declares that Bulgarian men of all classes could give lessons to the men of most of the nations of Europe in their attitude toward women.

Living is very cheap. At a hotel good accommodations can be secured for $1.25 a day. A leg of mutton costs 20 cents in the market, meat 6 cents a pound, and a dozen apples may be bought for 2 cents. Sofia has been called "The Little Brussels," just as Brussels in times of peace was called "The Little Paris."

When the Bulgarian goes traveling, he is always first of all sure he will not miss his train. Even the tourist stopping at a Sofia hotel is routed out of bed at 5 o'clock in the morning to catch a 7.30 train, and he is expected to go to the station at least an hour before train time. The people like to do their waiting at the station, and the visitor is expected to prefer the same leisurely manner of "taking the train."

The Bulgarian peasant, generally speaking, leads a very primitive, but beautiful and active, life. The house is of the simplest, furnished lightly with mattresses on the floor and rude stools and tables. The mother has her spinning-wheel and sometimes her loom; she may also help her goodman in the tobacco field or the onion patch. She spins and weaves for her daughters the heavy cotton garments that they wear, then embroiders them richly in bright reds, blues, and greens, and sews in bits of looking-glass and beads to make them gay. She cross-stitches their bright aprons and strings beads for their necks.

PEASANT COSTUMES

A holiday in a Bulgarian village brings out a wonderful array of gaudy costumes, straight and awkward in line, but most brilliant in color decoration. The women's big waists are usually emphasized by huge silver buckles, which stand out almost grotesquely. When, however,

Photo by Hester Donaldson Jenkins

BULGARIAN PEASANTS

Bulgarians have in the past suffered more severely at the hands of the Turks than any other Balkan people. Located in the central part of the Balkan peninsula, cut off from all communication with other Christian nations, their rights ignored, their labor wrung from them by their Ottoman masters, the children of Bulgaria have become inured to every form of hardship. Thrifty, and persistent in their nationality through all their suffering, the Bulgarians yet bear in their natures the ineradicable scars of generations of misrule. The peasant classes are heavy, taciturn,

a girl is young and pretty, her abundant curly hair, into which is braided bright threads or ribbons, with often a flower in her ear, her bright color heightened by the gay embroideries, and her slender figure, which the straightness of her dress cannot spoil, make her an attractive vision. Of course, these gala costumes are laid aside during the working days, for there is much work, especially in the summer, when the days are long.

The food is very simple: black bread and an onion for breakfast, bread and ripe olives for the noon meal, and a similar meal at night. So it is the Bulgarian peasant is uniformly healthy.

The Bulgar lives with his songs. Bulgaria's famous poet, Slaveikoff, says of them: "These, in truth, are always with him through the changes of life, from the cradle to the grave. If he plows or if he sows; if he gathers in the harvest or garners his grain, there is no helpmeet like a song; it is the royal comrade on his journey; when he lies on the bed of sickness it consoles him. Usually the song lives in the voice of the singer. Of instruments it is the flute he loves the best, for it will sing to him more truly than all of them what the melodies contain of softness and of Oriental sorrow."

THE WATER SUPPLY AND ITS SOCIAL USES

A girl in a Bulgarian village is not without her amusements. One of her tasks involves a social pleasure, for which she has a keen zest. As in the Bible times, all the water for a village must be drawn from one or two wells or springs, and these watering places or fountains are the scene of much sociability. Hither come all the youths and maidens of the village, and it is doubtful whether they hasten away as quickly as they might. The girls wear yokes on their shoulders, from which depend the pails they are to fill with the fresh water. Often the youths fill the pails for them; then, in return for such gallantry, they whisper a request for the flower over the maiden's ear; or, bolder, perhaps, they steal the blossom. I was told of one fellow who annoyed a girl by taking the flower she was reserving for a more favored swain; so that the next time she filled her flower with snuff, and when Ilya filched it and put it to his nose he was mastered by racking sneezes, while the other boys laughed and hooted.

The youth of Bulgaria, as you see, are allowed to meet freely, the sexes not being kept apart as are the Moslems. There is coquetting and courting about the fountain and home gatherings in the evenings. Marriages spring from mutual attraction and choice rather than the arrangement of families, as do Armenian and Turkish alliances.

There are husking-bees and quilting-bees where the young people meet, but the most popular form of social entertainment is the *sedanka*. Here assemble the young men and women of the village and adjoining farms, chaperoned by some old woman, who putters about the hut, boiling corn on which the guests may regale themselves. The young people sit about the open fire in a circle, Stoiko next to his Keetsa, Vasilka closely pressed by Nancho, every laddie seeking his lassie. Then some one sings a verse of a song, and when he has ended the chorus takes up a refrain and chants it. Some one else follows, using an old stanza; or, if he likes, composing a new one, and again the chorus follows him.

This continues till all that they have to express has been said. Then the session ends, perhaps with a feast on the boiled corn, or perhaps with a folk dance. The Bulgarian peasant song is a long step ahead of Turkish or most Oriental music, not only in being more melodious, but also in having parts. I have often heard Bulgarian girls sing duets that were charming in their naïve harmonies. Their national song, which they all sing with enthusiasm—"Shumla Maritza"—is spirited and effective. "Shumla Maritza," or "Hail Maritza," takes its name from a river where a decisive victory was once won by the Bulgarians.

WAYS AND MEANS OF COURTSHIP

The Bulgarian folk dances are danced in a row or circle, the leader generally waving a bright handkerchief and turning and twisting about his line of followers, like a mild game of "crack the whip". There is stamping in ragtime,

Photo by Hester Donaldson Jenkins

SELF-CONSCIOUS, BUT HAPPY, A NEWLY ENGAGED COUPLE: BULGARIA

"The youth of Bulgaria are allowed to meet freely, the sexes not being kept apart as are the Moslems. There is coquetting and courting about the fountain and home gatherings in the evenings. Marriages spring from attraction and choice rather than the arrangement of families, as do Armenian and Turkish alliances" (see text, page 387).

Photo by Frederick Moore

DANCE IN A BULGARIAN MOUNTAIN VILLAGE

"The Bulgarian folk-dancers form in a row or circle, the leader generally waving a bright handkerchief and turning and twisting about his line of followers as if playing a mild game of 'crack the whip.' . . . Their movements suggest health, abounding spirits, and good fellowship, without the sensuality that so often marks the Oriental dance" (see text, page 387).

and final capture. It suggests health and abounding spirits and good fellowship, without the sensuality that so often marks the Oriental dance. Here again one seems to feel the kinship of the Bulgarian of the South to the energetic peasant of the North. The music may be furnished by singing and clapping of hands or by some instrument.

Occasionally the *sedanka* ends in a dramatic fashion. Some brawny fellow who has been courting his Darka assiduously will seize her in his arms and carry her to his home. The next day this "marriage by capture" is given legal and religious sanction by the blessing of the Orthodox priest. I once asked Zarafinka what would happen if two men wanted the same girl. She replied simply: "The stronger would get her." "And if she preferred the other?" "Ah! if she were very clever she could help the weaker to take her, but usually she preferred the stronger. Generally the girl who was carried off was prepared for the capture and quite willing."

Photo by Hester Donaldson Jenkins

DOING HER PART TO HELP HER COUNTRY

A Bulgarian graduate of Constantinople College who left her husband and child in the north to serve as a sister in the military hospital in Sofia. "I learned recently of the excellent nursing given to the wounded soldiers in the hospitals and of how even wounded Turks were taken care of by these Bulgarian women nurses. The Turks, entirely unaccustomed to the ministrations of women and charmed with the pretty nurses who tended them, evidently fancied they had been killed in the war and were receiving the reward of service by houris, for they were heard to exclaim in delight, 'It is already the Paradise'" (see text, page 400).

FOLK-LORE AND SUPERSTITION

Of course, the Bulgarian peasant is full of superstition, and a good many quaint beliefs cling around fortune-telling, and how maidens may discover their future husbands. The best time for such divination is not All Hallow Eve, as with us, but early in the morning of St. John's Day, in June.

swinging of feet, clasped hands, skipping, and leaping—all mirthful, and much of it very pretty. This dance is a little like the English Morris dance and noticeably different from the Eastern body dances or the Russian dances of pursuit, retreat,

One device for revealing the future is the "fortune kettle." A little girl is seated by the kettle, into which each of the larger girls has dropped a bouquet. Looking not into the kettle, but into a little mirror, she must take a bouquet

Photo by Hester Donaldson Jenkins

BULGARIAN REFUGEES FROM THRACE

Besides the Turkish misrule, Greeks and Bulgarians long waged a struggle of extermination between themselves in Thrace, which was only brought to a conclusion following the second war of the Balkan allies. Greek and Bulgarian peasants in this territory became hardened to misery; they learned to support recurring changes from village life and property possession to homelessness and destitution. They lived in a borderland where the bitterest arts of guerrilla warfare were continually practiced, and the memory of these struggles explains the feeling between the wilder border tribes today (see ancient province noted on map, page 421).

Photo by Frederick Moore

BULGARIAN PEASANT GIRL LEADING AN OX-CART THROUGH THE SUBURBS OF SOFIA

Peasant girls in the Balkans begin to take their share in the rough work of the farm at an age when they should still be playing with their dolls. By the time these girls have reached young womanhood their hands are hard with callous and their backs bowed. These women are as powerful and as enduring as their men, and there is little cause for wonder that the harvests and the plantings were as large during the Balkan wars, when all the men were at the front, as they were before the fighting population had been called away.

from the pot while one of the girls sings doggerel verse describing a type of man, such as a soldier or a merchant. Then the girl to whom the bouquet belongs will surely marry the class of man described in the verse. Thus Elenka sings:

"He walks abroad with head held high,
Gun on shoulder, sword on thigh.
Come, St. Jano; come, St. Jano's bride."

Then the child pulls Merica's bouquet from the kettle, and all know that Merika will wed a soldier.

Some girls once told me a pretty story of a group that were trying their fortune, unknowingly observed by a number of admirers hidden in the shrubbery. Teeha was in love with Boris, who was one of the young men observing the game. When her bouquet was drawn from the kettle, little Elenka had just sung:

"Quickly away from the folk he hies,
And bending low his shoe-lace ties.
Come, St. Jano; come, St. Jano's bride."

This is the verse that indicates a robber, and poor, credulous Teeha was broken-hearted. It was bad enough to lose Boris, but to marry a robber—it was too much. But Boris was a man of resource. The girls had just put each a ring into the kettle with water, and were to come back later to take out the rings, when that girl whose ring rolled farthest would be the one who was to marry first. When Teeha's ring did not roll from the kettle at all she was crushed, but her joy returned when Boris showed her the ring he had taken and confessed to being "a robber."

THE ROSE GARDENS

Many of the women of Bulgaria work in the rose gardens. These gardens can

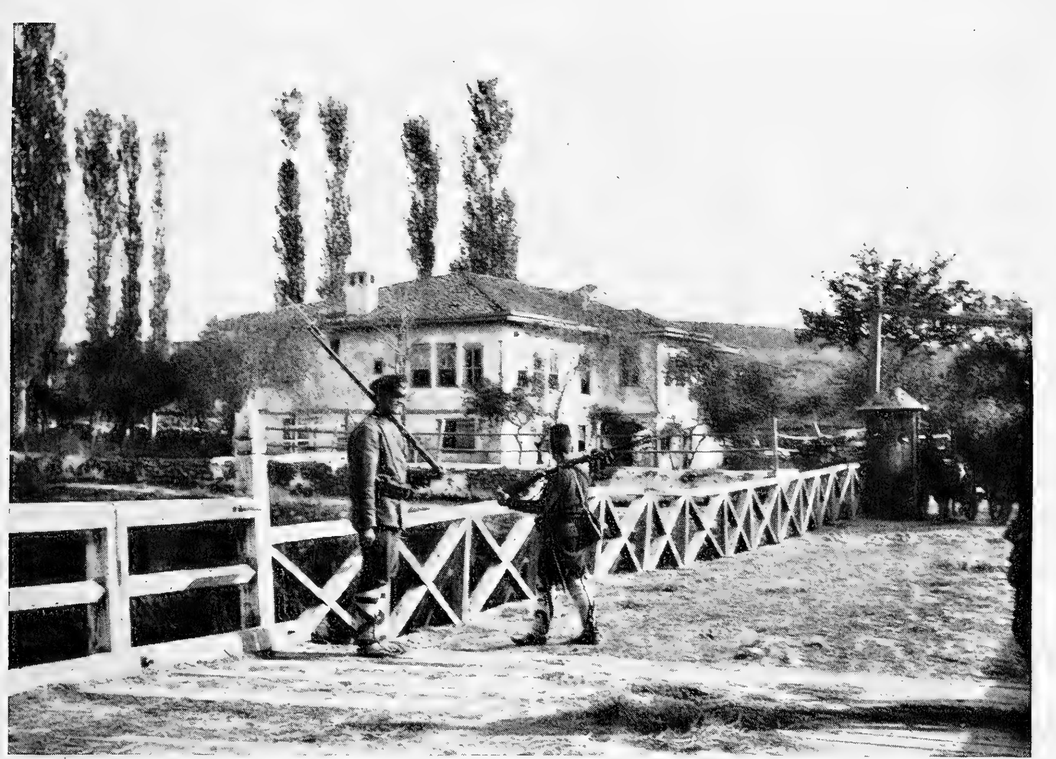


Photo by Frederick Moore

BORDER POST ON THE TURKISH-BULGARIAN FRONTIER

The Turkish-Bulgarian frontier line here runs through the center of the bridge which spans the River Struma. The Turk and the Bulgar doing sentry duty are, so to speak, on the firing line; for mounting guard on a Balkan frontier is more than a mere formality—it is a hazardous assignment. Raids by bands of irregulars across the several Balkan borders have for centuries filled out the interstices of formal peace.

never be forgotten by one who has visited them. Nearly 200 villages in the sheltered valley between the Balkan Mountains and the Sredna Gora are devoted to their cultivation. More than 18,000 acres of rose-bushes are grown. The petals of the Damask rose are the favorites. An acre produces 4,000 pounds of rose petals, and yet it takes 200 pounds to produce a single ounce of attar of roses. Think of cultivating an acre of ground for 1 1/5 pounds of product. The roses are gathered at the end of May and the beginning of June, while the partially opened buds still contain their night-gathered supply of dew.

Let us leave the village and follow the Bulgarian woman to the city, watch her take schooling and acquire culture, and see how she uses it.

Fifty years ago there were no Bulgarian cities—only great, straggling Turkish villages. Now there are a number of very creditable modern towns. Sofia, the capital and seat of court and parliament, is of rather remarkable growth. When I visited the regular, new city, my first feeling was disappointment; for it is flat, devoid of picturesqueness, and at first sight uninteresting.

RESPONSIVE TO EDUCATION

But after all is it not interesting that a people so recently a set of down-trodden slaves, living in chaos, should now have a city of well paved and lighted streets, comfortable houses, an occasional monument, a plain, substantial royal palace, a public garden, and a well-equipped hotel and shops?

The young ladies who showed me over their city were very proud of their schools and parliament building, which I naturally found very ordinary, and I confess

Photo by Frederick Moore

SOFIA, THE CAPITAL OF BULGARIA

Sofia typifies to the Bulgar the progress of his nation. It is his sole modern city, and might well be American from its general appearance. It is substantial and practical rather than pleasing. The streets are broad, straight, electrically lighted, and well paved, while the houses in the newer sections are modern structures of dignified architecture. While Sofia may not impress the visitor with its beauty, it does impress him with the fact that there is a good deal of common sense and business efficiency in this part of the Balkans. Note the Mosque of Banyabashi in the distance.

Photo by D. W. Iddings

A BULGARIAN RIVER SCENE

"These peasant people have very solid qualities, qualities that should take them far and should never let them retrograde, for a gain made by persistence and sheer weight cannot be lost, as can that won by a trick. There is an initiative and a power of organization in the Bulgarians that is unusual in the capricious and fatalistic Orient" (see text, page 383).

Photo by Frederick Moore

THE BODYGUARD OF KING FERDINAND OF BULGARIA

One readily understands where the writers of romantic light operas get their ideas for costumes when one becomes familiar with the radiant military dress of the soldiers of the smaller European countries. To the Bulgarian army, however, is due much praise, other than because of its mere well-dressed officers, for it is considered one of the best trained and equipped fighting organizations of its size in the world, and it musters more than 500,000 men.

to being bored by being taken all over the fine new post-office and into every little room. But later it seemed to me to be significant that the things of most note in Sofia were the really useful and progressive factors in a modern city's life—not galleries and museums and bazaars. Sofia has no past that it cares to perpetuate. The old and valued traditions of Bulgaria cling about the ancient capital of Tirnova or the famous Rila Monastery, but they mean far less to modern, growing Bulgaria than does unromantic Sofia.

One little incident of my sight-seeing that interested me was seeing the excellent tennis courts. My guide, a very charming Bulgarian lady, dressed like any European of good taste, pointed this out to me, saying, "This is where the diplomatic corps, especially the English, play." I said, "Do not you Bulgarians play there, too?" "No," she replied, "for we have not yet learned to play." She was referring not to their lack of acquaintance with tennis, but to the fact that their long slavery had left them unready for sport.

That fact was very noticeable among our college girls. None of them except the occasional American or European students knew how to play or cared at

Photo by D. W. Iddings

A BULGARIAN FARM SCENE: AT THE WELL

All of the Balkan lands are agricultural. Manufacturing, however, is primitive and of little volume. Outside of the larger towns, for the most part, the people have hardly learned to need products that cannot be fashioned by the family in the home. Cloth and a few simple household implements of metal constitute the whole demand upon civilization of the average Balkan peasant family.

first to learn. The Turkish girls, to use their own idiom, "sat" most of the time when not studying; the Bulgarian, rather more active in physique, as they expressed it, "walked" a good deal. But we were amused to find how they used this word for all sorts of locomotion, as when Anka once said that at home she walked every day, but generally in a carriage!

Dolls are almost unknown by Oriental girls and no games exist for them. We felt as if we were inaugurating a very educational movement when we introduced these sedentary girls to tennis, basket ball, and running games. If the Balkan youth might be quickly trained to play, perhaps some of the northern qualities that go with "playing the game" might be acquired by them. The Bulgarian boys at Robert College have shown fine aptitude for sports.

THE CHIEF CITY

To the traveler who looks for picturesqueness, Philipopolis is far more attractive than Sofia. Built on seven sharply pointed hills, it is very effective

Photo by Hester Donaldson Jenkins

A BULGARIAN GIRL IN FANCY COSTUME

There is a love of bright colors and ornament in the heart of every Bulgarian girl; but, then, this is a characteristic of the sex and not confined to the little sisters of Bulgaria by any means. The beautiful embroidery worked by these girls into wonderful shawls and aprons is remarkable, even though the articles are often breath-taking in their reckless blends of color.

as you approach it by train. It is a transition town, partly old Turkish bazaars and gray, old houses, partly new and modern streets and buildings. It aspires to be a second Sofia, but I am glad that nature will always give it some beauty, even if it lose all its Oriental charm. One little detail may serve to show the different stages of progress in the two cities. In the best hotel in Philipopolis the pillows on the beds are as hard as if they were a pile of folded sheets, while in the Sofia hotel they are of feathers.

The Bulgarians have shown themselves eager for education and for civilization, and their women acquire culture with the ease of the traditional American woman. Often the daughter of an unlettered peasant, living in a remote village, after some years of schooling will take her place in Sofia or Varna as a teacher, or lady of fashion, or leader in civic better-

Photo by Hester Donaldson Jenkins

A BULGARIAN WATERWITCH

One of the Bulgarian students dressed in her national costume, pretending to be on her way to the village courting grounds—the wells. Sometimes these waterwitches of Bulgaria are taken by storm. "Some brawny fellow who has been courting his Darka assiduously will suddenly seize her in his arms and carry her to his home. The next day this 'marriage by capture' is given legal and religious sanction by the blessing of the Orthodox priest. I once asked Zarafinka what would happen if two men wanted the same girl. She replied simply: 'The stronger would get her'" (see text, page 390).

ment. Her peasant costume and knitted footwear she exchanges for a European dress in excellent taste. The heavy, falling braids of her hair she now arranges in the fashion of the day. Her manner becomes assured yet modest, and she takes her place as leader of a woman's reading club or member of a hospital board with proper dignity. Constantinople College has a large body of alumnæ in Varna, Philipopolis, Sofia, and other parts of Bulgaria, whose leavening influence in the country is very great.

I was told in Sofia that the women from the college were the greatest influence for higher ideals that the city possessed, being helpmates and inspiration to their husbands in the work of bring-

ing Bulgaria into modern civilization. Graduates of Constantinople College are now occupying themselves in editorial work, in translating books desirable for the Bulgarians to read, from English and French into the vernacular, in teaching in public gymnasia and private schools, and in all branches of philanthropic, educational, and social work.

SPLENDID WORK OF WOMEN

In the Balkan war these Bulgarian women have done splendid work in the Red Cross Society and in the hospitals; indeed, hospital work and such institutions as orphanages have been largely under their control for some years.

One Bulgarian woman wrote me recently of the excellent nursing given to the wounded soldiers in the hospitals and of how some wounded Turks were taken care of by these Bulgarian women nurses. These men, entirely unaccustomed to the ministrations of women, and charmed with the pretty nurses who tended them, evidently fancied they had been killed in the war and were receiving the reward of service by houris, for they exclaimed in delight, "It is already the Paradise!"

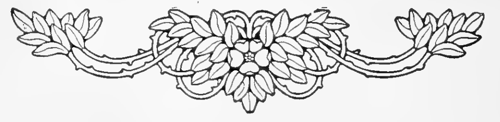
Our Bulgarian students are among the best in college. Of good health, considerable industry, ambition, and sometimes real ability, they are a most interesting group to teach, rewarding the teacher for labor expended on them. They are good linguists, as are most of the Orientals, and in their keen interest in modern developments and their sense of a remote past are very rapidly developing into enthusiastic students of history.

There can be no question that if the Bulgarian people are allowed to develop their country and themselves—and they will do so if they can enjoy the advantages of a long period of peace and satisfactory commercial relations with their neighbors near and far—that the rapid progress of this people in every way will astonish the world, and, to say the least, disabuse the minds of many who now think Bulgaria in a more or less semi-savage state and peopled by a race who would rather fight than not. This development is especially true as regards the Bulgarian women, who, being possessors of quick, alert minds, respond rapidly to educational advantages, and I am quite sure that their sisters throughout the world will have no reason to be ashamed of them.

THE WORK OF ROBERT COLLEGE

Of course, some of the Bulgarian students are stupid; but there are enough really fine intellects among them to make teaching them a delight. One of their accomplishments is acting. I well remember the delightful presentation our Bulgarian society gave of a folk play of Vasoff's, entitled "Tchorbadgee Mikelovsky," or "Michael's Son, the Soup Dealer," and how well those girls took the rôles of the fat officials, the young soldiers, and the girls of the play. One of our Bulgarian students had a really remarkable talent for acting, taking with great skill such diverse parts as the title rôles in "Le Malade Imaginaire" and Grillparzer's noble "Sappho."

Bulgarian students have gone to Bucharest, to Paris, to Germany, and to Switzerland for their education. Many of them go to Constantinople, both to French schools and to the American colleges. When Bulgaria acquired her independence and needed statesmen and parliamentarians, it was her men trained in Robert College who came to the fore and led in statesmanship. The American mission schools in Bulgaria have done much to educate Bulgarian youth, especially Protestant youth, and the two colleges in Constantinople have done a wider work. Now Bulgaria has a good school system of her own, culminating in the coeducational university of Sofia; but she still needs all that we of the West can do to help her in her struggle with ignorance and barbarism and to lift her into the higher life she desires.



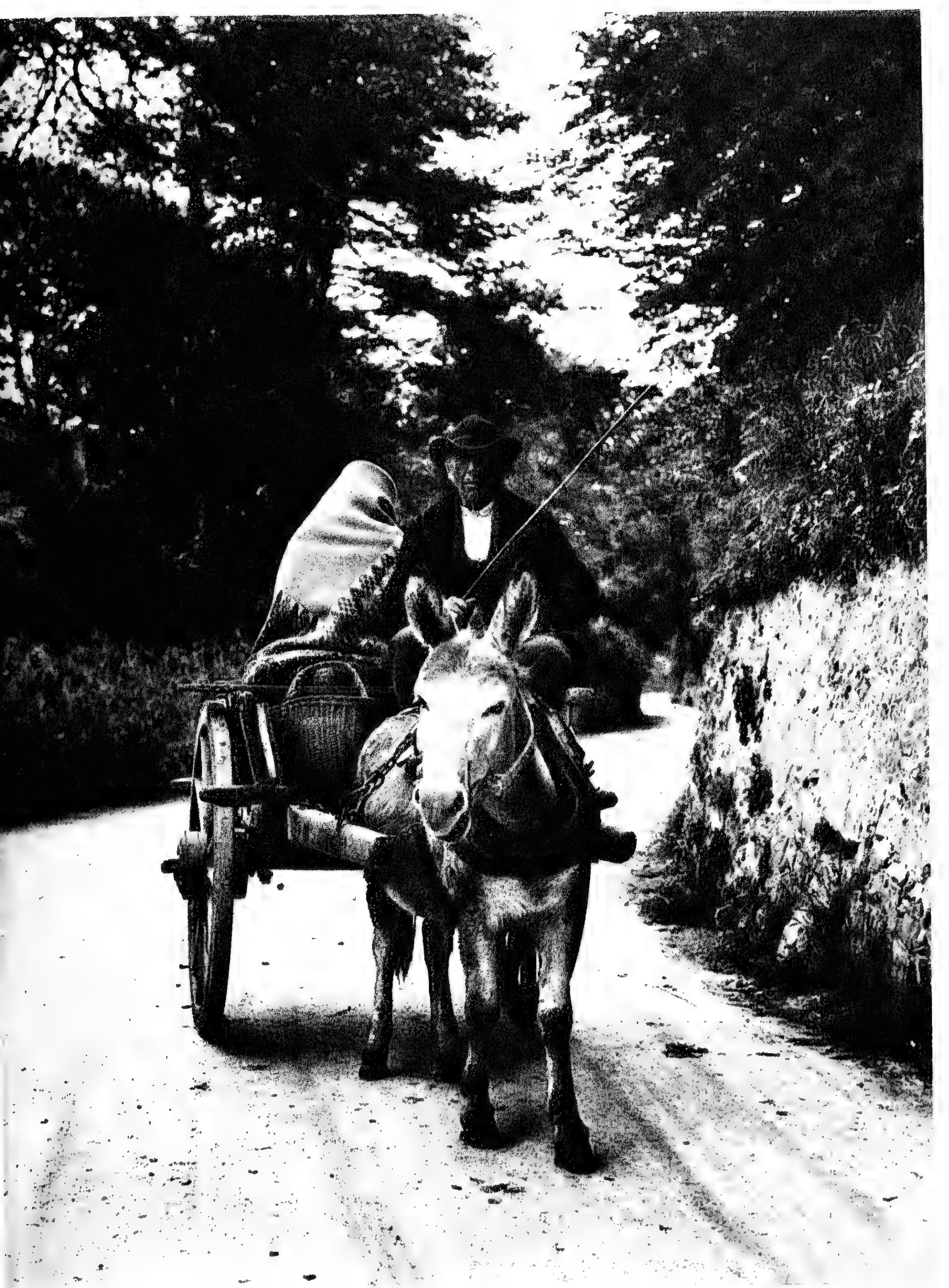


Photo by A. W. Cutler

PEASANTS RETURNING FROM MARKET AT GALWAY

The photograph is interesting as illustrating the extreme objection of the women of the peasant class to the camera. They think it brings them bad luck to be photographed, and it is impossible to persuade many of the women to have their pictures taken. This woman firmly refused to turn round.

Photo by A. W. Cutler

A PAGE OUT OF IRELAND'S PAST

Here we have the real, real Irishman, in the clothes of a by-gone day, a costume now exceedingly rare. It is stated on good authority that not more than six now remain in the whole of Ireland. Men of this type belong to the real aristocracy of the poor, kind, courteous and intelligent. This man may never have seen a train, but he is smart and shrewd for all that.

Photo by A. W. Cutler

TWO KELP BURNERS IN IRELAND

They were so amused at being "took" that the camera-man had some difficulty in making the required exposure. After the kelp has been thoroughly burned it is cut into blocks while still soft. When dry it is as hard as iron, bringing from fifteen to twenty-five dollars a ton, and is used in the manufacture of iodine.

Photo by A. W. Cutler

A GROUP OF SCHOOLBOYS IN GALWAY, IRELAND

Permission to take photographs at public schools must ordinarily be secured from the powers that be, but fortunately in this instance the schoolmaster took the law into his own hands, and gave the desired permission. Note that the boy on the extreme left is the only one that has arrived at the dignity of trousers.

Photo by A. W. Cutler

A GROUP OF SCHOOLBOYS WHO LIVE ON THE ISLAND OF INISHAKRA

Inishakra is a little island off the coast in County Mayo. They are all wearing homespuns, and red woolen petticoats, so they are quite safe from the fairies. There is an old legend throughout many parts of the Connemara Coast that certain fairies liked to run away with little boys but would not steal little girls; therefore, to deceive the fairies, boys dress in skirts up to twelve years of age, or until they are old enough to protect themselves. Each boy is wearing a pair of pampooties,—slippers made of cowhides.

Photo by A. W. Cutler

BE IT EVER SO HUMBLE, THERE IS NO PLACE LIKE HOME—IRELAND

A midday meal in an Irish village, consisting of milk and potatoes. There has been a vast improvement in the public school system of Ireland, due to unceasing efforts in securing proper legislation in Parliament, and so it is the Irish children of today have many educational advantages that were denied their parents.

Photo by A. W. Cutler

COUNTING THE DAY'S RECEIPTS—A BIT OF OLD WALES

This is not a witch stepping out of a fairy story, but instead a dear old Welsh grandmother, dressed in the national costume, homeward bound from market. The hat, of the "stove-pipe" variety, is a very old institution in Wales, and is calculated to attract attention anywhere.

Photo by A. W. Cutler

A BIT OF LIFE AT THE VILLAGE OF ASHLERM, ACHILL ISLAND, IRELAND

Peat and fodder for the cattle are put in the donkey's paniers, and sometimes the children get a ride. Achill, which in English means "Eagle" Island, is the largest island off the mainland, having an area of 57 square miles. The island is mountainous, with the two highest peaks rising to above 2,000 feet. The inhabitants, numbering about 5,000, make an uncertain living by fishing and tilling the hard soil, many also working in Scotland and England during the harvest time.

A VILLAGE IN THE AUSTRIAN TYROL

Walking tours through the Austrian Tyrol in the summer are very popular. The changing beauty of this story-book country is a thing of joy and never-to-be-forgotten memory.

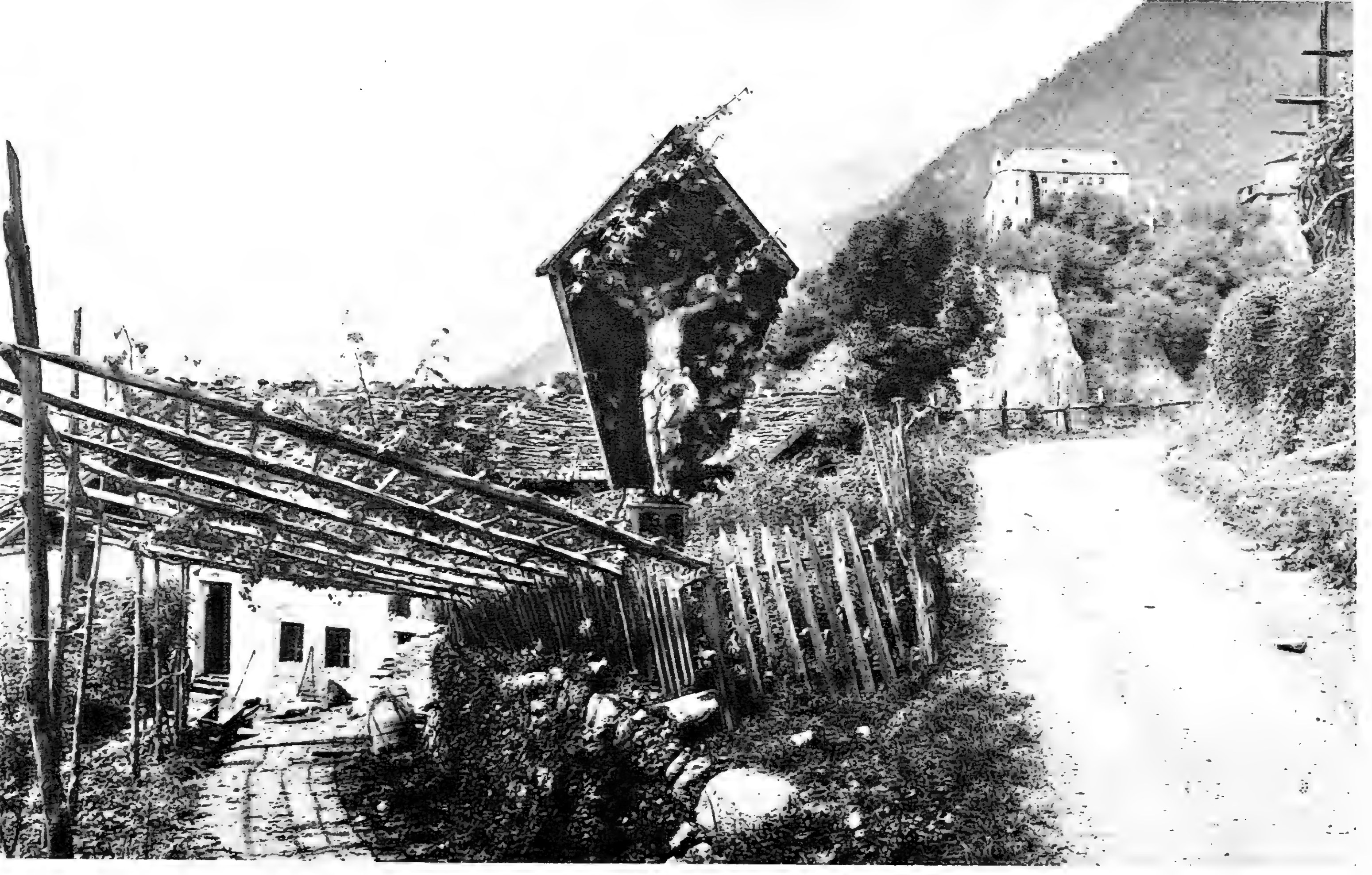
SWEETHEARTS

The children of Switzerland are for the most part studious, happy and obedient. They are affectionate in disposition and their early training is reflected in their peaceful, well-ordered country.

Photo by A. Nielen

READY FOR ANYTHING THAT MAY HAPPEN

An interesting costume seen on the street in Gratz. Gratz, or Graz the Beautiful, as the Austrians call it, is the capital of the Austrian duchy and crownland of Styria, the first historical mention of which is in 881 A. D., at which time it was the residence of kings.



THE WAYSIDE SHRINE

In the Austrian Tyrol one is hardly ever out of view of the simple shrines which the peasants have raised along all the roads and byways. These regions are without the influence of big cities, life there is more direct, and religion is deeply felt, ever present, and very real to the people. Note the fine old castle in the distance guarding the beautiful valley at its feet.

Photo by Frederick Moore

STREET SCENE, SERAJEVO, BOSNIA

This Bosnian city has been a storm centre, and probably always will be just so long as the restless spirit of that part of the world breeds discord in the heart of man. Serajevo, or, in English, "The City of Palaces," was founded in 1262 by a Hungarian general, and has passed through many trials, having been burned five times, and has been the scene of much fighting.

Photo by Frederick Moore

AN ALBANIAN DRESSED IN HIS NATIVE FUSTANELLA

A South Albanian kavass, or private watchman, retained by consuls and ministers or ambassadors for their protection in Turkish cities.

Photo by Frederick Moore

GUARDING HIS FLOCK

A Macedonian Christian peasant whose liberty was restored by the allied States a few years ago. The picturesque dress of these people is always fascinating to western eyes.

Photo by Walter L. Beasley

A SIBERIAN BELLE

A rich Yakut girl in festival attire, showing lavish silver ornamentations on trappings and saddle-cloth of the pony. The Yakuts afford an interesting study, for, although a tribe living along the banks of the Lena,—one of the largest of the Siberian rivers,—they speak Turkish; and while nominally Christians, they do not forget their ancient nature-worship. They are a laborious and intelligent people, and largely interested in stock-raising and trade.

THE KINGDOM OF SERVIA

By William Joseph Showalter

WITH an area no larger than that of the State of Maine and a population smaller than that of the city of New York, the little Kingdom of Servia has played a rôle in the recent past the full magnitude of which cannot be reckoned until the end of time. Mayhap it has changed the whole course of human history!

Some years ago it was said of the Balkan Peninsula that it was the "powder-box" of Europe, and the events of last summer proved the statement true; and then some one a little later observed that if the Balkan Peninsula were the "powder-box," Servia was the "percussion cap."

How truly he spoke was not realized at the time, even by the speaker; for while men will ever disagree as to the deep-seated causes that led to the present great war, all the world admits that the bomb-throwing at Serajevo was the "percussion cap" that detonated the terrific forces behind the diplomacy of Europe.

Time was when the Balkan question was unheard of in the chancellories of Europe. Up to the French Revolution all that the rest of Europe seemed to think about concerning that region was a gradual driving back of the Turk into Asia and the possessing of the conquered territory; for in those times territory was worth no more than its face value in that strip of the earth.

Then Napoleon entered upon the scene with his invasion of Egypt and his ultimate purpose of taking India, and immediately the diplomatic world realized that the territory which Turkey held in Europe was indeed the key to southern Asia, both in commerce and from a strategic viewpoint.

A GLANCE AT HISTORY

Russia wanted to possess that key, and for a full century tried, both by diplomacy and the mailed fist, to get it. After the banishment of Napoleon to Elba, the Congress of Vienna was called, and Russia then wanted to get through the Dardanelles, but was denied. Again, in 1828, Russia tried to get through, but was checkmated by another conference of the Powers, which had decided among themselves that the best way to keep the key to Constantinople and the south of Asia out of Russia's hands was to keep it in Turkey's possession, and the Christian nations lined up on the side of the Turk. Again, in 1854, Russia found a diplomatic situation which seemed to offer her a bright prospect; so she delivered an ultimatum to Turkey, demanding that she be allowed to protect the Christians living in Turkish dominions. Under the advice of England and other Powers, Turkey turned down the Russian proposal, and the Crimean War resulted.

One of the terms of the treaty that ended the Crimean War, in which England, France, Italy, and Turkey were allies, was that the Black Sea be declared neutral. This agreement was denounced by Russia at the time of the Franco-Prussian War, history telling us that Prussia agreed to back up the denunciation in return for Russian neutrality in the German war with France.

Once again Russia, indefatigable in her purpose, started on her quest for an outlet to the Mediterranean, and in 1876 found herself at the very gates of Constantinople. A treaty with the vanquished Turks followed, and the prize that Russia had coveted for generations seemed now in her grasp. But here again the Powers interfered, and Russia lost almost every fruit of her victory through the combined efforts of her Christian brethren.

The Congress of Berlin was called to dispose of Russia's pretenses toward the Mediterranean, for under her agreement with Turkey she had been given practically complete domination over the Balkan Peninsula.

The Congress met and proceeded to undo what Russia had done under the treaty of San Stefano. Russia protested bitterly, but Great Britain and Austria

prepared to bring their armies and navies to bear on the discussion, so Russia finally acquiesced; and the territory that Russia had wrung from the Turk the Congress took over for the purpose of building up a group of Balkan States.

WHEELS WITHIN WHEELS

Bulgaria was made an autonomous principality under Turkish suzerainty. Eastern Rumelia was to continue under Turkish rule, but was given administrative autonomy. Bosnia and Herzegovina were to be occupied and administered by Austria-Hungary, but the sanjak of Novibazar was to be under Turkish control, with the recognized right of Austria-Hungary to station troops and maintain roads there. Montenegrin independence was provided for, as was that of Servia, while Rumania's declaration of independence was recognized.

The result of this new situation was to inject an entirely new element into the Near Eastern question. Thereafter the nations that had ambitions and counter-ambitions, with Constantinople and an outlet to the Mediterranean as their center, had to deal through the little buffer States of the Balkans, and it has been through that relation that Servia has acquired her prominence in Near Eastern affairs.

It is well here to recall the fact that in the basin of the Nish is the junction of the two great valleys that form today, as they have formed from the earliest ages, the shortest and most direct roadway between Europe and Asia.

How the game of Balkan politics has been played in the years that have intervened since Servia became a member of the family of nations, with all of the mutual jealousies and fears and ambitions of the nations of Europe exerting their full force on the devoted little peninsula, constitutes one of the most thrilling tales of diplomatic history, and no man can understand the deeper-lying causes of the present situation who is unacquainted with these events.

Within the lifetime of men yet on the right side of threescore and ten, all of the great Powers have changed alliances from once to half a dozen times, and historians point out that little Servia at one time loved Austria as her savior and at another came to hate that country as her bitterest foe.

In all these international alignments and realignments doubtless every nation participating has developed an excuse satisfactory in its own eyes at least that its course was justified because self-preservation required it!

RUSSIA'S POSSIBLE OUTLETS

Russia has had six possible outlets to free water—the Baltic Sea, the Black Sea, the White Sea, the Yellow Sea, the Persian Gulf, and the Adriatic. Yet Germany stood across her path to the Baltic, and though Peter the Great built Petrograd with the purpose of bringing Russia in contact with the outside world, it came to profit his country little when Germany rose to power. Likewise, after the slow and painful process of conquering the wilderness and the plain, to say nothing of the Mongols, Russia found her dreams of Dalney and Port Arthur rudely shattered by the Japanese. Still later, when her aspirations led her toward the Persian Gulf, and she had fought her way across the Caucasus and taken the Caspian Sea, England stepped in and said her nay, for that would have been an ideal land route to India for a potential enemy.

King Winter habitually bottles up the White Sea outlet for so many months in the year that there is no promise there; while all Europe has for a century sternly repressed Russia's desires toward the Dardanelles and the Adriatic.

And so today it happens that Russia is as completely cut off from the outside world as Germany, with only a treacherous White Sea outlet and a way out over the Trans-Siberian Railroad, and that is open only during the pleasure of the Japanese. It is no wonder, then, that Russia, landlocked for three centuries, refused an outlet every way she has turned, has set her heart on Constantinople, determined to exhaust every diplomatic resource in getting possession of an outlet to the Mediterranean.

On the other hand, England could not

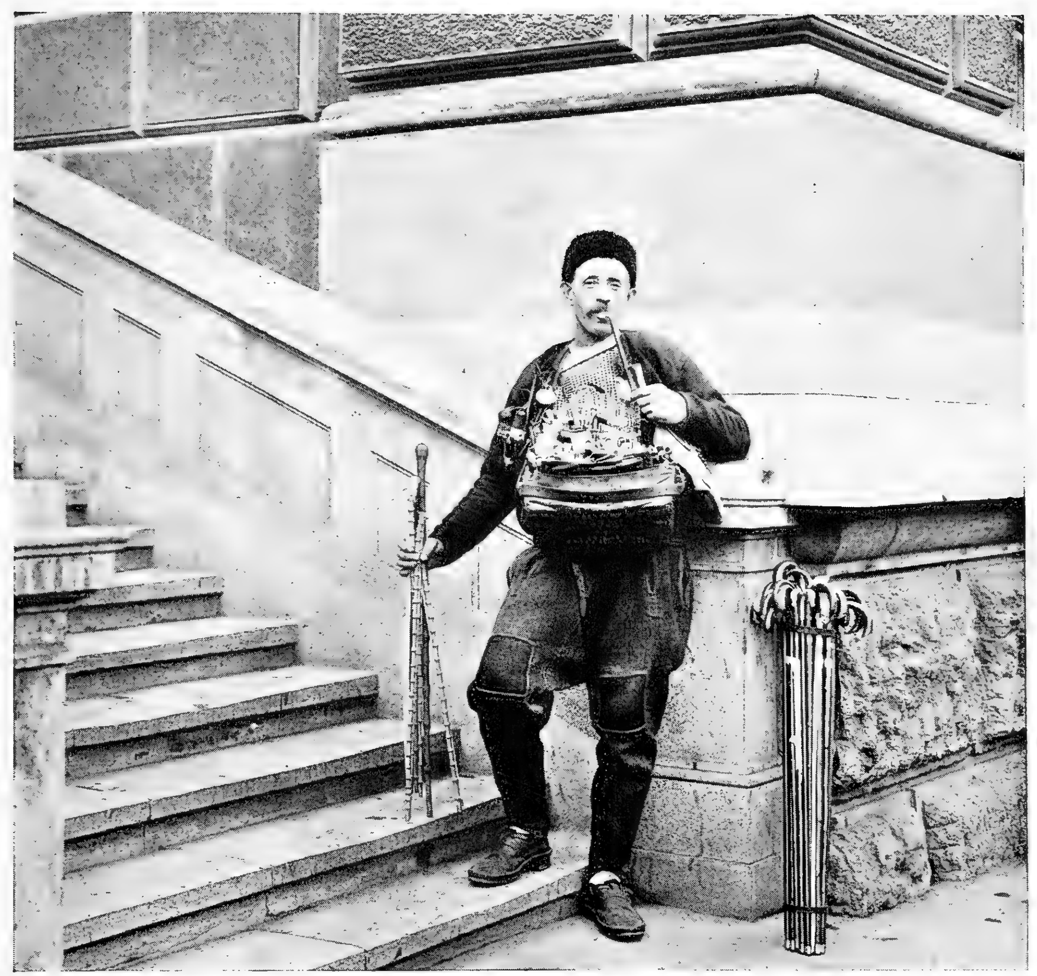


Photo by A. W. Cutler

A SERVIAN VENDER OF ODDS AND ENDS OUTSIDE THE CENTRAL STATION: BUDAPEST, AUSTRIA-HUNGARY

sit idly by and watch Russia thus thrust herself into a situation that threatened to do the same in the end with British commerce in the Orient that the fall of Constantinople did with western commerce. She knew that Constantinople's fall before the Turk had cut off western trade with Asia, causing the decline and decay of the cities of the Mediterranean and sending Columbus westward in search of another passage to India. And history, she feared, might repeat itself.

EACH WITH HIS OWN REASON

Also Austria-Hungary felt that she had her national life at stake, for with a majority of her people Slavs, and with Russia and Servia encouraging a Pan-Slavic movement, looking to the tearing from Austria-Hungary of all her Slavic provinces, she had, from her viewpoint, quite a substantial right to be afraid of a future that would result in any increase in Russia's dominions or Russian influence in the Balkans.

Germany's deep interest in the situation in the southeast of Europe arose from the fact that she had acquired commercial interests reaching from Constantinople to Bagdad. She had seen herself checkmated in her ambition to reach the Persian Gulf by pressure, which forced her to give up her concession for the building of a railroad through Nineveh

and Bagdad to that gulf, and she knew that any Russian ascendancy toward the Ægean or the Adriatic Sea would break up her Asiatic and Arabian plans more completely than shutting her out of her railroad outlet to the Persian Gulf had done.

These, then, are the reasons why there was an unending round of diplomatic maneuvering for position going on in the Balkans, and why Servia became an issue that threatened and finally broke the peace of the world. Sometimes she was the victim of these maneuverings; sometimes she was an active participant in them.

But, whatever her position and whatever her relation to the situation, she has always been an interesting little member of the family of nations, her people a lively race, her faith in her destiny a high one, her history replete with interest, and her customs and manners possessed of a charm that compels interest.

A GROWING AREA

As noted at the outset, one of the most interesting things about Servia is its smallness. That such a small nation could bring on the mightiest conflict that the world has seen since man first made war upon his fellow-man seems strange. Yet with all its smallness—no larger than Maine in area and no larger than New York city in population—it is only in the very recent past that it attained its present size. When it was a participant in the Balkan wars, it was only two-fifths as large as Pennsylvania in area and but little larger than Chicago in population. Starting into that war with 18,000 square miles of territory, it came out with 33,000 square miles; starting in with less than three million people, it came out with more than four million. And it came out with many of its dreams realized.

Considering that Servia is only a little more than a third of a century old as a member of the family of nations, and that only 37 years have elapsed since she escaped the blight of Turkish rule, she has made remarkable progress. When she became independent of Turkey she had few roads, for roads might be used to march over against the Turks, and Turkey wanted to keep every community isolated. Nor did she have many schools, for schools would give the Servian the power to read and write, and reading and writing are great aids when a people want to revolt against an oppressive rule.

We have no statistics as to the 15,000 square miles of territory taken from Turkey as a result of the Balkan wars, but for the 18,000 square miles that heretofore constituted Servia there are today more than 4,000 miles of highways. There were a few years ago nearly 1,500 public schools open and education was compulsory.

A HOME-STAYING PEOPLE

If one may judge from how closely they stay at home, it might be said that the Servians are a well-satisfied people, because they very seldom figure in the immigration statistics of any other country. And well they may be, for pauperism is unknown. The government will not allow any man to become an absolute pauper. There is a certain amount of property that the individual cannot alienate under any circumstances, and this is enough to insure him a roof for his head and food for his stomach throughout the year. The result is that there are no poor-houses in Servia and no paupers to demand them. A man may not alienate his cottage, his garden, his plow, his team of oxen, or as much land as he can plow with them in a day.

If Servia is a country without paupers, it is also a country without its idle rich, and also without an aristocracy. As some one has remarked, a land which has had a pig-driver for its ruler within a century cannot boast of its aristocracy; and for all that, Servia would not boast about it if there was one to boast about; for the Servians pride themselves on the democracy of spirit that makes King Peter the idol of his people and the people united in heart and purpose.

SERVIA'S LIBERAL CONSTITUTION

The constitution prescribes freedom of conscience, freedom of the press, the right of peaceful assemblage, and the right to inalienate property. The king

SKETCH MAP OF BULGARIA AND SERVIA

and his congress are co-powers in the making of the national laws. The congress has control over the appropriation of money and the levying of taxes, subject to the approval of the king. Every male citizen who pays three dollars taxes a year and who is above the age of 21 votes in the election of delegates to the congress.

It is the people and their characteristics, next to the international relations of Servia, that are of chief interest. The country is rugged and mountainous, and the people fit in perfectly with the landscape. They have all the virtues of the mountaineer; their wants are as few as their sorrows; they live largely under that communal system that produces a morally clean race, and eat those foods that produce strong bodies. Of meats, mutton is the chief food, and it is said that Servia raises more sheep per capita than any other country in the world. The chicken for pot-pie on feast days and the turkey and suckling pig for Christmas are not wanting. The national beverages are spring water and plum wine, although Germany in late years has taught the city dwellers the art of drinking beer.

FEW INDUSTRIES

Industries are few, far between, and primitive. Every home, almost, makes its clothes from home-grown wool and flax. The footgear consists of leather sandals strapped around the ankle and worn over wool stockings. In bad weather these wool stockings give place to leather ones, with the fleece on the inside. The women still wear a knife or dagger, a survival of Turkish times.

While in some parts of the country substantial farming progress has been made, for the most part the methods that prevailed in the United States a hundred years ago are characteristic of Servian agriculture today. Servia came to America for its principal crop, and later for the salvation of another of its important crops. In quantity and value Indian corn takes the lead, and the Servian makes it serve nearly every situation encountered in the economy of the farm—the meal he uses for his corn-cakes, which form a staple article of diet in every peasant home; the fodder for feeding his cattle; the grain he feeds to his pigs, for pig raising is a principal industry—so important, in fact, that one of Servia's wars with Austria is known in history as the pig war. Some years ago a disease deadly to vines was imported into Servia from France and Switzerland, and the epidemic was ended only by the importation of American vines and the establishment of schools of viticulture.

THEIR AGRICULTURAL AWAKENING

Under King Alexander, who was assassinated about a dozen years ago, a considerable impetus was given to agriculture in Servia by the importation from Germany of the rural coöperative credit association based on the Raiffeisen principle. This system assumes that while ten peasants acting as individuals may have no borrowing power at all, when they act in coöperation the property of all pledged for the debts of each member renders their credit good, and it has worked out that way in Servia. The peasants of a community go together, pool their resources, and the entire membership stands for the debt of each individual. The result is that they are able to borrow money at low rates of interest and on good terms as to time of repayment. Each member of the credit association has it in his power to veto any loan, and every member makes sure that the borrower is putting his loan to good use. The result has been that the careful peasant has not lacked for credit, and has been able to undertake expenditures that would have been impossible except for this system. The rural credit system of Servia is not dissimilar from that which has been proposed for the farmers of the United States.

The Servian peasant never brings himself to premature old age in the pursuit of the almighty dollar. He desires only a comfortable living, and regards his ease more highly than progress. He is much less thrifty than his neighbor, the Bulgar, much less given to war than his close friend, the Montenegrin, and much less a believer in educational progress than the Rumanian. He is given to sociability, however, and just as the rural ag-

Photo and copyright by International News Service

VOLUNTEERS ON THE WAY TO THE WAR BUREAU TO ENLIST: BELGRADE, SERVIA

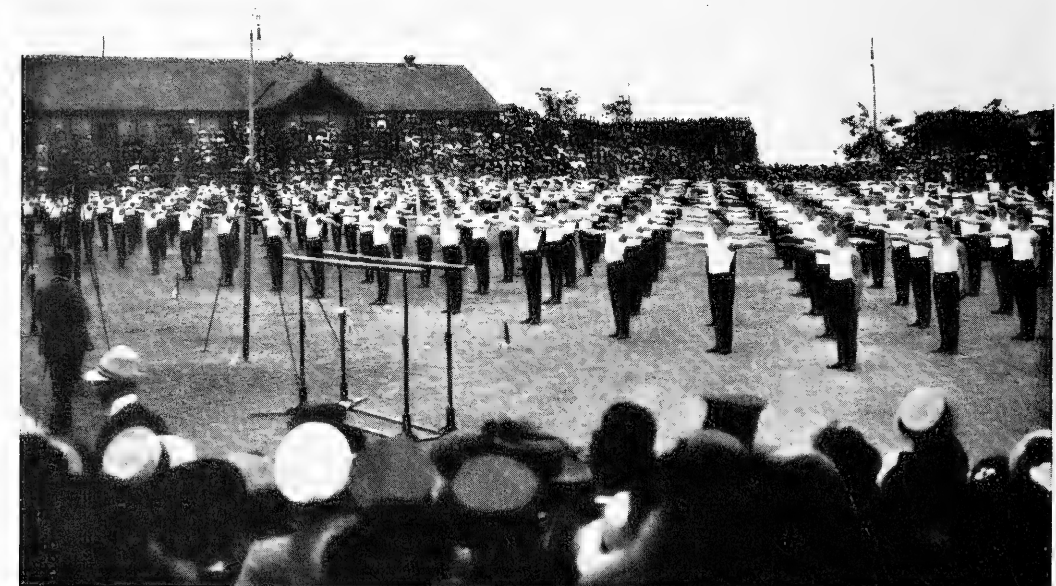


Photo by E. M. Newman

ATHLETIC TOURNAMENT: BELGRADE, SERVIA

Following Servia's rise to an independent nation, Belgrade made great progress; so much so that some travelers called it "a smaller but neater edition of Budapest," while others pronounced it almost worthy of the name it assumed, "Petit Paris." Many athletic tournaments have been held in the capital.

riculturist in our country in former times delighted to meet with his neighbors at the cross-roads post-office to discuss politics and neighborhood affairs, so the Servian peasant enjoys his evening at the village wine shop, where he goes to talk politics more than to drink; for be it said that the Servian takes to politics as naturally as the duck takes to water.

WHERE THE ELDERS RULE

While in recent years there has been a tendency to break away from the old form of communal life, one still sees many of the old-fashioned "Zadrugas" in every part of the country. These Zadrugas are family associations, which hold everything in common. The center of it is the large family house, with its great hearth, its community kitchen, and community dining-hall. Around this house are grouped a large number of huts called "Vayats." Here the several families of the community live, always going to the central house to eat and to spend their evenings. Sometimes the heads of the community are the grandfathers and grandmothers of its members; at other times they are selected by vote of all the members of the community. They become the controlling forces, and the men and women are allotted their duties by them.

In the matter of marriage, the Servians are among the world's greatest sticklers against the violation of the laws of consanguinity. Cousins never marry, and it is rather rare for a boy to select his bride even in the same village. He usually seeks her at least a day's

Photo by Erdelyi

A SERVIAN COUPLE FROM SERAJEVO

Pan-Servianism is a dream which is closer to the heart of the average Servian than pan-Slavism. He thinks that all of the Servian provinces, including Bosnia and Herzegovina, should be united as a Greater Servia. It has thus happened that many of the people of Serajevo have longed for the Bosnian capital to become a part of Servia.

Photo by Kenneth McKenzie

LEMONADE SELLER: SERAJEVO, BOSNIA

It was in this quiet, easy-going town of the Near East and among such good-humored people that the match was set to the dynamite of international diplomacy and the greatest conflagration of human passion in the history of the race started on its raging course.

Photo by Blair Jaekel

FRUIT VENDERS AT A WAY STATION IN SERVIA

Some one has called Servia the poor man's paradise. It was, before the present war, a land without beggars, a land without work-houses, and at the same time without immoderately rich men. The people are frugal, simple-living, and intensely patriotic.

Photo by D. W. Iddings

NATIVE SERVIAN MARKET WOMEN

The peasant women of Servia are always ready to assist their country in time of war. Often the women form themselves into military companies and drill as a sort of home reserve.

journey or more from home. The steps toward bringing about a marriage are generally undertaken by a relative or friend, through whom the father seeking a bride for his son begins negotiations looking to a meeting of the young people. A Servian woman makes a good housewife. She prides herself upon her household linen, her jams, jellies and sweetmeats, and her daily meals.

AFFAIRS OF THE HEART

The marriage customs of the Servians are peculiar in other particulars. There are no bridesmaids at a wedding, but two godfathers, each of whom must buy the bride material for a silk dress. A man, called the "dever," acts in the capacity of best man. He carries a bouquet, wears much ludicrous regalia, including a white sash, and must be the constant attendant of the bride during the entire day of the wedding. The Servian bride is usually older than the groom, for in the average household the girls are kept from marrying as long as possible. Their aid in household affairs at home is too important to encourage them to matrimony. On the other hand, most of the young men in Servia marry before they are twenty.

Every European country has its na-

Photo by Nox McCain

A LAUNDRY TUB HEWN FROM A TREE TRUNK

The Servian peasants have very little money, so almost everything around them is home-made. The dovetail takes the place of the nail in most construction, and the Servian peasant never buys anything he can possibly make himself, or for which there is a home-made substitute.

tional dance, and perhaps one of the most peculiar is that of Servia. They call it the "kola." When we read a few months ago about tangoing on the beach and everywhere else our dances were but copying the Servian idea as to occasions for dances. It matters little to them what their surroundings, the kola is danced upon the least provocation. It may be in the streets of the city or it may be while attending their flocks in the fields. On the field of battle the soldiers dance it, and at every state ball the King leads it. The dance is nothing more than a huge serpentine formation of a group of dancers hand in hand, which seems to twist and turn in and out as the dancers keep step to a monotonous tune. None of these steps are more intricate than those of a lot of children playing "ring around the roses."

The Servians are hospitable, sympathetic, witty, and by nature full of merriment, song, and dancing. At the same time they are a deeply religious people. At all family festivals three toasts are drunk—the first to the glory of God, the second to the Holy Cross, and the third to the Holy Trinity—with invocations for blessings to "the men in all places."

SERVIA'S PRESENT PERIL

Servia is now suffering a terrific epidemic of typhus as a result of the herding together of the peasant classes in one portion of that riven country, and the great battle of the war, from a sanitary standpoint, is to find some method of completely controlling the spread of typhus-causing vermin. It probably represents a greater problem in concentration camps and trenches than any other dis-

Photo by Erdelyi

SERVIAN WOMEN IN GALA COSTUME

The women of Servia are devoted to their homes and will perform any amount of household drudgery for their own families. But a Servian woman will not take service in a strange home; neither is she to be found as a shop assistant or in any commercial position. The woman who wears a Paris gown to a ball this evening may often be found doing her own housework tomorrow.

ease that could come to them. The worst part of the situation is that the doctor and the nurse who volunteer for service in a typhus-eradication campaign in crowded camps accept great chances that they themselves will become infected, in spite of every precaution, for it requires the greatest care and the most remarkable series of measures imaginable to prevent the transmission of the vermin to the clothes of those in attendance upon the sick. They must be garbed from head to foot in impervious sacking, must wear rubber gloves, and must smear mercurial ointment on the wrists. A single one of the hundreds of parasites often found on the patients and their clothes, coming into contact with the skin of the doctor or nurse, would communicate the disease.

Typhus is not as different in its symptons from typhoid, in its early stages, as

Photo by F. J. Koch

THE WORKING WOMEN OF SERVIA

The Servian peasant woman scorns to be idle. When she is not engaged with household duties she is assisting in the field or going to market. In their community life one woman is elected head of the feminine side of the house, and all of the other female members of the community must come to her to have their work laid out for them.

Photo by D. W. Iddings

THE MARKET: BELGRADE, SERVIA

"Fifty francs will purchase in Servia a plot of land that will keep a man going for the rest of his natural life. . . . Servia is an agricultural El Dorado, and if the untutored peasant can now make a living with antediluvian methods, what might not be accomplished with capital and machinery?"—DE WINDT.

it is in the method of its causation. Where typhoid is caused by a germ that previously inhabited the intestinal tract of some typhoid patient, swallowed with food or drink, typhus is produced by a germ pumped out of the body of a typhus patient by the blood-sucking vermin, and then carried by the insect to the prospective victim and injected into his blood. In the earlier stages the diseases are rather closely allied in their symptology, so much so that in sporadic outbreaks typhus has been diagnosed as typhoid. But the crisis comes in eight days in typhus as against twenty-one days in typhoid. After that period the typhus patient dies quickly or recovers rapidly.

So serious has the condition become in Servia that Major General Gorgas, Surgeon General of the United States Army, has been offered the post of adviser on world sanitation in general and Servian typhus work in particular, with a liberal salary and a pension for himself and his widow in case of incapacitation or death, his distinguished achievement at Panama stamping him as a world's authority, not only in the critical knowledge of sanitation, but in actual carrying out of campaigns against epidemics.

SERVIA'S HISTORY IN BRIEF

Ethnologically the Servians are Slavs, while linguistically they are related to the Croats. History's earliest glimpse of them showed them an agricultural people living in Galicia. In the sixth century they moved southward to the Black Sea, and later into the northwestern corner of the Balkan Peninsula. It was not until 1804, however, that modern Servia had its inception. The population rose *en*

Photo by F. J. Koch

A HAPPY PEASANT MAID

Every Servian woman, whether princess or peasant, is a needleworker. There is an association of carpet weavers known as the "Pirot Carpet Zadruga." All of its members are women. It was founded in 1902 and is managed by a council of seven women and two committees of five members each. One of these committees has supervision of the work, and the other values the carpets after their completion. The output of this organization has been awarded several grand prizes in different European exhibitions.

masse and elected "Black George" the national leader. He was a pig-driver who could not write his name, it is said; yet by 1807 he had paved the way to Turkish recognition of the autonomy of Servia. During the Napoleonic wars, while Russia's attention was called to western fields, Turkey again invaded Servia and banished most of her leading men. In 1815 a new insurrection broke out, and two years later the Servians had regained their autonomy, which was confirmed by the Treaty of Adrianople between Turkey and Russia in 1829. Since that time Servia has had a somewhat eventful career. She was bitterly disappointed in the failure of the Congress of Berlin to consolidate Bosnia, Herzegovina, Montenegro, and the *sanjak* (territory) of Novibazar. This disappointment led to a temporary breaking of her friendship with Russia and the establishment of a new one with Austria-Hungary. When Bulgaria took over eastern Rumelia, Servia, in order to get a compensating territory, waged a war on Bulgaria, which was stopped by the interposition of Austria-Hungary. In 1908, following the Young Turks' Revolution, Austria-Hungary formally annexed Bosnia and Herzegovina; whereupon Servia and Montenegro prepared to go to war with her as a result. The big Powers threw their influence on the side of peace, and the irrepressible conflict that broke out in 1914 was staved off six years.

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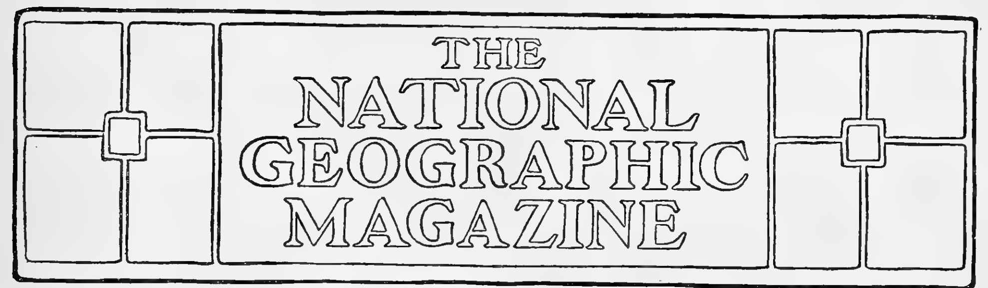


THE GATES TO THE BLACK SEA

The Dardanelles, the Bosphorus, and the Sea of Marmora

By Harry Griswold Dwight

TO THOSE who have a passion for maps the maneuvers of the Allied fleets in the Near East would scarce be needed to draw attention to those inmost recesses of the Mediterranean—the Black Sea and the Sea of Marmora. There is something alluring in the very shape and position of these lakes, separating as they so nearly do the two most historic continents of our globe, and communicating with each other and with the outer seas by openings that seem almost miraculous.

And those landlocked waters, at once a barrier and a highway between East and West, have been from the earliest times, as they happen again to be today, the theater of epic events. It may be that Chinese and Indian legends of the Eastern seas point back to a more ancient period in the story of the world; but for us of the West no legends are older than those of Zeus and Io, of Phryxus and Helle, of the Trojan war, of Jason and the Argo, which commemorate the earliest voyages into the Great Lakes of the Levant.

Of the two, the Marmora—the Propontis, if you prefer to be classical—is by far the smaller. Not much more than 100 miles long and some 40 miles across at its broadest point, it is about the same size as Lake Champlain. The Marmora is a sort of vestibule between the outer and inner doors of the Black Sea—the Dardanelles and the Bosphorus.

The Bosphorus is the shorter and narrower of the two straits. It is about 20 miles long, and at one point of its tortuous course the hills of Europe and Asia come within 550 yards of each other (see pictures, pages 438 and 439).

The Dardanelles, or Hellespont, is a little more than twice as long and nearly twice as wide as the Bosphorus, varying from 1,400 yards to 5 miles. Its right, or European, shore is formed by the peninsula of Gallipoli, the Thracian Chersonese of the ancients, whose steep ridge overlooks the plain of Troy on the Asiatic bank and the broken foot-hills of Mount Ida.

The Marmora and the Black seas are no more than 20 miles apart at their nearest point; but it is astonishing what a difference in aspect 20 miles may make. The Marmora has much of the softness of air, vividness of color, and beauty of scenery that we associate with the Ægean and Ionian seas. Thread the narrow slit of the Bosphorus, however, and you pass into an entirely different world—sterner, barer, rockier, colder. It is partly perhaps that the Black Sea is very much larger.

If the Marmora may be compared to Lake Champlain, the Black Sea is about four times the size of our greatest lake. Lake Superior is 412 miles long by 167 wide, while the Black Sea has a length of 750 miles and a breadth of 385. That there is something dark and unfriendly

Photo by H. G. Dwight

THE NORTHERN MOUTH OF THE BOSPHORUS, LOOKING INTO THE BLACK SEA

The shores are strongly fortified with modern masked batteries. The Russian fleet before reaching Constantinople (page 441) must enter the narrow mouth shown in the above picture and proceed through the straits approximately 17 miles, through such scenes as are shown on pages 438 and 439.

about it is more than a legend. It has, of course, its suaver moments and its happier strips of coast, as in the Crimea and under the shelter of the Caucasus; but much of its European shore is bordered by steppes rolling unbroken to the north.

THE SEA OF MARMORA

While its two historic gateways—the Dardanelles and the Bosphorus—are strategically the most important features of the Marmora, that picturesque little sea has a character of its own, and one not to be caught from the deck of a Mediterranean liner or from the windows of the Orient express. Such impressions as the passing tourist takes away are chiefly of the flat and treeless Thracian shore. The longer Asiatic coast, however, is much more indented, and rises on the southeast to the white peak of the Bithynian Olympus. A high, green headland divides the eastern end of the Marmora into the two romantic gulfs of Nicomedia and Moudania. The south shore again is broken by the mountainous peninsula of Cyzicus.

Off its windy, western corner lies a group of islands, of which the largest is the one that gives the Marmora its name—a mass of marble 10 miles long, famous from antiquity for its quarries. Another considerable island is the long, white sandspit of Kalolimnos, just outside the Gulf of Moudania; but best known are the Princess Isles, a little archipelago of rock and pine that is a favorite summer resort of Constantinople.

In any other part of the world this inland sea would long ago have become a place of sojourn for yachtsmen and summerers, so happily is it treated by sun and wind, so amply provided with bays, capes, islands, mountains, forests, and all other accidents of nature that make glad the heart of the amateur explorer. As

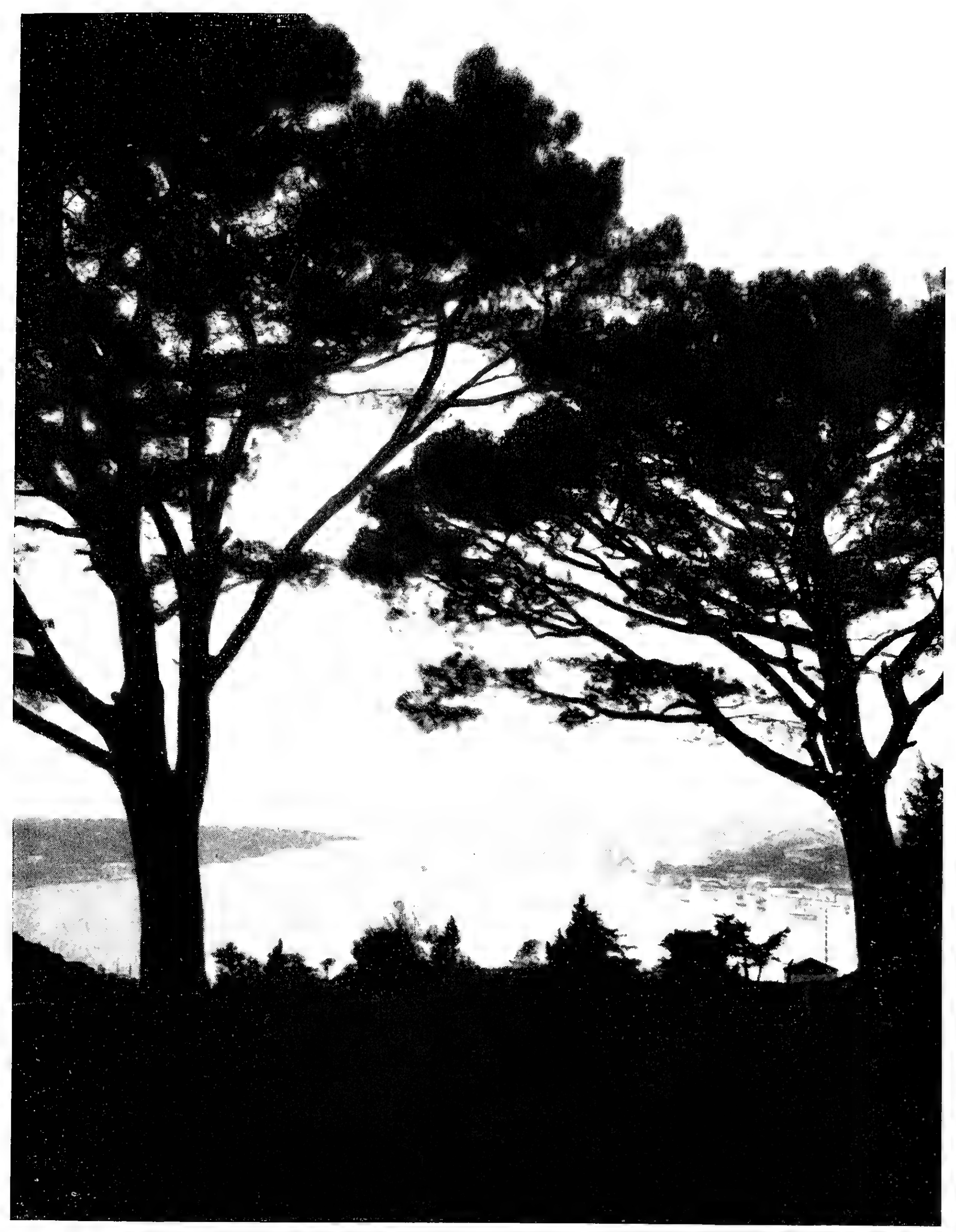


Photo by H. G. Dwight

THE SOUTHERN END OF THE BOSPHORUS, SHOWING THE ENTRANCE TO THE SEA OF MARMORA ON THE LEFT, JUST BELOW THE + (SEE ALSO PAGE 445)

"The Marmora and the Black seas are no more than 20 miles apart at their nearest point, but it is astonishing what a difference in aspect 20 miles may make. The Marmora has much of the softness of air, vividness of color, and beauty of scenery that we associate with the Ægean and Ionian seas. Thread the narrow slit of the Bosphorus, however, and you pass into an entirely different world—sterner, barer, rockier, colder" (see text, page 435).

Photo from Edwin A. Grosvenor

LOOKING UP THE BOSPHORUS STRAIT FROM THE BIG TOWER AT RUMELI HISSAR

The left shores are Europe and the right Asia. "So sharply do its submarine banks descend that large vessels, hugging the land too closely, though in deep water, often run their bowsprits and yards into houses on the shore. Many a shipmaster has paid damages for such unceremonious intrusion, not only of his rigging, but of his sailors, into drawing-rooms and chambers along the Bosphorus. I remember, when making a good-by call upon an English lady at Candili, her matter-of-fact apology for the torn casements of the windows and the disordered appearance of the room. She said that a Greek vessel ran into the house that morning, and that the carpenters had not come to make repairs."—Edwin A. Grosvenor.

"CUT-THROAT CASTLE," BUILT BY MOHAMMED II IN 1452, ON THE EUROPEAN SHORE OF THE BOSPHORUS, AS A BASE FOR HIS OPERATIONS AGAINST CONSTANTINOPLE

"And those landlocked waters, at once a barrier and a highway between East and West, have been from the earliest times, as they happen again to be today, the theater of epic events" (see page 435).

Photos by H. G. Dwight

A VIEW OF THE BOSPHORUS AT THE NARROWEST PART

On the farther shore, in the center, may be discerned the castle built by Bajezid I (page 448). The Bosphorus at this point is about 550 yards wide. The current through the straits here is always very swift; in fact, so strong that it is impossible to row against it.

"The Bosphorus never feels the influence of tides. From the vast bosom of the Mediterranean the evaporation is enormous. The contribution of its rivers, moreover, is small in comparison with that of the mighty streams which deluge the Black Sea. So in the Bosphorus the flow southward is constant. The current sometimes attains a velocity of four and even five miles an hour. So violently does it rush by the promontories of Arnaoutkeui and Rumeli Hissar that the strongest boatmen are unable to row against it. This has given rise to a peculiar guild, or craft—the yedekdjis—whose whole business consists in towing vessels up the stream."—Edwin A. Grosvenor.

Photo from Edwin A. Grosvenor

THE SHORES OF THE BOSPHORUS STRAIT NEAR CONSTANTINOPLE ARE LINED WITH BEAUTIFUL WHITE PALACES AND PRIVATE DWELLINGS

Photo from Edwin A. Grosvenor

THE CITY OF CONSTANTINOPLE: LOOKING UP THE BOSPHORUS AT ITS WIDEST POINT

"Few cities have equaled Constantinople in importance. None in ancient or modern times have exceeded it in dramatic interest. During centuries of the Middle Ages it was the foremost city of the world, surpassing every other in populousness, strength, and beauty, and in the high development of its civilization. To the Mussulman it ranks next to Mecca, Medina, and Jerusalem. The Christian must regard it with still greater reverence. It was the first city distinctively Christian, erected by the first Christian emperor on the ruins of vanquished paganism."—Edwin A. Grosvenor.

SCENE IN THE HARBOR: CONSTANTINOPLE

"The focus of this quaint navigation is, of course, Constantinople, standing high and pinnacled on either side of the crooked blue crack that opens into the Black Sea" (see page 443).

Photos by Mortimer J. Fox

SELLING BREAD IN CONSTANTINOPLE

it is, the Marmora remains strangely wild for a sea that has known so much of life; yet its shores are by no means uninhabited and between them plies many an unhurried sail.

The focus of this quaint navigation is, of course, Constantinople, standing high and pinnacled on either side of the crooked blue crack that opens into the Black Sea. (For a description of Constantinople see pages 448 and 459).

In the meantime the busiest town in the Marmora after Constantinople is Panderma, on the south shore, joined to Smyrna by a railway that taps one of the most fertile districts of Asia Minor. In its vicinity exists one of the few borax mines in the world. Another little railway climbs through the olive-yards of the Gulf of Moudania to Brusa, on the lower slopes of Mt. Olympus. This delightful town, the first capital of the Turks and their most picturesque city, is the Hamburg of the Levant, enjoying a renown of many centuries for its hot mineral springs. It is also the center of an ancient silk industry, first introduced from China in the sixth century by the Emperor Justinian. Its cocoons are considered to rank in quality above those of northern Italy and are much exported to this country and to France.

Another ancient watering place of the Marmora is Yalova, in the wooded hills above the Gulf of Nicomedia, whose baths were visited of old by the Emperor Constantine, and there are many less frequented hot springs in this region. It is not for an amateur geographer to say whether this fact is connected with the one that the basin of the Marmora is a center of seismic disturbance. Constantinople has often been damaged by earthquakes, of which the last serious one took place in 1894. In 1912 the strip of coast between Gallipoli and the thriving town of Rodosto was shaken very severely.

This little Riviera is famous for its grapes and wine; so is the charming bay of Artaki, under the western point of Cyzicus, and the neighboring island of Pasha Liman. But the southward-looking slopes of the Gulf of Nicomedia produce a white grape, locally called the *chaoush,* of a flavor to spoil those who taste it for all other grapes in the world.

The Marmora is reputed for its melons, too. Gay cargoes of them, heaped high in picturesque sailing boats, make in the summer the most characteristic touch of local color, and many an olive plantation means a livelihood for many a cluster of red roofs beside a blue bay.

ABOUT NO BODY OF WATER OF EQUAL SIZE HAVE STOOD SO MANY STATELY CITIES

More numerous than the settlements of today, however, are the ruins of yesterday. Every harbor, every headland, has some fragment of ancient masonry, and the workmen in the vineyards are constantly turning up coins, pieces of broken pottery, bits of sculptured marble, that have come down from who knows when or where. *About no body of water in the world, of equal size, have stood so many stately cities.*

It is almost impossible indeed to give any coherent account of the story of the Marmora, so much history and legend have crowded its shores. I have already spoken of the Argonauts, a good part of whose adventures took place in these waters, and of Troy, buried in the marshy plain at the mouth of the Dardanelles. The latter name is derived from that of Dardanus, son of Zeus and Electra and mythical ancestor of the Trojan kings and, through Æneas, of the Romans. The town of Dardanus stood farther in the strait. Colonies from the Greek cities and islands emigrated along these shores in the dawn of European history, carrying with them the spirit of their race and not ceasing to play a part in its politics. Thus Byzantium entered the second Athenian League; and the battle of Ægospotami, which closed the Peloponnesian wars, was fought in the Dardanelles.

The true question of the straits arose as early as the fifth century B. C., when Alcibiades of Athens counseled the people of Chrysopolis, the modern Scutari, at the southeastern extremity of the Bosphorus, to take toll of passing ships. Yet another aspect of the question of the straits had already risen earlier in the century, when the Persian expeditions against Scythia and Greece crossed the Bosphorus and the Dardanelles. What success they had we know, and how a

Photo from Edwin A. Grosvenor

ONE OF THE FIRST VIEWS OF CONSTANTINOPLE AS WE SAIL UP THE SEA OF MARMORA AFTER PASSING THROUGH THE DARDANELLES STRAIT

"About no body of water in the world, of equal size, have stood so many stately cities as on the Sea of Marmora" (see text, page 443)

Photo from Edwin A. Grosvenor

THE NARROW PASSAGE FROM THE SEA OF MARMORA INTO THE SOUTHERN END OF THE BOSPHORUS STRAIT

Photo by Ernest L. Harris

SCENE IN A GREEK VILLAGE ON THE EUROPEAN SHORE OF THE DARDANELLES

"The Dardanelles, or Hellespont, is a little more than twice as long and nearly twice as wide as the Bosphorus, varying from 1,400 yards to five miles. Its right, or European, shore is formed by the peninsula of Gallipoli, the Thracian Chersonese of the ancients, whose steep ridge overlooks the plain of Troy on the Asiatic bank and the broken foot-hills of Mount Ida" (see page 433).

counter-invasion under Alexander crossed the Dardanelles, in 334 B. C., crushing the Persians at the battle of the Granicus. That small stream, now known as the Bigha, flows into the Marmora half way between Cyzicus and the Dardanelles, at a spot associated in mythology with Priapus, god of gardens.

GLORIES THAT PASSED AWAY

It was in the period following the death of Alexander, when the kingdoms of Bithynia, Pergamos, and Pontus flourished in northern Asia Minor, that the cities of the Marmora began to take on their greatest importance.

Chief among them was Cyzicus, on the southeastern side of the peninsula of that name. Founded earlier than Rome or Byzantium, possessed at different times by Athens and Sparta, by the Persians and Alexander, by the King of Pergamos and the Republic of Rome, Cyzicus was long celebrated as one of the most splendid cities of the ancient world. Its gold staters were the standard of their time.

With the rise of Byzantium, however, its glory passed away. Goths and earthquake ravaged it; Constantine and the Turks found it an inexhaustible quarry for the public buildings of Constantinople. Today there is almost no trace of its marble among the vines and olive trees of the peninsula.

Nicomedia and Nicæa, in Bithynia, were also accounted no mean cities in their day. Indeed, Nicomedia, bequeathed to Rome with the rest of his kingdom by Nicomedes III, in 74 B. C., became for a moment, under the Emperor Diocletian, the capital of the world. As for Nicæa, it has three times been a capital. Nicæa, now Isnik, is not in all strictness a city of the Marmora, but the lake on which it lies is geologically a continuation of the Gulf of Moudania. A place of importance long after the Bithynian period, it is chiefly remembered today for the two councils of the church which took place there in 325 and 787.

In 1080 the Seljukian Turks seized it from the Byzantines and made it for a few years a capital whose brilliance rivaled Cordova and Bagdad. Reconquered by the Crusaders in 1097, it was, from 1204 to 1261, while the Franks were in possession of Constantinople, the capital of the Byzantine Empire. In 1330 it fell into the hands of its present owners, under whom it became famous again as the seat of the manufacture of the beautiful tiles that line the Turkish mosques and tombs of the sixteenth century.

A third Bithynian city, which we have already mentioned — Brusa — has more than one title to celebrity, not least among which is that its foundation was ascribed to the advice of no less a personage than Hannibal. At any rate, the great Carthaginian fled after the Punic wars to the court of King Prusias of Bithynia and committed suicide there, in 183 B. C., to escape falling into the hands of the Romans. Legend has placed his grave on the north shore of the Gulf of Nicomedia.

Space fails me to make even the barest catalogue of the cities of the Marmora that have enjoyed historical renown. I have already spoken of Rodosto (p. 443), to which Bulgarian raiders came in 813, in 1206, and in 1912, and where the Hungarian royal exile, Francis II Rakoczy, lived for 18 years and died in 1735. Another illustrious exile, Alcibiades of Athens, lived in another Samiote colony farther along the Thracian coast. This sleepy fishing village of Eregli, Heracleia Perinthos of old, was for a moment the administrative superior of Byzantium, when that city was destroyed by the father of Caracalla. A thousand years later Heracleia was given by the Emperor Michael Palæologus to the enterprising traders of Genoa.

More eastward still lies Silivrí, the Athenian colony of Selymoria, which the Emperor Anastasius I made the terminus of the great wall he built across Thrace from sea to sea—precursor of the modern Lines of Chatalja. Lady Mary Montagu stopped there a night or two and mentions it in one of her Turkish letters. Then there is Chalcedon, now an Asiatic suburb of Constantinople, founded a few years earlier than Byzantium by colonists from Megara and renowned for the magnificence of its public buildings, for the councils of the early church which took place there, and for the memorable sieges

it sustained against Macedonians, Persians, and Saracens.

CONSTANTINOPLE

The history of the greatest city of them all has for nearly 2,000 years been the history of the little sea that lies before it. It was founded, a little later than Rome, by seamen from Megara. Always an important center of trade and long accounted one of the strongest cities of antiquity, it was not until Constantine, on that opposite shore of the Bosphorus where Xenophon camped with the remnant of his 10,000, conquered his last rival in 324 and became master of the Roman world, that Byzantium achieved its undisputed supremacy.

As the imperial city of Constantinople it remained for nearly a thousand years the true capital of the western world, the center of fashion, of art, of learning.

During that long period it was attacked by many an invader from East and West. It resisted them all until 1204, when it fell for a time into the power of the Franks and Venetians of the Fourth Crusade. The short-lived Latin dynasty was expelled in 1261, but Latins continued in possession of many parts of the Greek world and became the paramount power in the Marmora.

Their occupation has left its mark to this day in the Romaic Greek language and in the navigating terms of Greeks and Turks alike. The Genoese, obtaining a permanent foothold first at Heracleia and then in Galata, at the very gates of the capital, gained control of the Bosphorus, where the ruins of their two castles still exist at the mouth of the Black Sea, and of the Dardanelles. They built a stronghold at the narrowest part of the latter strait, on the Asiatic shore, at the point known today as Chanak Kalesi.

THE ADVANCE OF THE TURKS

The hold of the Genoese on the Marmora was shaken in 1306 by the Grand Company of Catalan mercenaries, originally hired by the emperor Andronicus II to oppose the incursions of the Turks. The Grand Company established itself at Gallipoli and played havoc with the traffic of the strait until it was dispersed in 1310; but the Turks continued to advance. These nomads of the East whose very name was unknown to the ancients had long been filtering into Asia Minor. They reached the Marmora in 1326, seizing Nicomedia and establishing their capital at Brusa.

Thirty years later they crossed the Dardanelles, whence they spread into Thrace, captured Adrianople, and penetrated the Balkans. After the battle of Nicopolis, in 1396, which made the invaders secure against European interference, Sultan Bajezid I tightened his grip on Constantinople and the Marmora by building forts at Gallipoli and on the Asiatic shore of the Bosphorus, at its narrowest point (see picture, page 439).

His plans were cut short by the invasion of Tamerlane, who nearly annihilated the growing power of the Turks. But no later than 1452 the great-grandson of Bajezid was able to build a second and stronger castle on the European shore of the Bosphorus, only seven miles from Constantinople (see page 439).

He thus disputed the control of the strait with Greeks and Genoese alike and at the same time established a base for his operations against the doomed city. The next year it fell into his power, and with it the last pretension of the Genoese to control the adjacent waters. To secure himself against surprise by sea, Mohammed II built another pair of castles at the narrowest part of the Dardanelles.

Since that time the Marmora, that storied lake of the Greco-Roman world, has been an essentially Turkish lake. But the Turks have never succeeded in giving it a purely Turkish atmosphere. Greek it was from the beginning of time and Greek it remains in great part today. The language of the towns, the cultivation of the vineyards, the navigation of the sea, are after 500 years of subjection more Greek than Turkish.

Since the Balkan war, accordingly, the Turks have attempted to remedy this state of affairs—by the simple process of expelling their Greek neighbors. From the European coast of the Marmora they have driven whole villages into exile and seized their lands, on the pretense that the Turks in Macedonia were so treated by the Hellenic authorities.

Photo by Ernest L. Harris

SCENE IN A GREEK VILLAGE ON THE ASIATIC SHORE OF THE DARDANELLES STRAIT

THE BLACK SEA

If the Black Sea lacks the charm of its southern neighbor, its physical features are on a scale befitting its greater size, and it forms the natural outlet for a territory of far vaster extent and commercial importance. Into it pour from different points of its low, northern coast four of the greatest rivers in Europe—the Danube, the Dnieper, the Don, and the Dniester—all of them longer than the Rhine and exceeded in length only by the Volga. Our own Mississippi, of course, is longer than any of them, having a course of 2,616 miles, while that of the Danube is 1,725.

Its greater depths—which are very deep indeed, sinking to 7,000 feet—contain no discoverable form of organic life, which does not prevent it, however, from harboring an astounding variety of fish. Like the Mediterranean, the Black Sea is also tideless, or imperceptibly tidal, and a strong surface current flows out of it through the Bosphorus, another one returning at a lower level.

Upon the eastern end of the Black Sea abuts the noble range of the Caucasus, loftier than any other in Europe and not unworthy to compare with the Rocky Mountains, the Andes, or even the Himalayas.

In contrast to the generally flat northern shore, the southern is a series of high and broken scarps that hold up the plateau of Asia Minor. These are largely wooded. In natural harbors the Black Sea is not well provided. In fact, the only landlocked anchorage is found in the Crimea.

But the Russians, the Rumanians, and the Bulgarians have improved their various ports, and from them lines of communication radiate by land and sea to every part of the world, tapping the great wheat and oil fields adjoining the Black Sea and the rich agricultural regions of Transcaspia. The Turkish coast is still innocent of harbors or railroads, although it does a considerable trade in foreign bottoms. It is one of the principal tobacco-growing districts of the world, besides exporting wool, gums, nuts, and other natural products.

The history of the Black Sea has always been associated with that of the lesser lake forming its outlet. The Greeks ventured into it at a very early period, bestowing upon it the name of

WINDMILLS AT EREGLI, ON THE EUROPEAN COAST OF THE MARMORA

Eregli was the ancient Heracleia Perinthos, founded by colonists from Samos in 599 B. C. Windmills are supposed to have originated in this part of the world. They are still to be seen on many a headland and hilltop of the Marmora and the Ægean.

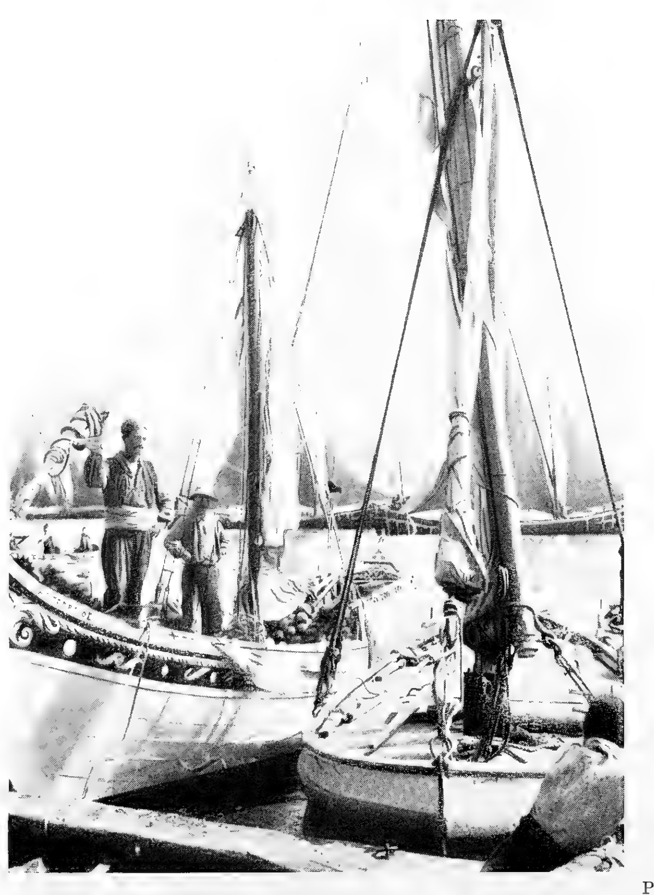
Photos by H. G. Dwight

THESE SPRINGLESS CARTS ARE THE CHIEF MEANS OF CONVEYANCE THROUGHOUT ASIA MINOR

Photo by H. G. Dwight

WINDMILL ON THE ISLAND OF PASHA LIMAN, IN THE SEA OF MARMORA

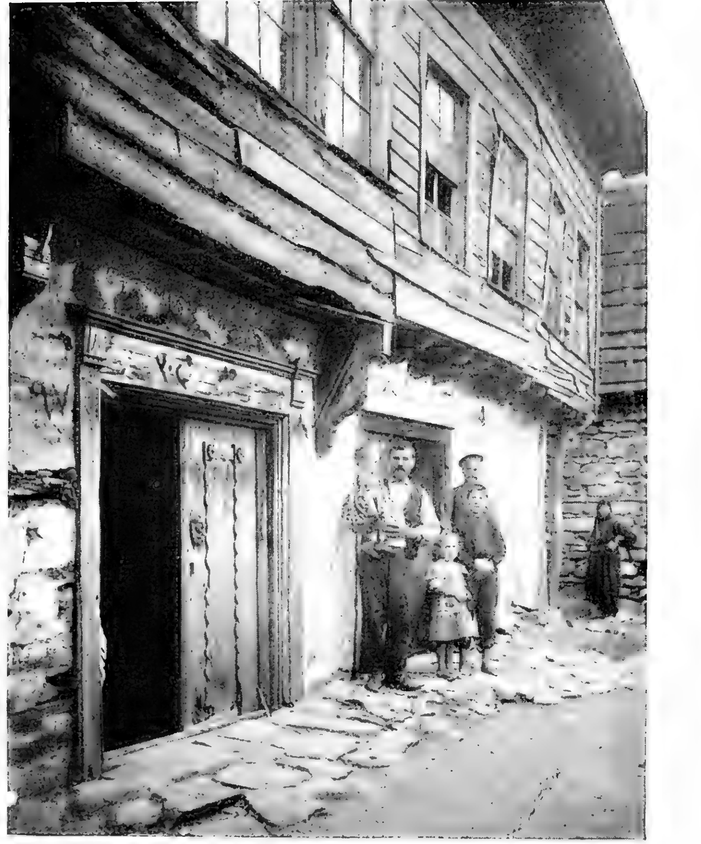
"In any other part of the world this inland sea would long ago have become a place of sojourn for yachtsmen and summerers, so happily is it treated by sun and wind, so amply provided with bays, capes, islands, mountains, forests, and all other accidents of nature that make glad the heart of the amateur explorer" (see page 436). This island contains perhaps the finest harbor in the Marmora. About its shores a French company cultivates grapes and nectarines and makes an excellent wine.



SAILING CAIQUES OF THE MARMORA

Photos by H. G. Dwight

A SEA-DOG OF THE MARMORA



Photos by H. G. Dwight

GREEK TYPES OF THE ISLAND OF MARMORA

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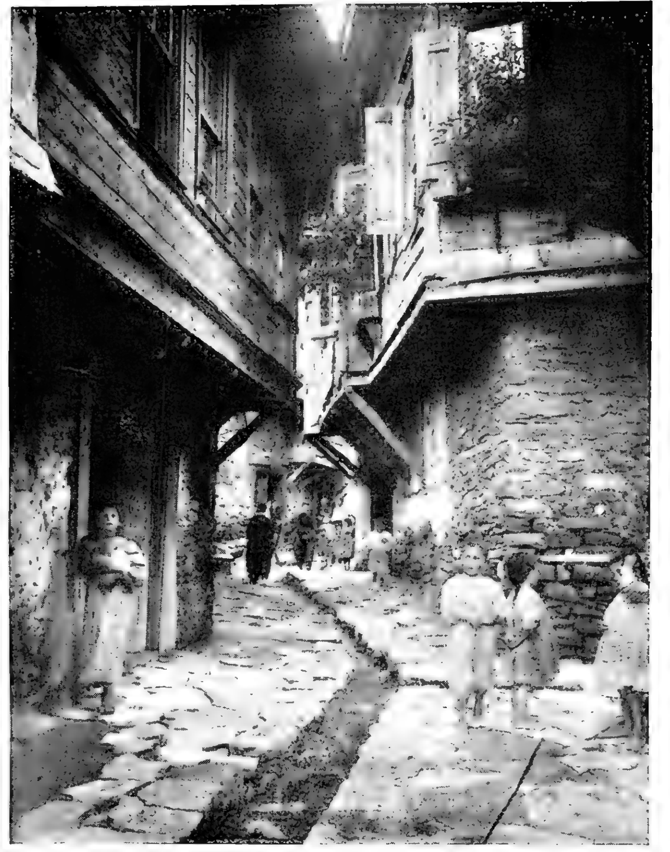


A VILLAGE STREET ON THE ISLAND OF MARMORA

This island, the ancient Proconnesus, is almost a solid mass of marble, ten miles long, and has for centuries been known for its quarries.

KERASSUND, ON THE BLACK SEA

"The Russians, the Rumanians, and the Bulgarians have improved their various ports, and from them lines of communication radiate by land and sea to every part of the world, tapping the great wheat and oil fields adjoining the Black Sea and the rich agricultural regions of Transcaspia. The Turkish coast is still innocent of harbors or railroads, although it does a considerable trade in foreign bottoms" (see page 449).

Photos by H. G. Dwight

TYPES OF SAILING VESSELS SEEN IN THE BLACK SEA

The Black Sea is about four times the size of our greatest lake. Lake Superior is 412 miles long by 167 wide, while the Black Sea has a length of 750 miles and a breadth of 385. That there is something dark and unfriendly about it is more than a legend (see page 435).

INEBOLI, ON THE BLACK SEA

Ineboli is the port of the rich agricultural and mohair district of Castambol. "Although the Black Sea now washes the shores of four nations instead of one, it has retained much of the character of a lake, and a Turkish one, from the fact that the Turks still control its outlet. We have seen how Greeks, Romans, Byzantines, Genoese, and Turks, one after another, have throughout the centuries exercised that right of control simply by virtue of a geographical accident" (see page 457).

Photos by H. G. Dwight

SAMSUN LIGHTERS

The lighters of each Turkish port differ a little in picturesqueness. Those of Samsun are the largest seen on the Black Sea coast, partly because steamers anchor farther offshore than elsewhere and partly because the commerce of Samsun is the most important. Samsun is the center of the tobacco industry in the Black Sea and the chief port for northern Asia Minor. English and French companies were surveying for a harbor and for a railway to tap the German Bagdad line when the war suspended their operations.

THE WATER FRONT OF TREBIZOND (SEE PAGE 457)

Photo from Edwin A. Grosvenor

LIGHTERS OF INEBOLI

"What the Allies are now seeking to teach them is that a double freak of nature does not necessarily fit them to be masters of the fate of other nations, and that in the eyes of the rest of mankind the defenses of one city are less important than free access to wheat and oil fields among the greatest in the world" (see page 459).

Euxinos, friendly to strangers, by a euphemistic interpretation of its real character. The country of the Golden Fleece lay in the romantic glens of the Caucasus, where also the Greek imagination set its greatest myth of Prometheus. And the littoral of the Black Sea was dotted with Greek colonies, whose ruins or whose modern successors exist today.

Like the Marmora, the Black Sea also had its post-Alexandrine and its Roman periods, when the Kingdom of Pontus flourished in the south and in the north Emperor Trajan founded his colony of Dacia (now known as Rumania). The Roman imprint still persists in the language and the faces of the Rumanian coast, where the poet Ovid died in exile. The Byzantine Empire left an even stronger mark, giving letters and a religion to the people of the Black Sea. Into those waters also penetrated the Genoese, planting along the south shore a chain of factories whose towers and escutcheons may still be seen in more than one sleepy Turkish town.

Then came the Turks, a century or so after they reached the Marmora. The fantastic little empire of Trebizond, erected by the Comneni after the capture of Constantinople by the Franks, survived the capture of Constantinople by the Turks. It was from the mountains behind that ancient Greek city that Xenophon and his returning ten thousand caught their historic first glimpse of the sea.

Trebizond owed to its position at the terminus of the time-honored caravan route from northern Persia and central Asia a prosperity taken from it only in our day by Batoum and the trans-Caucasian Railroad; but, like the neighboring Seljukian principalities and the Khanate of the Crimea, it fell at last into the hands of Mohammed II. And at the height of the Ottoman power—that is, during the last part of the fifteenth, the whole of the sixteenth, and the greater part of the seventeenth century—there was no coast of the Black Sea which the Turks did not directly or indirectly dominate. It became, like the Marmora, a Turkish lake.

Unlike the Marmora, however, it has not remained a Turkish lake. Its history has undergone an evolution of such nature that in this century we are more inclined to think of the Black Sea as a Russian lake; yet so recently as 200 years ago the Turks denied the right of the Czar to call himself an emperor!

Although the Black Sea now washes the shores of four nations instead of one, it has retained much of the character of a lake, and a Turkish one, from the fact that the Turks still control its outlet. We have seen how Greeks, Romans, Byzantines, Genoese, and Turks, one after another, have throughout the centuries exercised that right of control simply by virtue of a geographical accident.

Until 1774 Turkey was able to bar the Russian flag from the Black Sea, just as Russia bars the Persian flag today from the Caspian. The Treaty of Akkerman renewed and enlarged in 1826 the right of navigation of the Russians, and in 1833 the Treaty of Hunkyar Iskelesi bound Turkey to close the Dardanelles to foreign ships of war. This principle the Powers agreed in 1841 to respect, though that did not prevent their fleets from entering the straits to participate in the Crimean War.

The Treaty of Paris which followed that war declared the Black Sea neutral and closed to warships of any nation, including Russia; it also made free and put under an international commission the navigation of the Danube.

Russia, however, took advantage of the Franco-Prussian War to repudiate the clause of the Treaty of Paris relating to her own warships in the Black Sea; and her successful war against the Turks brought her, a few years later, within sight of the realization of her old dream of a free path to the ocean. But the British fleet took that occasion to enter the Marmora and to anchor off the Princes Isles, while the Russians camped at San Stefano; and the subsequent Treaty of Berlin further dashed the Russian hopes.

Since that time the case has remained more or less at a standstill, except that in 1891 the Russians obtained for their so-called volunteer fleet, which in reality are transports and auxiliary cruisers, the

Photo by H. G. Dwight

TURKISH GENTLEMEN OF THE OLD SCHOOL: CONSTANTINOPLE

right to pass the straits. Otherwise the Turks have allowed no foreign man-of-war to enter the Marmora unless under rare and special circumstances; and not only do they exercise surveillance over the traffic in the straits, but twice during the last four years they have closed the Dardanelles to navigation of any kind.

At the moment at which I write the fleets of France and England are hammering at that historic gateway. Thus the question of the Black Sea, which is the ancient question of the straits, is posed anew, more dramatically than ever before. Is it for a final solution? No solution can be final, however, which will give any one nation an absolute right of control over the Bosphorus and the Dardanelles.

The Russians believe that they have every right to insist that they be not throttled at the gate of their own house. The rapidly increasing development of their railways, their industries, their agricultural and mineral resources, both in Europe and beyond the Caspian, make it imperative, they contend, for them to have the freedom of their own front door.

But while the Black Sea becomes every year a more important highway, and while the Russians are the preponderant power in the Black Sea, they are not the only power. They have a neighbor to whom it seems even more vital that the straits be open.

For Rumania has no back door upon another sea. And if Rumania happens to be small, that is no reason why Rumania should be throttled. Bulgaria is also interested in the matter, though less so since she gained an outlet into the Ægean;

and so to a degree are Servia and Hungary, who have access to the Black Sea through the Danube. Even the Turks deserve to have a voice in the matter.

What the Allies are now seeking to teach them is that a double freak of nature does not necessarily fit them to be masters of the fate of other nations, and that in the eyes of the rest of mankind the defenses of one city are less important than free access to wheat and oil fields among the greatest in the world. But if the Turks shall learn that somewhat bitter lesson they will still remain neighbors to the Black Sea and the Sea of Marmora, and concerned in their future accordingly.

The question is so great, it involves so many interests, the industry of such vast territories, the destiny of so many million people, that it should have no petty or partial answer.

CONSTANTINOPLE AND SANCTA SOPHIA

By Edwin A. Grosvenor

The following article is abstracted from "Constantinople," two volumes, by Dr. Edwin A. Grosvenor, of Amherst College, published and copyrighted by Roberts Brothers and Little, Brown & Company some years ago, but now out of print.

IN THE word "Constantinople" there is the blended magic of mythologic romance, history, and poetry. It is the synonym of the fusion of races and the clash of creeds. More than any other capital of mankind it is cosmopolitan in its present and its past. From the natural advantages of its site it is the queen city of the earth, seated upon a throne.

After the treaty of Tilsit, Napoleon bade his secretary, M. de Méneval, bring him the largest possible map of Europe. In anxious and protracted interviews the Emperor Alexander had insisted upon the absolute necessity to Russia of the possession of Constantinople. There was no price so great, no condition so hard, that it would not have been gratefully accorded by the Russian czar for the city's acquisition. Napoleon gazed in silence earnestly and long at the map wherein that continent was outlined, of which he, then at the zenith of his power, was the autocratic arbiter. At last he exclaimed with earnestness, "Constantinople! Constantinople! Never! It is the empire of the world!"

THE EARTH'S GREAT-CITY BELT

The dome of Sancta Sophia is 41° north of the equator and 28° 59′ east of Greenwich. It is remarkable that so many cities of first importance are situated on the same great parallel. That narrow belt, hardly more than 90 miles in breadth, which encircles the globe between 40° 20′ and 41° 50′ in north latitude, includes Constantinople, Rome the Eternal City, Madrid, the political and literary capital of Spain, and on this side the ocean the two metropolises, unrivaled in the Western Hemisphere, New York and Chicago. A person proceeding directly east from the Court-house Square in Chicago would ascend the slopes of the Palatine Hill in Rome. One traveling directly east from New York City Hall for a distance of 5,622 miles would pass through the southern suburbs of Constantinople.

ALL RACES ARE REPRESENTED HERE

The resident population today can be but little less than one million. Like the audience that listened to St. Peter on the day of Pentecost, they are "out of every nation under heaven."

To say that there are 450,000 Mussulmans, 225,000 Greeks, 165,000 Armenians, 50,000 Jews, and 60,000 members of less numerous subjects of foreign nationalities is to give only an approximate and faint idea of the motley host who sleep each night in the capital of the Sultan. The endless variety of facial type, of personal attire, and of individual demeanor, and the jargon of languages in some gesticulating crowd afford more

Photo by H. G. Dwight

ALBANIANS IN CONSTANTINOPLE

The resident population today can be but little less than one million. Like the audience that listened to St. Peter on the day of Pentecost, they are "out of every nation under heaven" (see page 459).

distinct and more exact details than any table of statistics, however elaborate and dry.

In the polyglot multitude, he who speaks but a couple of languages is considered ignorant and is often helpless. The common handbills and notices are usually printed in four. The sign over a cobbler's shop may be painted in the languages of six different nations, and the cobbler on his stool inside may in his daily talk violate the rules of grammar in a dozen or more. Still the resident who is possessed of four languages will almost always be comfortable and at ease.

First in importance is his own vernacular; then French, for intercourse with the high Ottoman officials and for general society; then Turkish, for dealing with the humbler classes; and Greek, as an open sesame among the native Christian population. Howsoever many additional languages one can speak—Italian, Russian, English, German, Arabic, Armenian, Persian, or a dozen besides—they are not superfluous, and on occasion each will be of advantage and use.

A DISAPPOINTING CLIMATE

The only disappointing thing at Constantinople is the climate. Only rarely does it correspond to the city's natural loveliness. Constantly it contradicts those conceptions wherein imagination pictures the East:

"The land of the cedar and vine,
Where the flowers ever blossom, the beams ever shine;
Where the citron and olive are fairest of fruit,
And the voice of the nightingale never is mute;
Where the tints of the earth and the hues of the sky,
In color, though varied, in beauty may vie,"

Photo by H. G. Dwight

A GREEK PEASANT WOMAN OF THE MARMORA: CONSTANTINOPLE

is, as to the deliciousness of its climate, only the fond creation of a poet's brain. Some days in April or May or June seem absolute perfection and leave nothing for full satiety to dream of or wish. October or November or December is sometimes beautiful, and scattered through the year are many pleasant days; but, taking the twelve months through, few localities possess a climate more capricious and unkind. The variations in temperature are frequent, sudden, excessive, and dangerous. The experience of one year forms small basis for calculation of the next. The heat of summer is often maintained for months at a high temperature; meanwhile no rain moistens the baked and cracking ground and the night is hardly less parching than the day. Snow sometimes falls in winter, but the ground rarely freezes, becoming instead a mass of adhesive mud which is rendered still more disagreeable by incessant rains. The damp and clammy winter never invigorates like the sharper season of New England.

Topographical position between the Black Sea, the Marmora, and the Ægean largely affects the climate. The swift Bosphorus, bounded by sharply descending banks, becomes a tunnel for shifting currents of air. Old habit lingers and the American resident speaks of the four seasons; nevertheless the remark of Turner is literally true: "There are two climates at Constantinople, that of the north and that of the south wind."

All the vicinity of Constantinople is subject to earthquake. Hardly a year passes without several shocks. These have generally been slight and of brief duration. The most violent in recent times occurred July 11, 1894, and destroyed nearly a hundred lives. In ancient times they were often long-continued and frightfully disastrous.

The seven hills, which were to Constantine and the cohorts the admired reminder of the older Rome, may still be distinctly traced. Though the topography has been vastly modified since 330, though frightfully devastating fires have caused the city to be rebuilt from its foundations on an average of once every 50 years—that is, more than 30 times since it became an imperial capital—though the valleys have been partially filled and the crests, never more than 300 feet in height, have been worn away, yet the seven proud hills are there. They

Photos by H. G. Dwight

THE LATTICED WINDOWS OF TURKISH HOUSES IN CONSTANTINOPLE

"The amusements of a Turkish lady we should consider rather mild. She is seldom intellectual; therefore her pleasures are not intellectual. She is not athletic even in her youth. She plays no games, such as bridge, whist, or dominoes, although Turkish men are fond of games of chance. She does not become absorbed in fancy work. . . . What, then, does she do? For the most part she *sits*. The Turkish verb to *sit* is constantly used where we should say *stay* or *live* or *visit*. For instance, to the question, 'Where are you living?' one gets the response, 'I am sitting in Stamboul.' And this is literally true. All Oriental women occupy an enormous proportion of their time in sitting. And when they sit it is not in the restless way that we have, but with the hands idly folded in the lap, in the perfect repose of a sleeping cat, often for hours without even conversation."—From "Behind Turkish Lattices," by Hester Donaldson Jenkins, Lippincott Company.

Photos by Mortimer J. Fox

CANDY VENDER

A TURKISH BARBER

STREET IN CONSTANTINOPLE

are at once distinct elevations and great ridges which blend at their tops. It is not everywhere easy to distinguish the valleys between the first, second, and third hills, since there man has most modified nature.

Few cities have equaled Constantinople in importance. None in ancient or modern times have exceeded it in dramatic interest. During centuries of the Middle Ages it was the foremost city of the world, surpassing every other in populousness, strength, and beauty and in the high development of its civilization. To the Mussulman it ranks next to Mecca, Medina, and Jerusalem. The Christian must regard it with still greater reverence. It was the first city distinctively Christian, erected by the first Christian emperor on the ruins of vanquished paganism.

COUNCILS OF THE UNDIVIDED CHURCH

Here, almost in sight of the dome of Sancta Sophia, was wrought out the theology of the undivided church by her ecumenical councils. Here, in the fourth and fifth centuries, preached that galaxy of pulpit orators, the Chrysostoms and Gregorys, who in biblical and pious eloquence have never been surpassed. Here, ever since its foundation, is the chief seat of that venerable communion which alone of Christian churches uses no mere translation, crude and imperfect, of the Gospels in its worship, but the vernacular of whose ritual is even now daily chanted in the very language in which the New Testament was inspired. Here were developed the first principles of Byzantine art, which as handmaid of the Christian faith "has had more influence than any other in the church architecture of western Europe." Here was framed that marvelous Justinian Code, digest and compendium of all the laws known before, which, however modified, still survives and sways in all subsequent legislation. Here, in cloisters and libraries, while Europe was buried in barbarism, were preserved the precious volumes, and among her sons were being nursed the world-famous teachers to whom in their subsequent dispersion is commonly attributed the intellectual revival—the Renaissance.

During more than eleven hundred years after her consecration by Constantine, Constantinople yielded but once to foreign attack, when in the thirteenth century she was sacked by the Latin Crusaders. Many times assaulted by Persia, which, resurrected under her Sassanide kings, had reached a height of prosperity and power ancient Persia hardly attained; by the Arabs, in all the fiery glow of a new and till then triumphant faith; by innumerable hosts constantly renewed, of Goths, Avars, Bulgarians, and Slavonians—enemies as powerful and relentless as ever thundered at the gates of Rome—Constantinople vanquished them all, surrendering only at last to Sultan Mohammed II and the Ottomans. No other capital presents so sublime a spectacle during the Middle Ages. Alone of all the cities of Europe, she towered erect, unsubmerged amid the wild torrents of invasion. This record is the highest tribute both to the preëminent superiority of her position and to the skill and heroism of her sons.

THE UNRIVALED BOSPHORUS

Although

"The world is rich in streams,
Renowned in song and story,
Whose waters murmur to our dreams
Of human love and glory,"

there is not one among them all which rivals the Bosphorus, on whose banks the great capital is located.

To its associations it owes in part its undisputed preëminence. There is hardly a nation of the civilized world whose blood has not mingled with its waters. There is hardly a faith, hardly a heresy, which by the devotion of its adherents and martyrs has not hallowed its banks. Associations the most dissimilar, the most incongruous, the most distant, elbow one another in its every hamlet and village. The German Emperor, William II, in 1889 disembarks at the same spot which tradition makes the landing place of that other youthful leader, Jason, with his Argonauts, in that sublime voyage of the fourteenth century before Christ.

So sharply do its submarine banks descend that large vessels hugging the land too closely, though in deep water, often

TURKISH SOLDIERS AND SAILORS: CONSTANTINOPLE

Photos by H. G. Dwight

ISLANDERS OF THE MARMORA: CONSTANTINOPLE

"In the polyglot multitude, he who speaks but a couple of languages is considered ignorant and is often helpless. The common handbills and notices are usually printed in four. The sign over a cobbler's shop may be painted in the languages of six different nations" (see page 460).

Photo from Edwin A. Grosvenor

ONE OF THE MODERN MOSQUES IN CONSTANTINOPLE, THE MOSQUE NOURI OSMANIEH, COMPLETED IN 1754

"It is remarkable that so many cities of first importance are situated on the same great parallel. That narrow belt, hardly more than 90 miles in breadth, which encircles the globe between 40° 20′ and 41° 50′ in north latitude, includes Constantinople, Rome the Eternal City, Madrid, the political and literary capital of Spain, and on this side the ocean the two metropolises, unrivaled in the Western Hemisphere, New York and Chicago. One traveling directly east from New York City Hall for a distance of 5,622 miles would pass through the southern suburbs of Constantinople" (see page 459).

run their bowsprits and yards into houses on the shore. Many a shipmaster has paid damages for such unceremonious intrusion not only of his rigging, but of his sailors, into drawing-rooms and chambers along the Bosphorus. I remember, when making a good-by call upon an English lady at Candili, her matter-of-fact apology for the torn casements of the windows and the disordered appearance of the room. She said that a Greek vessel ran into the house that morning, and that the carpenters had not come to make repairs (see page 438).

A NARROW WATERWAY

The Bosphorus contains few dangerous submarine rocks or shoals. The locality of these few is indicated by lighthouses or buoys. The water is only slightly tinged with salt and is marvelously clear. The sands, glittering apparently near the surface, may be 20 feet below.

On a map of whatever scale, each of those familiar straits, which cleave lands and continents asunder, seems hardly more than a silvery thread. Yet, as one sails over their famous waters, the opposing shores on either hand sometimes appear far away. The Strait of Gibraltar, which wrests Africa from Europe, is 16 miles wide; that of Messina, forcing its way between Italy and Sicily, is from 2 to 12; that of Bonifacio, which, like a blade of steel, cuts Corsica and Sardinia apart, is 7 miles in width at its most contracted point; even the Dardanelles expands from over one mile to four.

But the illusion as to distances created by the map is reality as to the Bosphorus. Off Buyoukdereh, where it attains its largest breadth, its hemmed-in waters broaden to only 9,838 feet, or about one and four-fifths miles. Between Roumeli Hissar and Anadoli Hissar they shrink to one-sixth of these dimensions, or to 1,641 feet (see page 439).

THE BATTLE OF THE WINDS

By a strange phenomenon, if the south wind prevails the superficial current is reversed, though the inferior current continues its accustomed course. Then the waters on the surface are piled tumultuously back upon one another, and the quays, which are several feet above the ordinary Bosphorus level, are flooded and perhaps made impassable. At such times caiques and smaller boats do not dare to venture upon the tempestuous surface.

Sometimes a strong wind blows northward from the Marmora, and another wind as strong blows with equal violence southward from the Black Sea. Then, as one gazes from some central point like Roumeli Hissar, he beholds ships under full sail majestically approaching each other from both directions till at last they are only two or three miles apart. Between them lies a belt of moveless sea, into which they are forced and on which they drift helplessly about and perhaps crash into each other's sides. This is a duel royal between Boreas and Notus and may continue for hours. Gradually the zone of calm is forced north or south. At last one wind withdraws like a defeated champion from the arena. The ships which it has brought thus far drop their anchors and wait, or else hire one of the numerous steam-tugs which are paddling expectantly about. The ships which have come with the victorious wind triumphantly resume their course, and meanwhile their sailors mock and jeer their fellow-mariners, whose breeze has failed them.*

Of all its many descriptive epithets, ancient and modern, none have clung with more persistent tenacity than the simple, early adjective of "fishy" Bosphorus. Seventy edible varieties of fish, familiar to connoisseurs, sport in its waters. Some have their permanent haunts within the stream. The most are migratory. The instinct of the seasons moves them northward or southward with the birds. The strait is their only possible highway between the Black Sea and the Mediterranean, their summer and winter homes. From March until June and from August to December men, poised in the quaint perches high on piles above the water and constantly on the outlook, watch for the flash of their glid-

* The average annual temperature of the water is about 1½° Fahrenheit higher than that of the air. In winter it is 14½° higher; in spring, summer, and autumn it is 3¼°, 4°, and 1¾° less.

ing forms. The various fishy tribes, at intervals of days and in countless shoals, succeed one another. The watchers, trained by long experience, with sharp eyes pierce the crystal depths and know what fish are passing or are almost come. Then, the signal given, every advantageous spot is quickly blackened over with hundreds of fishing-boats, and their generous harvest never fails.

Would some Izaak Walton ask what are the classes and the habits of the swimming creatures, which thus today within the Bosphorus fall victims to the hook or spear or net? All this Aristotle best describes in his treatise upon the "Fishes," which he wrote more than 2,200 years ago.

"WHERE IS SANCTA SOPHIA?"

The first questions every stranger asks as his steamer rounds Seraglio Point from the Mormora or descends the Bosphorus from the Black Sea are: "Where is Sancta Sophia?" "Which is Sancta Sophia?" To catch the earliest possible glimpse of its outline the eye of every traveler is strained. Myths and legends told concerning it are devoured with eager interest. With rapt attention its walls and pillars and arches and mosaics are scanned. In after years, in the quiet of the stranger's home, it is the colossal form of Sancta Sophia which stands out most distinct on the canvas of Constantinople memories.

Nor is it strange. To many Constantinople means nothing but Sancta Sophia. To thousands who have never even heard of the city's wonderful walls, and who have never made a mind-picture of the Bosphorus, the name of its venerable cathedral is a familiar sound. Even to those who know it least it is the synonym of what is grandest, most glorious, most historic, and most sacred in the achievements of Christian architecture.

In one respect Sancta Sophia is unlike every other antiquarian monument of Constantinople. Those other antiquities of the city belong wholly to the past and have no future. The battered Theodosian walls can never withstand the shock of war again. Up the broken Serpent of Delphi, in the Hippodrome, no oracular response will ever pass to some future suppliant. Their part in the world's history is done. They are ancient, classic, hoary; but with each day becomes more remote the age for which they were formed and the purpose for which they were designed.

Sancta Sophia belongs to the past as well. In 537, a whole generation before the birth of Mohammed the Prophet, its great dome swept heavenward as sky-like as it does today; yet that church, we may believe, has a future as glorious as, perhaps more glorious than, its past.

MOHAMMED II AT HIS GREATEST

Sultan Mohammed II was never more profund, more philosophic, more truly great, than on the day of conquest. An Ottoman soldier, in the intoxication of victory or fanaticism, was destroying the mosaics in Sancta Sophia with his mace. "Let those things be!" the Conqueror cried. With a single blow he stretched the barbarian motionless at his feet. Then, in a lower tone, he added, so the historian declares, "Who knows but in another age they may serve another religion than that of Islam?" What the future of this cathedral is the wildest speculation cannot grasp. In the legend of the common people, a Greek priest was celebrating the liturgy when the exultant army of the Sultan burst through the doors. Taking the cross in his hand, the priest slowly withdrew to one of the secret chambers, and there, with the cross, is waiting still.

The Church of Sancta Sophia rises on the crest and western side of the first hill. It stands just outside the limits of ancient Byzantium. Today its confused and shapeless pile, bounded by four massive minarets, encased in gigantic buttresses, made grotesque by wide painted stripes of alternate yellow and white, fills the horizon of the eye from every direction.

HISTORY LIKE ST. PETER'S

Like Saint Peter's at Rome, it traces its history by an unbroken chain back to Constantine himself. It is a fit coincidence that those two cathedrals—one of the vastest sanctuary of Western Cathol-

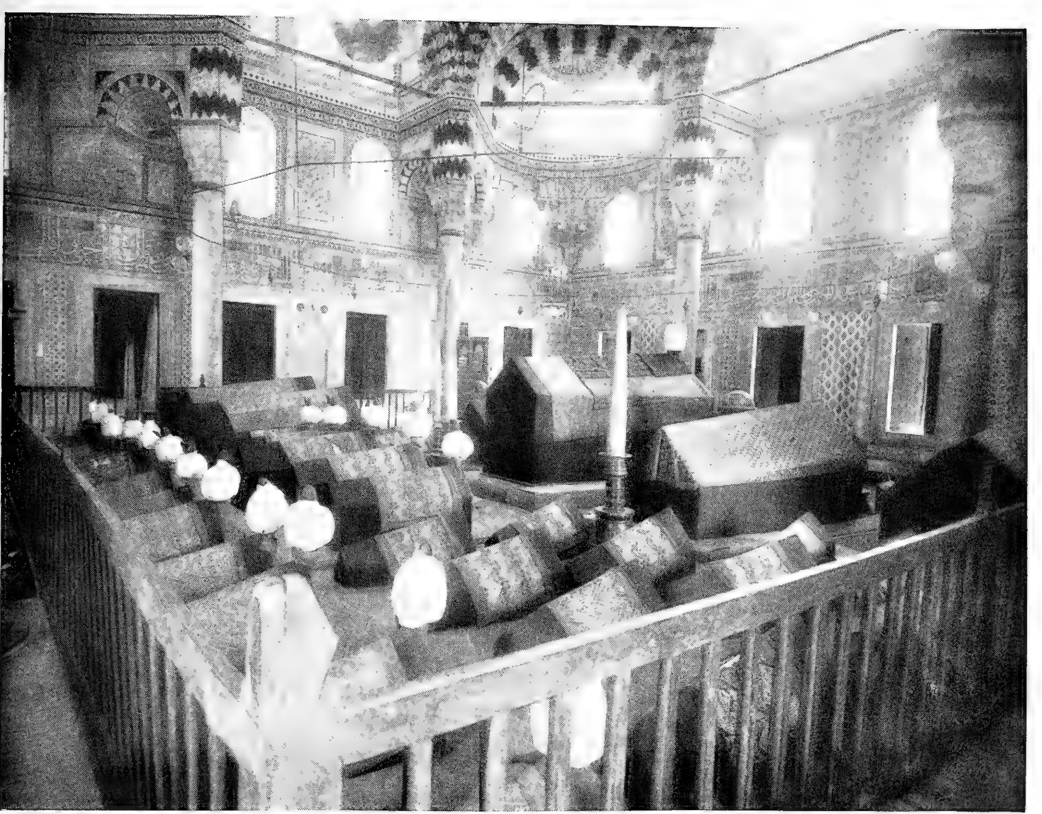


Photo from Edwin A. Grosvenor

THE MAUSOLEUM OF SULTAN SELIM II AT CONSTANTINOPLE

Beside the Sultan is his favorite wife, Nourban Sultana. Under the same roof lie his three daughters; also the five sons—Mohammed, Souleïman, Moustapha, Djeanghir, and Abdullah—all bowstrung in that same dreadful night by their brother, Mourad III, on his accession. Here, too, are the remains of twenty-one daughters and of thirteen sons of their brother and murderer.

icism and the other of Eastern Orthodoxy—should both have been first erected by the first Christian emperor. It is another coincidence that neither was intended by its founder to be the metropolitan church of either the new or the ancient Rome. That distinction in Constantinople was intended for the Church of Saint Irene, and in Rome for that of Saint John Lateranus.

Its foundations were laid in 326, on the site of a pagan temple, in the presence of Constantine himself, a few months after his return from the Council of Nice.

It was concentrated to the divine Sophia, or Wisdom of the Logos, or Word of God—that is, to Christ himself.

When it was destroyed by fire in 532, Justinian determined to restore it on a scale of magnificence such as the world had never beheld. It should be expiation in stone of his own mistakes and sins as a sovereign. It should commemorate the overthrow of disorder and rebellion and the pacification of the capital and Empire. In it his own glory should be embodied, and succeeding ages should there behold the enduring monument of his reign. It should preserve as well the memory of his Empress Theodora, whose noble courage had saved his imperiled throne, whose image was stamped with his upon every coin, and whose name was joined with his in every decree. It should be worthy of them, its founders and—as far as lay in seemingly limitless human resources and in the highest human skill—of the Saviour for whose worship it was designed.

Photo from Edwin A. Grosvenor

THE HISTORIC LAND WALLS OF CONSTANTINOPLE WHICH FOR 1,000 YEARS DEFIED COUNTLESS ASSAULTS (SEE PAGE 464)

Around the land walls stretched the moat, which was from 60 to 70 feet wide and nowhere less than 30 feet in depth. It was lined on both sides by

Photo from Edwin A. Grosvenor

THE LONG-FAMED GOLDEN GATE THROUGH WHICH THE TURKS BELIEVE A CHRISTIAN CONQUEROR WILL SOME DAY ENTER CONSTANTINOPLE

This gate was never opened, except for triumphal processions. After the capture of Constantinople by Mohammed, in 1453, the gate was closed by special order of the Conqueror. The Turks regard the gate with dread, believing that through it some future Christian conqueror is to take possession of the city.

THE MASTER ARCHITECT

Anthemios of Tralles, the most skillful architect and engineer of the century, the first of the Greeks to utilize the power of steam—"a man," Agathias says, "able to imitate earthquakes and thunderbolts"—was chosen architect-in-chief. With him were associated Isidoros of Miletus and Ignatios the restorer of the Augustæum, architects of almost equal ability and fame.

An angel was considered to have revealed the plan of Sancta Sophia to the Emperor in a dream, not indeed in its entirety and elaborateness of detail, but the one idea, the main conception, which afterward the architects were to develop and clothe with form. This conception was that of a dome, of the greatest possible diameter, made the segment of the largest possible circle, elevated to a dizzy height and sustained by the least possible support. The revelation did not consist in the mere conception of a dome—which was no new idea, though afterward almost monopolized by a single school—but in the most perfect combination of these conditions. Anthemios was to be no mere developer or servile imitator of any system then existent. Byzantine architecture was to spring into its fullest development almost at a bound. Sancta Sophia was "at once the herald and culminator of a new style."

A MARVELOUS CREATION

Proclamations were sent all over the Empire announcing the work Justinian had begun and inviting the coöperation and assistance of the faithful and devout. Patriotism, personal ambition, desire of the Emperor's favor, hope of preferment,

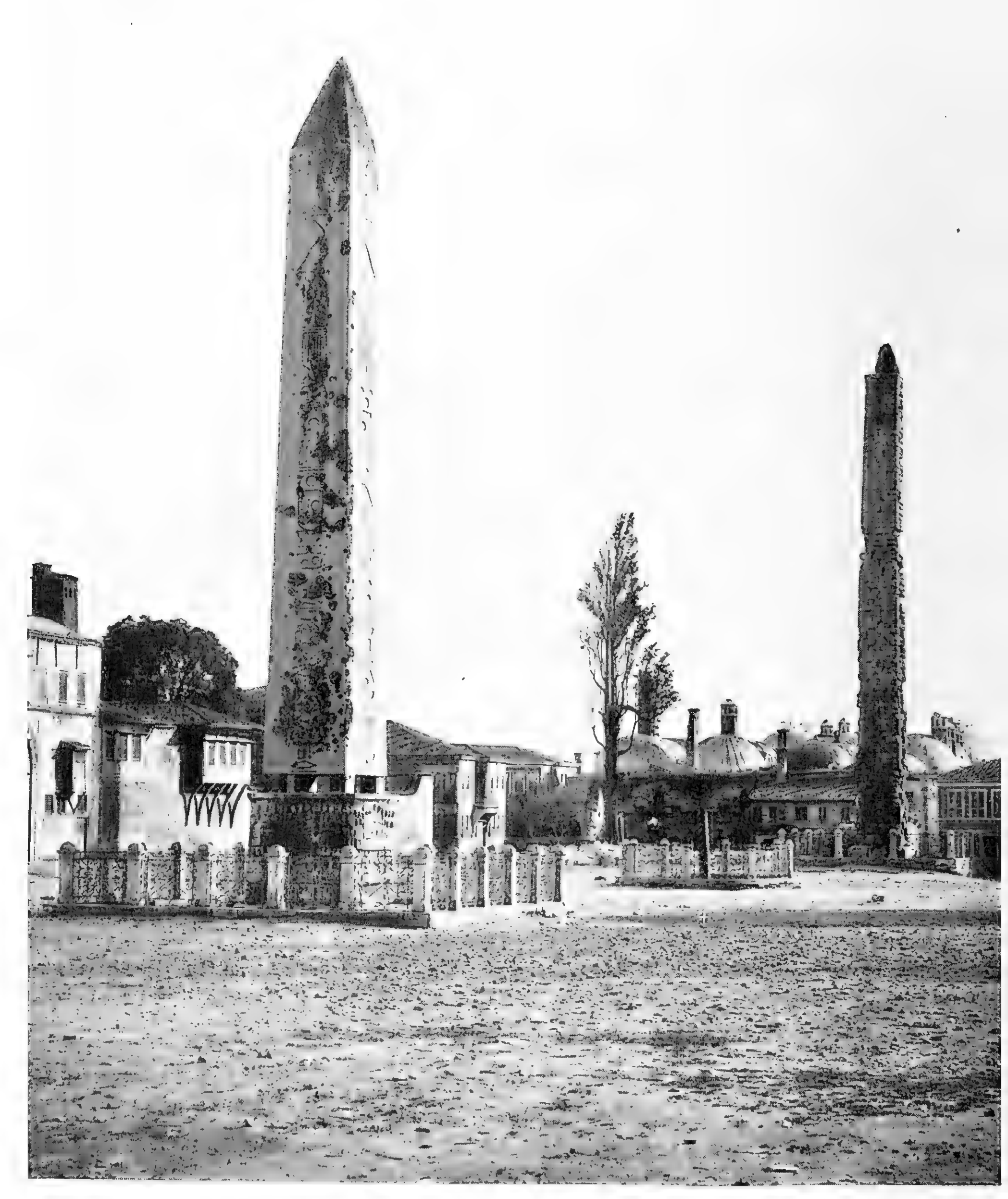
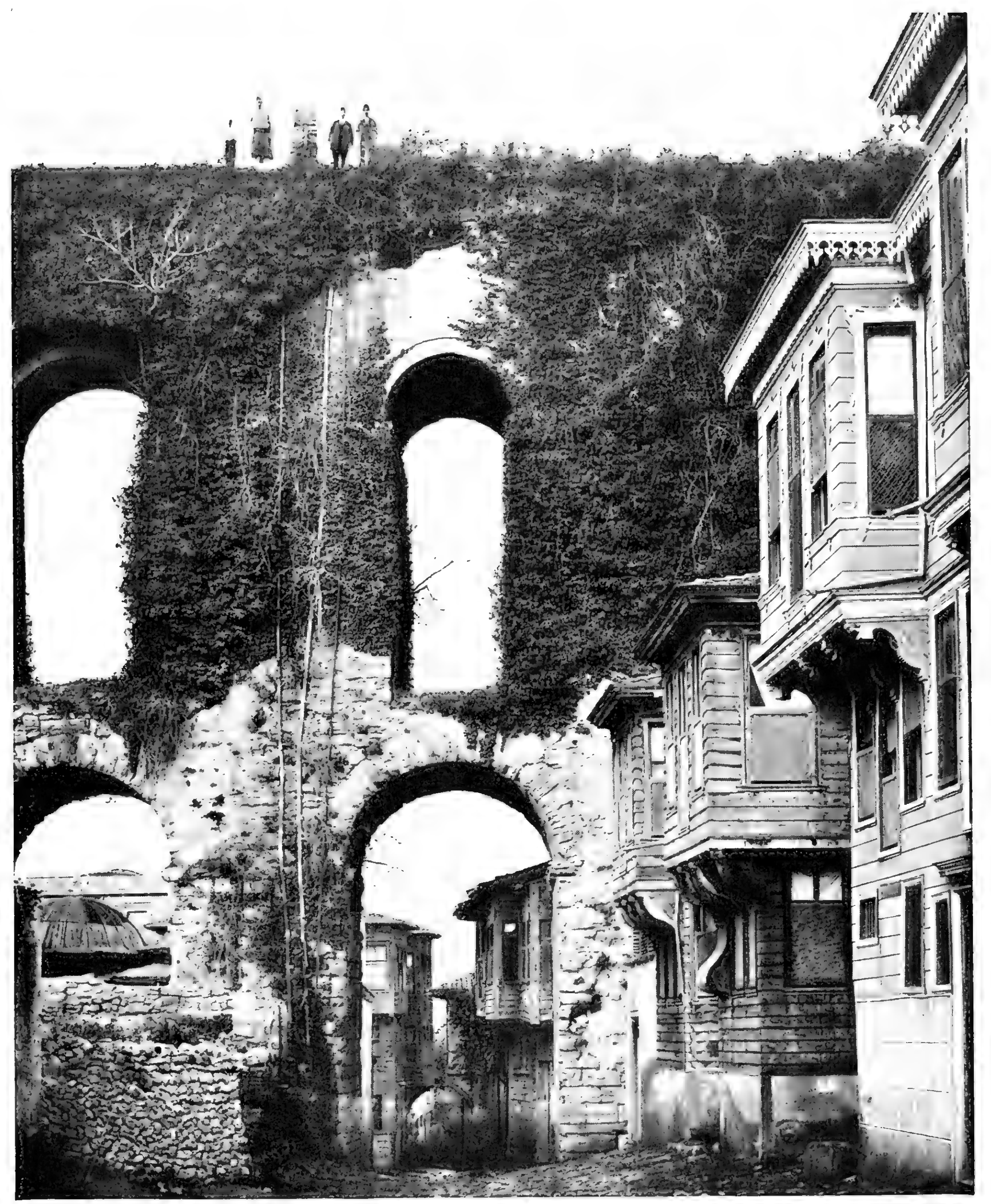


Photo from Edwin A. Grosvenor

TWO OF THE MOST HISTORIC MONUMENTS OF THE WORLD

The obelisk was brought to Constantinople by Constantine, who is nearer in time to us than to the Egyptian king who had it cut out of the quarries of the Upper Nile. It was raised in Constantinople 1,530 years ago, to mark the exact center of the world-renowned Hippodrome, which dwarfed every building throughout the Roman East. Just to the right of the center of the picture, above the +, may be seen the coils of the bronze serpent of Delphi, which was also brought to the city by Constantine the Great. This bronze serpent was erected at Delphi to commemorate the defeat of the Persian hordes at the battle of Platæa, several hundred years before Christ. Upon the coils can still be discerned the names of 19 of the immortal cities which saved Greek civilization from destruction by Xerxes.



THE AQUEDUCT OF VALENS, IN CONSTANTINOPLE

In the erection and various restorations of this stately aqueduct, the greatest among the pagan, Christian, and Moslem sovereigns of Constantinople seem laboring as contemporaries, shoulder to shoulder, though hundreds of years apart. As seen today, it reveals, in its unshaken strength and quaint proportions, the architectural magnificence and childish caprice of Sultan Souleïman I the Sublime. Absorbed in its restoration, he used to pray, the Ottoman historians state, that his life might be prolonged until it was complete. But no sooner was it finished than he ordered its immediate destruction, since it obstructed the view of Shahzadeh Djami, his favorite mosque. Its present abrupt appearance at either end results from the demolition thus begun but not fully accomplished. The hewn stone arches, twenty feet in thickness, are the work of the Byzantine emperors, while those in brick above date from Souleïman. The water it conveyed, considered the purest in the city, was long reserved for the seraglio and now largely supplies the eastern quarters of Stamboul.

everything combined with half-pagan superstition and genuine piety to aid as far as they could. We speak of the Sancta Sophia of Justinian. It is fitting that the great fabric should be peculiarly illustrative of his fame; but it is rather the outcome and creation of a people in its most gilded age. It is rather the burst of a century's enthusiasm than the slow construction of imperial power. In the edifice centered then, as has centered ever since, the whole heart of the Byzantine Empire.

Contributions poured in from Europe, Asia, and Africa, even from remotest provinces. The rich gave of their abundance. More than one poor widow cast in all that she had. Imperial, national, and private treasures were lavished like water, as the work progressed. When earthly resources failed, it was thought that celestial aid was afforded. An angel, disguised as a donkey-boy—a form in which angels are seldom met—was reported to have led a string of mules to secret vaults and to have brought them back with their baskets laden with gold. Justinian, a laborer's tools in his hands, toiled with the workmen. The angelic assistants were as tireless as he. At night, when all were asleep but the watchmen, the walls continued to grow by invisible hands.

MIRACULOUS INTERPOSITIONS

Once, when the men were taking their noonday rest, a man in white raiment suddenly appeared to the boy who watched their tools and told him to hurry the men back to their work. The boy hesitating to leave his post, the stranger said, "I will stay here till you come back." The boy went on his errand, but before he returned the story was told the Emperor. He declared the man in white to be an angel. He gave the boy much money and dispatched him at once to a distant province of the Empire, binding him under most solemn oaths never to return. The humble classes believe that somewhere around Sancta Sophia the outwitted angel is waiting for that boy.

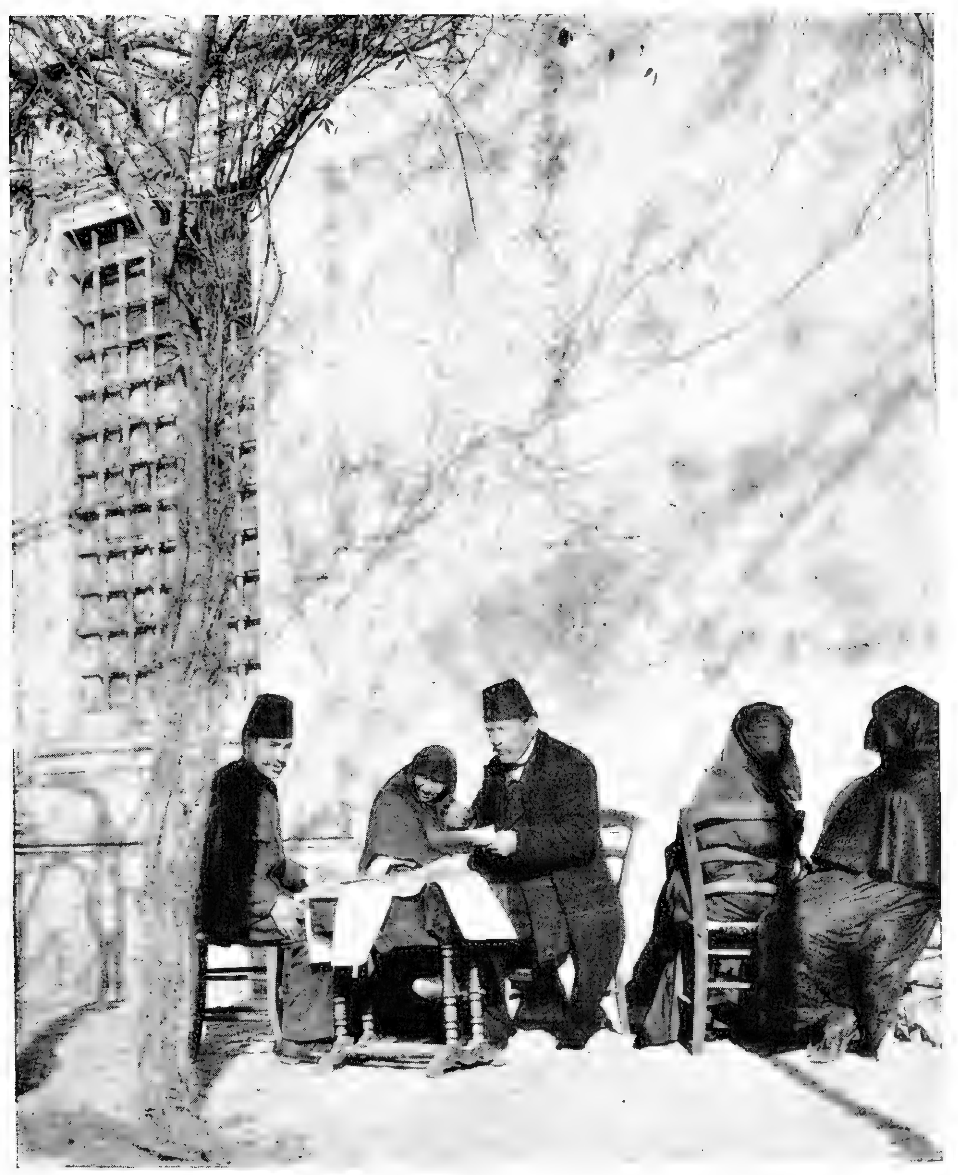
It was believed that celestial music cheered the workmen whenever they grew weary. An auspicious dream never failed the Emperor when in doubt as to some perplexing question of detail; thus when the architects could not agree as to the shape of the apse, an angel in a vision showed the Emperor that it must be triple—its present form—in acknowledgment of the Holy Trinity. The many legends, still affectionately cherished and repeated, "prove," as says Bayet, "how this gigantic enterprise wrought itself into the popular imagination."

"SOLOMON, I HAVE CONQUERED THEE!"

The church was ready for consecration on December 24, 537. The grand procession started from the Church of Saint Anastasia and wound its solemn way by the Hippodrome and the Great Palace, through the Augustæum, to the southern door of the inner narthex. There Justinian removed his crown—never so gladly laid aside as then—and placed it in the hands of the Patriarch Menas. Then alone he passed through the central door, and alone advanced as far as the ambon, or pulpit. From a soul full of the completed magnificence and of bursting gratitude he uttered the exclamation which will be remembered as long as Sancta Sophia endures, and so loud that they who had not crossed the threshold heard his exultant accents—"Glory to God, who has deemed me worthy to accomplish such an undertaking! Solomon, I have conquered thee!" **Σολομὸν νενίκησά σε.** As he spoke he was standing beside a great mosaic wherein Solomon was represented looking round in speechless, wondering admiration.

That day the entire population of the metropolis feasted as guests of the Emperor. Moreover, 30,000 measures of wheat and several hundredweight of gold were distributed among the poor. On Christmas morning the church was thrown open to public worship. The thanksgiving and rejoicings continued through 14 days.

In the marvelously brief space of less than six years the entire fabric had arisen from its ashes and stood forth majestic and complete. Such rapid achievement would have been impossible had not the pious enthusiasm of the nation equaled that of its Emperor. Saint Peter's at Rome required 120 years for building; Saint Paul's in London, 35 years; Notre



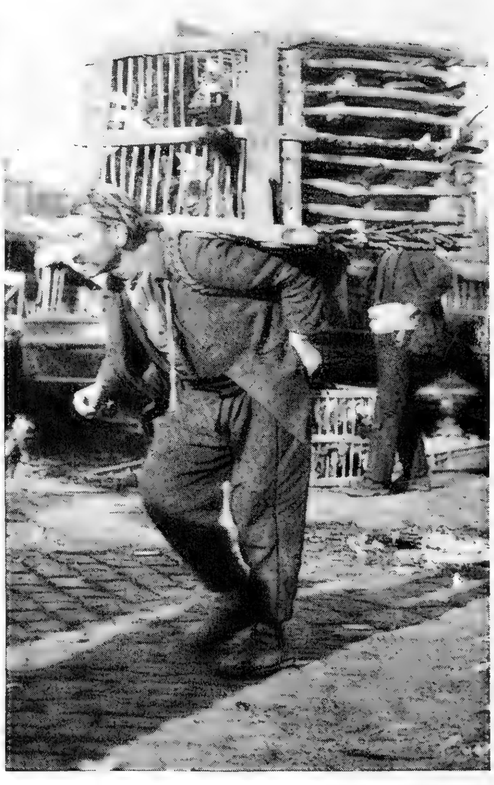
THE LETTER-WRITER IN CONSTANTINOPLE

Most of the Turks cannot write, and are forced to use this means as a substitute for their lack of education. Not only are prosaic or business matters transacted in this way, but also for a small consideration the most tender and impassioned love letters are composed, while the less imaginative lover sits and waits. The ladies, too, have need of his services, and, despite the risk, enjoy the novelty of communicating with those outside of their forbidden haremlik.—Photo and note by MORTIMER J. FOX.

Dame at Paris, 72 years; Milan Cathedral, over 500 years; the Cathedral of Cologne, 615 years; Sancta Sophia, finished centuries before those other venerable Christian temples were begun, not quite six years!

THE MOST COSTLY EDIFICE EVER BUILT BY CHRISTIAN HANDS

The cost must remain very largely a matter of conjecture. Probably the careful and laborious estimate of the Greek historian, Professor Paparrigopoulos, is



THE EXPRESSMAN IN CONSTANTINOPLE

The porters, or hamals, as they are called, have strongly organized unions, entirely in control of the Kurds, a fierce, untamed race, who in their lands in Asia Minor acknowledge no law except that of might. These hamals, with bent backs, proceed at a stolid, animal-like pace, and carry everything from crates of chickens to upright pianos.—Photos and note by Mortimer J. Fox.

near the truth. He reckons the value or cost of ground, material, labor, ornaments, and church utensils at about 324,000,000 Greek drachmas of today, or about $64,000,000. The common estimate of the cost of Saint Peter's is 240,000,000 francs, or less than $48,000,000. It must be remembered that no other Christian church has at all approached Sancta Sophia in the variety and preciousness of its marbles, and, above all, in the prodigal employment of silver, gold, and precious stones in decoration and for the sacred vessels. The expenditure for Sancta Sophia was doubtless greater than for any other sanctuary ever reared by a Christian people to the glory of their God.

It is utterly impossible for us today to picture, even faintly, what that temple must have been as Justinian beheld it. All that the power, the wealth, the art, the skill, and the devotion of the civilized world could create was there; so it might well gleam and stretch away and soar before his enraptured gaze.

Since then numerous buttresses, great and small, high and low, and buildings of every sort have been piled around it, and muffle and disfigure its form. The light of many windows has been obstructed and many others have been closed. Through Mussulman devotion, the mosaic pictures, though preserved, have been covered over, and the crosses and other Christian emblems defaced.

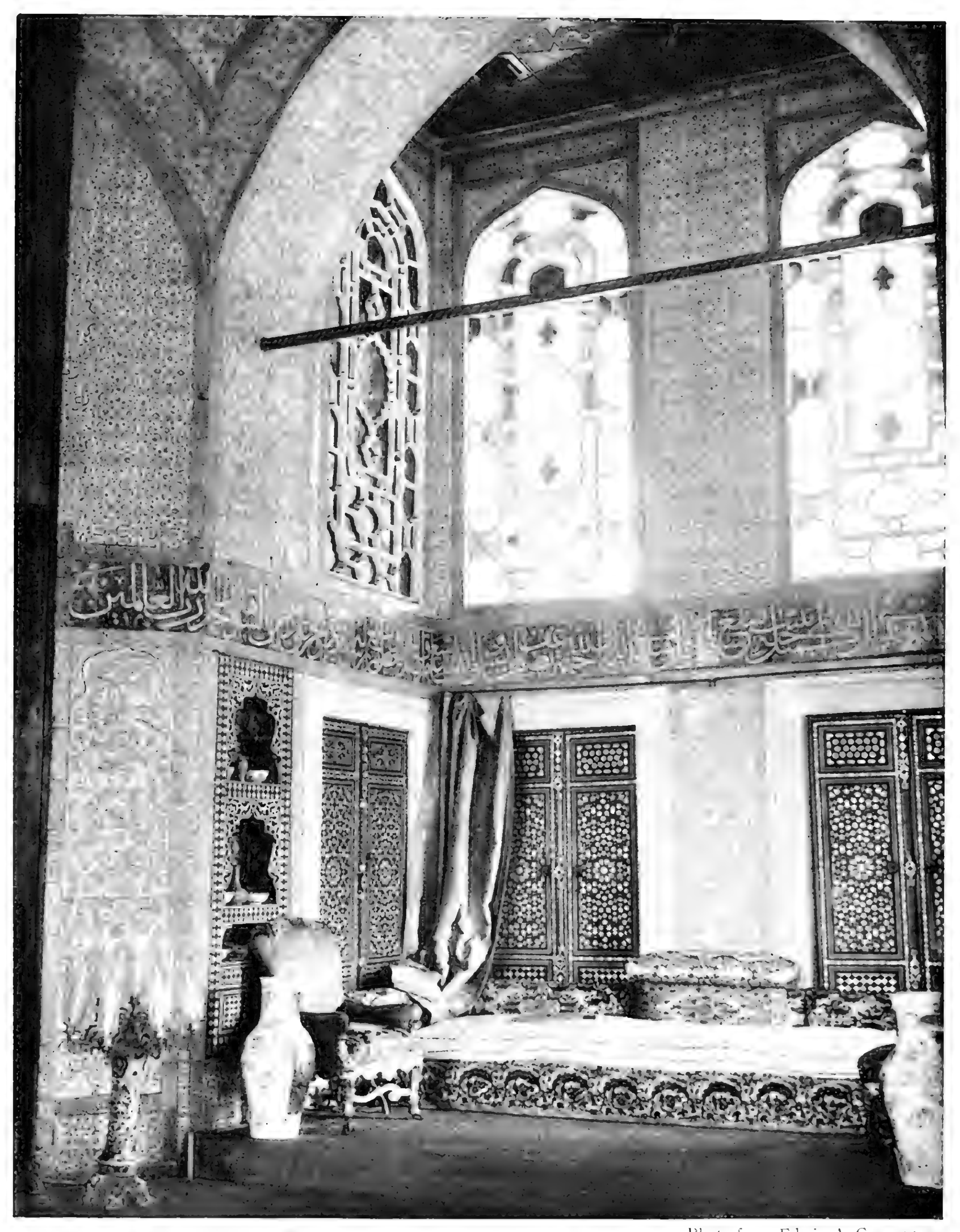


Photo from Edwin A. Grosvenor

THE INTERIOR OF THE KIOSK OF BAGDAD, CONSTANTINOPLE

Photo from Edwin A. Grosvenor

SANCTA SOPHIA: THE MOST COSTLY EDIFICE EVER BUILT BY CHRISTIAN HANDS

"To many Constantinople means nothing but Sancta Sophia. To thousands who have never even heard of the city's wonderful walls, and who have never made a mind-picture of the Bosphorus, the name of its venerable cathedral is a familiar sound. Even to those who know it least it is the synonym of what is grandest, most glorious, most historic, and most sacred in the achievements of Christian architecture" (see page 468).

The countless priceless ornaments of gold and silver have disappeared. The decorations and ecclesiastical furniture added by the Ottomans are incongruous with and mar the whole architectural design of the edifice. Above all must one remember that Sancta Sophia is centuries older than the sanctuaries with which it is commonly compared, and that it has been worn by the feet and dimmed by the dust of countless throngs of worshipers during more than 1,350 years.

THE PERFECTION OF THE DOME

The ethereal dome was and is the unrivaled masterpiece of Sancta Sophia. Forty-five generations of progressive civilization and endeavor have since passed away, but it has never been surpassed or equaled.

The relative degree of architectural perfection among domes may be fairly gauged by the following test: Let fall a perpendicular from the summit of the dome to the plane which passes through its base; make this perpendicular the numerator and make the diameter of the dome the denominator, in the form of a fraction; all other things being equal, the smaller the fraction the more perfect is the dome. The diameter of the dome of Sancta Sophia is 108 feet; its perpendicular, the distance from its apex to its base, is 46 feet; hence 46/108, or about 6/14, will represent its fraction. The diameter of the dome of Saint Peter's is 139 feet, but its perpendicular is 190 feet; its fraction, therefore, is 190/139, or about 19/14. The diameter of the dome of the Pantheon, now Santa Maria Rotonda, is 143½ feet, but its perpendicular is the same; hence its fraction is 14/14. So the relative fractions are: Saint Peter's, 19/14; the Pantheon, 14/14; Sancta Sophia's, 6/14.

These details are absolutely necessary to a comprehension of that which constitutes the peerless distinction of Sancta Sophia. Those two wider domes, stupendous masterpieces as they are, are eclipsed in beauty as well as daring by that sky-mocking vault which Anthemios threw into the air 1,360 years ago. In Saint Peter's at Rome the dome is complement of the building and not its major design. There the dome exists for the sake of the building and not the building for the dome. In Sancta Sophia this is all reversed. Here the dome is the end, and the structure on which it rests is but the means to uphold it and lift it near the sky.

The historical importance of Sancta Sophia is almost boundless. No other church in any land, no other structure reared in any age by human genius, has held so large a place in a nation's life. "In its name is centered the entire duration of Byzantine history." The Cathedral of Rheims, Notre Dame, Westminster Abbey, Saint Peter's, the Parthenon, tenanted and crowded as they are by thrilling associations, evoke not so countless memories. This is the official sanctuary of an empire wherein church and state were one and which through more than 1,100 years was the heir and equal of Rome.

RUSSIA'S DEBT TO SANCTA SOPHIA

There, beside the Ephesian column, stood, in 987, the pagan envoys of the Russian Vladimir, who had been sent over the world "in search of the true religion." The resplendent majesty of the temple, the venerable files of priests in gorgeous sacerdotal robes, the celestial chanting of the choir, the mounting clouds of incense, the reverent hush of bending thousands—all the mystery of an unknown and sense-subduing ritual bore captive the untutored minds of those rustic children of the North. As their historian Karamsin declares: "This temple seemed to them the abode of Almighty God himself, where he manifested his glory direct to mortal eyes."

So the envoys went back to their Slavonian prince and told their story in the following words: "We knew not if we were not already in heaven. Verily, on earth one could never find such riches and such magnificence. We can only believe that one was surely in the presence of God, and that the worship of all other countries is thereby far surpassed." Vladimir accepted the narration and the faith of his envoys. He was baptized as the spiritual son of the emperors Basil II and Constantine IX, and was soon close bound to them by bonds of mar-

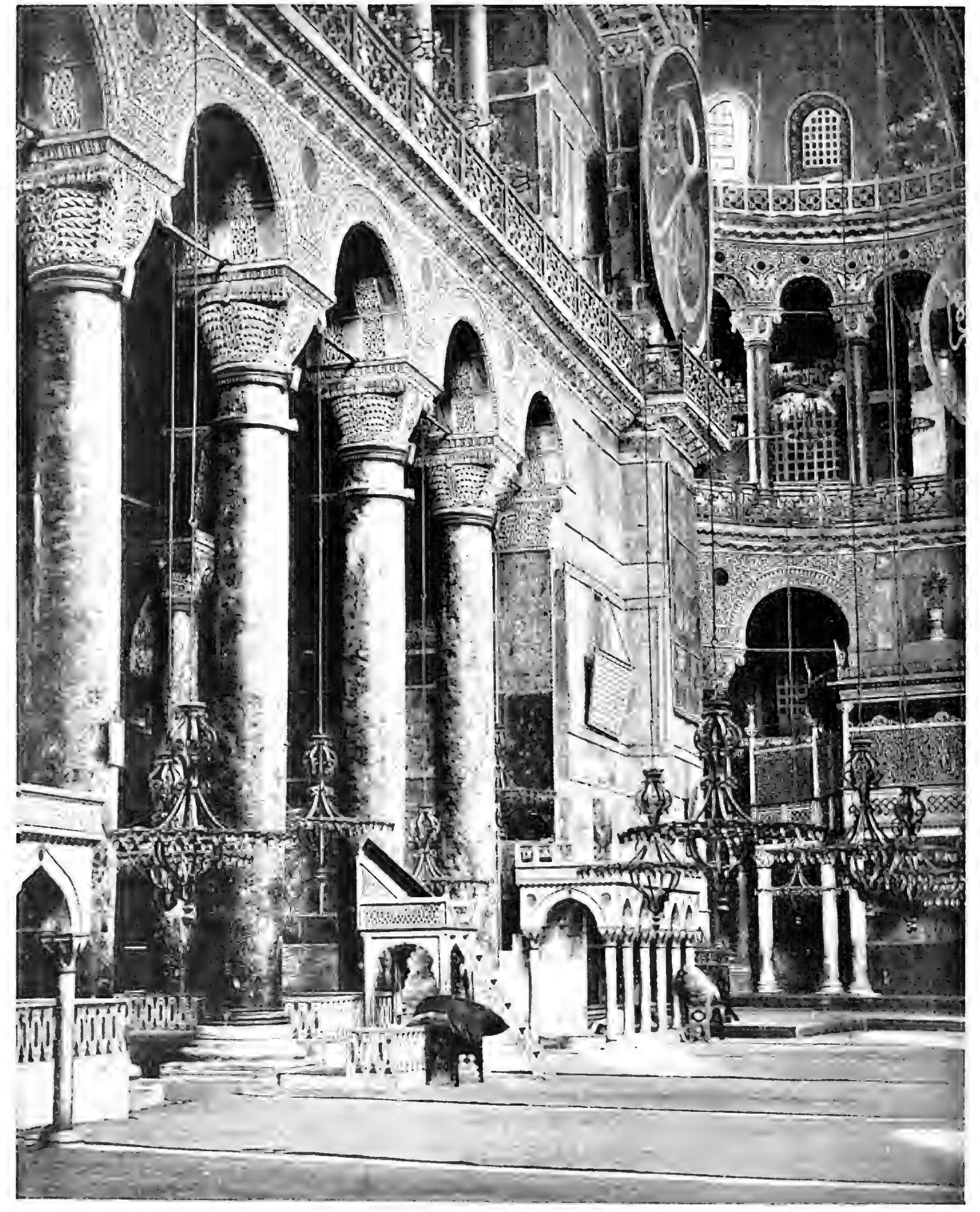


Photo from Edwin A. Grosvenor

FOUR OF THE EIGHT SPLENDID SERPENTINE COLUMNS IN SANCTA SOPHIA BROUGHT FROM DIANA'S EPHESIAN TEMPLE

There are 107 columns in Sancta Sophia which were gathered from the most famous temples of the classic world. "Despite all their efforts to transform Sancta Sophia, its Christian characteristics can be effaced only by its own destruction. Its structural form has always resisted the requirements of the Moslem ritual. It resembles a mighty captive, ever mutely protesting against his chains" (see page 482).

riage as the wedded husband of their sister, the Princess Anna.

Vladimir and the Russians ever since, grateful that from Constantinople they had received the boon of their holy faith, clung to the great Mother Church and their Christian coreligionists with filial and fraternal fidelity. Beneath the scepter of the Czar the worship is the same today as that which carried captive the envoys in Sancta Sophia.

On July 16, 1054, while the church was thronged by the Orthodox clergy and people, Cardinal Humbert and two other Latin bishops, legates of the Pope, walked steadily up the nave till they reached the altar in the holy place. Then, standing under the colossal mosaic picture of the meek-eyed Christ, whose arms were stretched in blessing, they laid upon the altar the papal excommunication of the Orthodox Eastern Church and the anathema against the seven deadly heresies of the Greeks, devoting them and all who shared their doctrines "to the eternal society of the devil and his angels." Then "they strode out, shaking the dust from their feet and crying, 'Let God see and judge.' "

Thus the seamless robe was rent; the hitherto undivided Christian Church was torn in twain and has never since been reunited. The Protestant may ill determine or appreciate the rights and wrongs of the contending parties, of Michael Keroularios the Patriarch, or of Leo IX the Pope; the points at issue, so vast to them, may appear trivial and of almost microscopic littleness today. But it may be doubted if any act more disastrous to Europe, and above all to Eastern Christianity, was ever performed than this on which the silent walls of Sancta Sophia looked down. Well may Mathas, Bishop of Thera, exclaim: "Unutterably frightful have been the consequences of this schism."

Here, on Easter morning, in April, 1204, the warriors of the Fourth Crusade, red-handed from their conquest of the city, caroused and feasted. A courtesan, seated on the patriarchal throne, sang obscene songs in nasal tones to mock the chanting of the Greeks. Meanwhile the drunken soldiers indulged in nameless orgies with women of the street, and the fane resounded with their indecent and satanic glee. In derision the consecrated bread and wine were mixed with blood and dung. Meanwhile strings of beasts of burden were driven in, covered with priestly robes and loaded with plunder. The shocked and sorrowing Pope Innocent III reproached the Crusaders with bitter words and declared that "the Greek Church would see in the Latins only treason and works of darkness and loathe them like dogs." The undying memory of those deeds lingers among the Greek inhabitants of Constantinople to this day. So it is not strange that, when the death-throes of the Byzantine Empire had begun, many a fanatic Greek looked with equal aversion upon a doctrine or a soldier from the West.

SORROWS OF THE BRIDE OF COUNT BALDWIN

On May 26, 1204, Baldwin, Count of Flanders and Hainault, having been tossed in Teutonic fashion upon the shield, was crowned in Sancta Sophia first Latin Emperor of the East. Twelve months afterward the cathedral afforded a splendid sepulcher to the remains of Dandolo, the Doge of Venice, the real brain of the Fourth Crusade. It was he who prostituted its piety to mere material advantage and drowned remembrance of its earlier, loftier aim—recovery of the Holy Tomb and the Holy Land—in the conquest and sack of a Christian capital. Though dying at the age of 97, his physical and mental powers continued unabated to the last.

A few months later the cathedral doors swung open, as the portal of a mighty tomb, to receive a gentler and more appealing tenant. Mary, the bride of Baldwin, had remained at home when her just-wedded husband departed on his wars. Romantic and loving, she had besought in vain that she might go with him and share his dangers. Afterward she had embarked for Constantinople that she might share his throne. Her ship, driven from its course, was wrecked in Palestine. Only after weary wanderings and fearful experiences did she reach the capital.

No husband was there to greet the worn-out wife. Baldwin, made prisoner

in battle by Joannice, King of the Bulgarians, had been put to death, and his skull, lined with gold, was serving as a drinking-cup to his savage conqueror. Hopeless and broken-hearted, nothing was left the wanderer save to sicken and die. The pathos of her story redeems some of the coarser horrors of the Fourth Crusade, and makes it meet that she should rest at last within that most regal pile where she had dreamed of being crowned by her husband's hands.

CONSTANTINE'S LAST COMMUNION

There is nothing more pathetic in the long, troubled annals of the Eastern Empire than the night before its glorious fall. On May 28, 1453, an hour before midnight, Constantine came once more to Sancta Sophia. The sacrament was administered, but by Romish hands, to him and to his immortal band, as to the dying. He knew, and so did each in that silent company, that if they were faithful unto death the sands of their earthly life had less than 24 hours to run. No hope of victory then flickered in that solemn scene. No less grand was it than Leonidas and the Spartans at Thermopylæ. All equal in that crucial hour, the Emperor, that he might be absolved by all, begged the forgiveness of any whom in his brief reign he might have unwittingly wronged. The mail-clad men were not ashamed to weep, and their answering sobs alone broke the stillness. Then the last Byzantine emperor crossed the threshold that for centuries no Christian sovereign was to tread.

On the following day Sancta Sophia was packed with a throng such as it had never seen before. Not that the concourse was more vast, but a common agony filled the souls of all. Some were indeed clinging to the ancient legend that when a victorious enemy reached the Column of Constantine an angel would place a flaming sword in the hand of a little child, who forthwith would drive back the invaders. The Ottomans beat open the doors of the southern vestibule, whereon may still be seen the marks of their impatient violence. The crowded mob of refugees, paralyzed with horror, offered no resistance. No blood was shed, either of conquered or conqueror. No violence was used. The half-dead captives—ascetic monk and maiden on whose veiled face the sun had hardly shone, high-born lady and kitchen scullion, patrician and beggar—were bound together in couples and driven forth in long files to be sold as slaves.

THE OTTOMANS' DEVOTION

The Ottomans regard Sancta Sophia with the utmost reverence. Therein they but follow the example of the illustrious Conqueror, whose eager steps first turned hither after his hard-won victory and whose first official act in his blood-bought capital was its conversion into a mosque. Alone of all churches submitted to Islam, it retains its Christian name, the Aya Sofia of the Moslems being but the literal rendering of the Ἁγία Σοφία of the Greeks.

Despite all their efforts to transform Sancta Sophia, its Christian characteristics can be effaced only by its own destruction. Its structural form has always resisted the requirements of the Moslem ritual. It resembles a mighty captive, ever mutely protesting against his chains. The long rows of prayer carpets stretch in diagonal lines, inharmonious, across the floor, and the devotees, facing Mecca, are forced to bend in an unnatural direction toward the corner of the church.

CHRIST'S IMAGE STILL REMAINS

In the prostituted church the Christian, weary of Arabic inscriptions and Ottoman traditions, grows heart-sick and hungry for something that is his. The ever-present architectural grandeur and invisible memories of the past are not enough. Let him ascend the southern gallery and gaze from among the six colonnaded columns toward the vaulted ceiling above the five windows of the central apse. Gradually in the dim, half-veiled surface he discerns the mosaic form of a colossal Christ. The hair, the forehead, the mild eyes of the Saviour may be traced and the indistinct outline of his form. The right hand, gentle

> "as when
> In love and in meekness he moved among men,"

is extended still in unutterable blessing, and in its comprehensive reach seems to embrace the stranger. Within the shadow one feels Christ is keeping watch above his own.

Wild Columbine
(*Aquilegia canadensis* L.)

Broad-leaved Arrow-head
(*Sagittaria latifolia* Willd.)

VIRGINIA COWSLIP OR BLUEBELL
(*Mertensia virginica* (L.) DC.)

Hedge or Great Bindweed
(*Convolvulus sepium* L.)

Larger Blue Flag
(*Iris versicolor* L.)

WILD PINK
(*Silene caroliniana* Walt.)

Common Evening Primrose
(*Oenothera biennis* L.)

Star Grass
(*Hypoxis hirsuta* (L.) Coville)

Wild Geranium or Crane's-bill
(*Geranium maculatum* L.)

Common Dayflower
(*Commelina communis* L.)

BLACK-EYED SUSAN
(*Rudbeckia hirta* L.)

JEWEL-WEED
TOUCH-ME-NOT
(*Impatiens pallida* Nutt.)

BULB-BEARING LOOSESTRIFE
(*Lysimachia terrestris* (L.) B. S. P.)

EASTERN BLUE-EYED GRASS
(*Sisyrinchium graminoides* Bicknell)

CARDINAL FLOWER
RED LOBELIA
(*Lobelia cardinalis* L.)

Swamp or Marsh Buttercup
(*Ranunculus septentrionalis* Poir.)

AMERICAN HOLLY

VIRGINIA OR SCARLET STRAWBERRY

WILD YELLOW LILY
CANADA LILY
(*Lilium canadense* L.)

TURK'S CAP LILY
(*Lilium superbum* L.)

Witch Hazel
(*Hamamelis virginiana* L.)

Woody Nightshade
Bittersweet
(*Solanum Dulcamara* L.)

Purple Flowering Raspberry
(*Rubus odoratus* L.)

Black Haw or Stag Bush
(*Viburnum prunifolium* L.)

PURPLE LOOSESTRIFE
(*Lythrum Salicaria* L.)

MOTH MULLEN
(*Verbascum Blattaria* L.)

SHOWY LADY'S-SLIPPER
(*Cypripedium reginæ* Walt.)

Twin Berry
Partridge Berry
(*Mitchella repens* L.)

Mayflower
Trailing Arbutus
(*Epigæa repens* L.)

AMERICAN WILD FLOWERS

In this number, pages 483–506, the GEOGRAPHIC MAGAZINE *prints its first color series of American wild flowers. In future numbers other wild flowers will be pictured in colors, as it is planned gradually to give the members of the National Geographic Society in their Magazine as complete a collection of common wild flowers of all parts of the United States as has been given of the common birds of town and country. There are many hundreds of wild flowers, many more than there are varieties of birds. The present collection contains flowers blossoming from late spring to September. The pictures were made by Miss Mary E. Eaton, and will undoubtedly be admired by every reader for their delicacy and beauty.*

In the descriptions accompanying these splendid pictures the spirit in which they were written is that of one of our great botanists, who says:

"Let us content ourselves no longer with being mere 'botanists'—historians of structural facts. The flowers are not mere comely or curious vegetable creations, with colors, odors, petals, stamens, and innumerable technical attributes. The wonted insight alike of scientist, philosopher, theologian, and dreamer is now repudiated in the new revelation. Beauty is not 'its own excuse for being,' nor was fragrance ever 'wasted on the desert air.' The seer has at last heard and interpreted the voice in the wilderness. The flower is no longer a simple passive victim in the busy bee's sweet pillage, but rather a conscious being, with hopes, aspirations, and companionships. The insect is its counterpart. Its fragrance is but a perfumed whisper of welcome, its color is as the wooing blush and rosy lip, its portals are decked for his coming, and its sweet hospitalities humored to his tarrying, and, as it speeds its parting affinity, rests content that its life's consummation has been fulfilled."

This wonderful collection in colors has cost many thousands of dollars to reproduce, but the GEOGRAPHIC *believes that the beauty of the subjects and the importance of encouraging the study and preservation of American wild flowers more than justify this expense.*

THE WILD COLUMBINE (Aquilegia canadensis L.)

(See page 483)

Among all the flowers that bloom, none outshine the wild columbine for wild grace, untrammeled and unconventional beauty, or the idyllic nature of its habitat.

Choosing the stony ground of the inner woodlands for its favorite abiding place, enjoying a long flowering season, covering the April-July period, and cosmopolitan enough to be at home from Nova Scotia to the Northwest Territory and from Florida to the Rocky Mountains, it is one of the most pleasant of our summer visitors.

This striking flower is a child of America; it is said that during the reign of Charles I a young colonist kinsman of the king's gardener sent to him from Virginia specimens of the plant for the adornment of the gardens of Hampton Court.

Like most flowers, the columbine has made remarkable provision for its own propagation. Its nectar it hides far back in its little cornucopias, where only those insects who are able to carry its pollen to some other flower can partake of its sweets.

So the nectar of the columbine is largely reserved for the big bumblebee and the little humming-bird. The former with his long tongue and strong legs can hang upside down as gaily as an acrobat on a trapeze and drink its nectar while doing so. And the ruby-throated humming-bird finds the inverted position of the honey-cup no disadvantage.

The efforts of the flowers of the field to dress in the colors that delight the senses of the creatures that bear their pollen is strikingly shown in the columbine. In Europe the ruby-throated humming-bird is a stranger, and the columbine wears colors vanishing from red to blue, for the bee is its pollenizing agent there, and, as Sir John Lubbock proved by a striking series of experiments, the favorite color of the bee is blue. On the other hand, in America, where the humming-bird is the principal fertilizing agent, the columbine attires itself in a dainty red that is known to delight "king ruby-throat."

Some of the smaller bees have learned of the discrimination that the columbine practices against them through its length and narrowness of neck, and frequently they may be seen ripping holes in the tips of the petals and getting the nectar without paying their toll of pollen-carrying to the flower. As a defensive measure against this rape of her sweets, the

columbine secretes a bitter juice that often foils the invaders.

Dr. Prior declares that the columbine got its name because of the resemblance of its nectaries to the heads of pigeons in a ring around a dish—a favorite device of ancient artists.

BROAD-LEAVED ARROW-HEAD (Sagittaria latifolia Willd.)

(See page 484)

Loving shallow water and muddy soils, the broad-leaved arrow-head is still equally at home on the banks of the Rio Grande and on the shores of Hudson Bay. Its flowering season is from July to September.

No flower of the field or forest can survive long unless it learns to adjust itself to its environment. It is only the cultivated plant that cannot do this. Years of reliance upon man to fight its battles for it have taken from the cultivated plant all ability to fight its own battle of existence. Who ever heard of lettuce being able to flourish outside of the garden? Or the bean? Or the beet? Or the cabbage? Their resourcefulness has been bred out of them and they must have their homes prepared for them.

Not so with weed and wild flower. With no hand to help them, they fight their battle for the survival of the fittest with their own generalship and their own forces. How strikingly is this illustrated by the arrow-head! Loving the water, it must be in a position to maintain itself when the freshet of June comes and submerges it, and again when the drought of August steals the last vestige of water from its pool.

So it is able to breathe under water like a fish and out of the water like a dry-land creature. When it is under water, there are narrow, ribbon-like leaves which give a maximum of surface exposure to the water, and yet a minimum of resistance; but when it grows on dry ground the ribbon-like leaves fall off, and the big, broad arrow-head leaves that give the plant its name assimilate the carbonic acid gas, give off oxygen, and ward off an oversupply of sunshine.

THE VIRGINIA COWSLIP OR BLUEBELL (Mertensia virginica (L.) DC.)

(See page 485)

When Harry Lauder sings about the lassie he loves who is as modest as her namesake, the bluebell, he accords her high praise, for the English bluebell is not fairer or more modest than its American namesake, and who has not noted the simple, drooping modesty of this fair little inhabitant of the meadows of eastern America!

In April and early May it comes out to cheer the waiting world, a little behind the arbutus, the crocus, and the daffodil. It loves the alluvial low ground of the meadow land and ranges from southern Canada to South Carolina and Kansas. Its flowers stay with us until late May.

No lover of the beautiful has ever failed to pay tribute to the bluebell. Its drooping porcelain-blue bells have won praise from the naturalists of the world. An English writer pays high tribute to them, saying that no flower surpasses the bluebell family in beauty of form and foliage or in the graceful way in which they rise to panicles of blue. The fairest of them he rates the Virginia cowslip.

Every insect that loves nectar can drink at the bluebell's bar, for "broad is the gate and wide is the way, and many there be that go in thereat." But every insect that comes must be a pollen-bearer, for the bluebell needs must have cross-fertilization.

One of the unexplained idiosyncrasies of the bumblebees occurs in conjunction with their feasts out of the bluebell's honey well. Only the female bumblebee is flying when the bluebell blooms, and they are able to sip far deeper cups than the bluebell can offer; but, whether from laziness or mischief or what, they may frequently be seen trying to dodge their duties as pollen-bearers by perforating the cups instead of draining them in a legitimate manner.

HEDGE OR GREAT BINDWEED (Convolvulus sepium L.)

(See page 486)

A hobo among flowers is the bindweed. It has traveled up and down the lanes of world-trade for centuries, until it has come to claim most of the northern hemisphere for its abiding place. It is one of America's most bothersome weeds, as any farmer's son can bear witness who has operated a harrow or a grain drill when preparing corn ground for wheat sowing in the fall.

It loves wayside hedges and thickets, where it climbs over everything in its fight for the survival of the fittest; but it simply rejoices when it gets into a corn-field and can utilize the tall stalks of corn as a nature-built trellis for it. In our own country it has found the Rocky Mountains a barrier, and for the time being has had its star of empire arrested here, on its broad sweep around the northern world.

The flowering season of the great bindweed is the June-September period. A close relative of the fair morning-glory, its flowers are shaped like those of that charming summer visitor and behave something like them. It is a rather early riser, and lives out the doctrine that "early to bed and early to rise" produces health, wealth, and wisdom; for it goes to bed when the sun goes down, except on moonlight nights, when it keeps open house for the benefit of certain moths that are its especial friends.

A curious thing about the great bindweed is the fact that it cannot maintain itself, hardy and self-reliant as it is, where its special insect friends do not dwell. In Europe a certain moth flourishes in some districts, is rare in others, and entirely absent in still others. Wherever the moth is numerous the bindweed

is everywhere; where it is scarce the bindweed is an occasional visitor only; but where it does not dwell at all the bindweed never comes. Without the aid of that moth it is unable to set seed and therefore unable to propagate itself.

The bindweed is an exceedingly rapid climber. The twining stems often describe a complete circle in less than two hours, turning always in the direction opposite to that of the hands on the face of a watch. A transverse section of the flower of the bindweed, cut so as to show the passages leading into the nectar chamber, makes it look like the cylinder of a "five-shooter" revolver.

Not only is the great bindweed a relative of the morning-glory, but it is close of kin to the plant from which the "jalap" of the chemical world comes. It itself has some of the therapeutic properties of jalap, and it is said that hogs, which eat almost everything except tomatoes, give it a wide berth.

LARGER BLUE FLAG (Iris versicolor L.)

(See page 487)

Among the stateliest and proudest of the members of America's flower family none excels the larger blue flag, which also wears the names of blue iris and fleur-de-lis. Ruskin calls it the flower of chivalry, which has a sword for its leaf and a lily for its heart. Longfellow pronounces it "a flower born in the purple, to joy and pleasance."

The larger blue flag seeks the wet, rich marsh and meadow, where it can find ample moisture for its rich nectar manufactories. It flowers from May to July, and lends its beauties to America from Newfoundland and Manitoba to Florida and Arkansas.

From the standpoint of the botanist, the larger blue flag has an especial interest because of the remarkable care it has taken to evolve a never-failing system of cross-fertilization and to avoid self-fertilization. The position of the stamens is such that it is next to impossible for their pollen to reach the stigmas of the same flower, for these stigmas are protected from the stamens by being borne in pockets on the inner surface of the petal-like, overarching styles.

Therefore the flag flower must look to the insect world entirely for its propagation, and to the bees in particular. So it puts forth a flower that is blue tinted, for its experience has taught it that a bee can be wooed with blue better than with any other color. Dressed in her beautiful gown of blue, the pretty flower maid proves irresistible to the passing bee, who turns aside to drink at her well, and is given her message of life to bear to some other waiting flower. The bee finds the recurving platform of the handsome sepal an ideal landing platform, and from this the dark veins and golden lines form the guide-posts that point with unerring aim toward the nectar cup below.

The iris was long centuries ago adopted by Louis VII, the gallant young Crusader, as the emblem of his house. It became thereby "the flower of Louis," which was corrupted into "fleur-de-lis."

The iris, or blue flag, is really meant when one speaks of the lily of France. The story runs that King Clovis, beaten on the battle-field as long as he had three black toads upon his shield, finally adopted the iris instead, upon the plea of Queen Clotilde, to whom it had been related by a holy hermit that an angel had brought him a shield containing three irises and shining as the sun. Clovis thereafter was successful on the battle-field. In later reigns the iris was thickly strewn upon the royal standards of France, but Charles V finally reduced them to three to typify the Holy Trinity.

The iris is a plant that insures its life. It has a big rootstock, which contains a powerful hepatic stimulant known as "iridin." In this rootstock it stores up endowment insurance in the days of plenty, so that when the earth is chill, cold, and inhospitable its savings will provide against need.

WILD PINK (Silene caroliniana Walt.)

(See page 488)

An attractive little flower is the wild pink, or catchfly, which seeks the dry, gravelly or sandy soil as persistently as the larger blue flag or the broad-leaved arrow-head seeks the soft alluvial or marshy ground. From April to June its delicate pink petals give cheer to many a lonesome place, and it has succeeded in claiming a rather large area for its occupancy, extending from New England to Georgia and Kentucky.

As fresh as the springtime itself are these little flowers, when they open up to join the floral chorus that proclaims that spring has come to stay. They are flowers which never believe in taking chances, when it comes to the question of fertilization, so they have developed two sets of stamens, five to each set. The one set rises first, then the other, so that if one misses the transfer of its pollen the other is likely to supply the resulting deficiency. After all their pollen is shed, three recurved styles put in their appearance out of the depths of the tube, ready to receive pollen brought by the bees and butterflies from other flowers.

The wild pink finds its cupboard of sweets a fair mark for many tiny insects that are large enough to drain its cup of nectar and yet too small to bear away the flower's pollen to some distant mate. So it has provided an effective lock and key to that cupboard, which makes it proof against the pilferer. This lock and key is a gummy, viscid fluid that the pink secretes and spreads around the sticky stem below the flower. And woe betide the creeping thing that is a thief and a robber from the pink's standpoint! For no fly that ever alighted on a piece of man-made fly-paper was more certainly and surely brought to an untimely end than the ant that essays to sip the nectar of a wild pink. Thus we can see that the fly-paper idea is not man's invention at all, but an idea borrowed

from the pink, which he accuses of having no power of invention at all.

Ordinarily we think of the pink as having a pink flower, and, if we reflect at all, that the color we describe as pink lends its name to the flower; but the etymologists mostly disagree therewith. They declare that the pink is the lender and not the borrower, and that the color owes its name to the fact that it so closely imitates the flower. It is said that the word pink as applied to the flower is derived from the verb "pincken," meaning "to scallop," so that the flower borrows its name from an act and transfers it to a color. We habitually use the word pink to express our highest ideals along many lines, thus unconsciously paying high tribute to this beautiful little flower and its relatives. A woman we may describe as the pink of perfection and a man as the pink of courtesy.

COMMON EVENING PRIMROSE (Œnothera biennis L.)

(See page 489)

Who has not seen the common evening primrose with its pale yellow flowers "luikin out o' their leaves like wee sons o' the sun" has missed a sight that has gladdened millions of hearts.

In the United States the evening primrose is a hardy warrior in the competition for existence and is not over-particular as to where it is stationed on the battle-front. Roadsides, dry fields, thickets, and the corners of the old-fashioned worm fence are satisfactory stations for it, and it is equally at home in Labrador and Florida and as far west as the Great Plains Mountains.

It is when the sun goes to bed that the evening primrose's morning dawns. It is one of the denizens of the Great White Way of the Flower City, waking while the world sleeps and sleeping while the world wakes.

As the sun approaches the western horizon the evening primrose awakes and bedecks itself in yellow and white, perfumes itself up with the most seductive of sweet-scented odors, and prepares to welcome the sphinx moths that come to tarry and to sip its sweetness through the long and silent night.

Before the dusk grows deep we may behold the visitors arriving and departing and the grand reception in full sway. Now comes a beautiful little moth dressed in rose pink, its wings bordered with yellow; now the Isabella tiger-moth, and now another and another. All of them have long tongues, though it has never been charged that they use them for gossip. The nectar cup of the evening primrose is deep, and the short-tongued moth stands a chance of going hungry.

The primrose, though it revels in the night, is yet somewhat stingy with its favors, for often it will open up only one flower to each stalk. It does this to insist that its messengers who feast on its nectar shall carry its pollen to a flower on another plant.

One night of revelry is enough for a flower of "milady primrose," for when morning dawns the corolla wilts, hangs awhile, and then drops away; and when we see her next day the freshness is gone, and she presents the appearance of one whose dissipations have laid heavy toll upon her.

But if by any chance no visitor has come during the night to sip its nectar and to be pollen-bearer for it, the primrose does not close when the moths retire at dawn, but keeps open house for an hour or so in the morning, until the bees can repair the neglect or until a humming-bird can pass its way on her rounds. Toward the end of summer, after a sufficient number of seeds have set to insure the future, the primrose becomes more generous of its sweets and often bids welcome to the bees the whole live-long day.

The evening primrose must not be confounded with the true primrose of England and the poets, a very different plant, belonging to a different family.

STAR GRASS (Hypoxis hirsuta (L.) Coville)

(See page 490)

The yellow star grass is a quiet and modest little flower that asks only for a chance to live in the dry open woods and fields, gleaming out of the turf by day as the stars gleam out of the heavens by night. From May to October it shines out of the landscape, and it finds but few parts of the United States where it cannot dwell prosperously.

Usually only one of the tiny blossoms on a stalk opens at a time. The others wait their turn, each hoping that those ahead may have the honor of entertaining the tiny bee that delights in their sweets and pays them back in pollen-bearing messenger service. But if a flower "blushes unseen" by the bee for too long a period, it grows tired of "looking and hoping," gives up its ambition for cross-fertilization, and, folding itself as the Arab folds his tent in the night, it brings its own pollen-laden anthers into contact with its own stigma, and thus produces self-fertilization as a last resort against death without posterity.

But if the bee comes the flower is happy, and offers its visitor not only its nectar, but gives it pollen to carry to its home as flour for the bee-bread which the bee's tiny babies must have.

Nature's frugality is revealed in the case of the star grass. When its flower is upright and almost closed, she paints its outside with green color; but when the blossom is spread out the inner side of the petals display the chief decoration.

WILD GERANIUM OR CRANE'S-BILL (Geranium maculatum L.)

(See page 491)

This graceful flower, purplish pink or lavender in color, comes in April and goes in July. It has a preference for woods, thickets, and shady woodsides, and does not seek the

open field with its hot sunshine. As far north as Newfoundland, as far south as Georgia, and as far west as the Father of Waters it finds hospitable grounds on which to dwell.

Legend tells us that the geranium is a miracle-made descendant of the mallow. It relates that once the prophet Mohammed had occasion to wash his shirt on the bank of a stream. He then laid it on some mallows to dry. When they discovered the fact that theirs was the honor of supporting the garment of the Prophet, they blushed at the thought of such distinction and turned forthwith into geraniums, which they have remained ever since.

The wild geranium depends entirely upon the bees for its propagation, since it has reached that stage of plant development which renders it incapable of self-fertilization; the pollen is ripe and the anthers have fallen away before the stigma becomes receptive. It is a plant that shoots, so to speak; for when the seeds are ready to be spread abroad, the pod, under the process of drying out, sets a spring; when the seeds are dry enough and hard enough to fare for themselves in the world, the trigger to this spring is pulled by the drying process and the seeds are catapulted some distance.

For generations the world knew nothing of the community of interest between the plant kingdom and the insect world; and then Sprengel, the great botanist, observing the German cousin of the American wild geranium, came to the conclusion that the flower is fertilized by the transfer of pollen by the insect that comes to partake of its nectar.

It was many years later, long after Sprengel had been gathered to his fathers, that Darwin came along with conclusive evidence that Sprengel had told the truth, though not the whole truth. He showed how cross-fertilization is accomplished by insects, and that in the competition for existence the cross-fertilized plant has a great advantage over the one that is self-fertilized.

The plant that led Sprengel to guess at the intimate relationship between the insect world and the flowery kingdom was an unfortunate one for him to put forth to substantiate his case, since he had supposed that the insect caused the flower to fertilize itself, whereas it always protects itself against that very thing. He had not gone far enough with his reasoning to understand that cross-fertilization is the rule and self-fertilization the exception among flowers.

It is generally thought that only the larger bees are the wild geranium's benefactors, for the ordinary little yellow butterfly that one sees along the mud puddles on the country road is a pilferer, while the small bees more often than not drink its nectar without coming in contact with its pollen.

COMMON DAY FLOWER (Commelina communis L.)

(See page 492)

The common day flower, loving moist, shady ground, has established itself as a Pan-American blossom. Its range is from southern New York down through tropical America all the way to Paraguay. It is a member of the spiderwort family, and its delicate blue flowers win admiration alike from man and bee. The day flower is an early riser. Its blossom is open and its latch-string out as soon as the bees begin to stir. By noon they have searched is out, gathered its pollen, sipped of its nectar, and paid its toll of fertilization. As soon as this has been done, its lovely petals roll up and wilt into a wet and shapeless mass, never to open again.

The Latin name of the common day flower, "Commelina," was given it by Linnæus, the great Swedish botanist. He had three friends, the Dutch botanists Commelyn. Two of the brothers were active and persistent in their work and published the results of their investigations. The third brother, Kaspar, was a deep student, but lacked the energy required in the publication of scientific work. Noting the three petals on the blossom of the day flower, the two of them bright, conspicuous, and attractive, and the third lacking in all those qualities, he named the flower after the brothers to typify their work in life, and the name will doubtless go down to the end of time to remind the world of the lack of ambition and application of Kaspar Commelyn and the energy of his brothers. Kaspar never lived to read the little joke in print, for he died in 1731, before "Species Plantarum" appeared.

The blue flower of the day flower was believed by Sir John Lubbock to represent the spirit of striving to please that the flower shows to the bees. After a prolonged study of the evolution of flowers, he came to the conclusion that all blue flowers have descended from ancestors in which the flowers were green; or, to speak more precisely, in which the leaves surrounding the stamens and pistils were green. As their generations went by they became white or yellow, and in succeeding ages gradually brought themselves around to red. From the red they began to turn blue, and a study of all of the flowery kingdom indicated to him that the ultimate rôle of excellence to which the flowers aspire is that they shall be arrayed in blue.

BLACK-EYED SUSAN (Rudbeckia hirta L.)

(See page 493)

Fighting her way across the American Continent, black-eyed susan has proven the master of the allied forces of man and nature. In the competition of life she has been able to make a home wherever she sets her foot, and neither the rivalries of the field nor the laws and labors of man have been able to hold her in check.

Black-eyed susan loves dry fields and open, sunny places, and can hold her own with the white ox-eye daisy and the wild carrot in dry weather. Its flowering season is long, opening in May and closing in September. It is one of the little vagrants that has traveled

from the west to the east along the highways of commerce. In years gone by much clover seed was shipped out of the West, and black-eyed susan hoboed her way along with it. Most of the weeds of the field have traveled along with the star of the empire, from the east to the west; but black-eyed susan has reversed the natural order, and already has secured a footing in European flower gardens, if not in European fields. As one authority puts it, "By the middle of July our dry meadows are merry with black-eyed susans, which are laughing from every corner and keeping up a gay midsummer carnival in company with the yellow lily and brilliant milkweeds. They seem to live in long days of blazing sunlight and are veritable salamanders among the flowers."

Black-eyed susan is one of the most liberal of all the entertainers in the flower world. Bees, wasps, flies, butterflies, and beetles all gather around her festive board, and although the nectar deep down in her tubular brown florets can be found only by the insect with a long and slender tongue, her pollen is accessible to all.

Feeling so richly provided with methods that assure fertilization to her blossom, black-eyed susan inevitably sets many seeds. The result would be a prolific reproduction, even though there were not artificial agencies upon which it could rely for its dissemination. The farmer who stores hay in his barn carries the seeds of black-eyed susan wherever that hay may go, and the one who sows grass seed of any kind, unless he is exceptionally careful to have his seed free from filth, will spread black-eyed susan broadcast along with his grasses.

In these days of wide-spread warfare in Europe, we hear much concerning barbed-wire entanglements and all sorts of defensive works of a similar nature. Black-eyed susan long ago learned to defend herself from would-be pilferers in much the same way. If you will observe her closely you will find her stem full of tiny thistle-like bristles. No creeping creature stands any show of getting past these defenses and up to the nectaries of the flower, because black-eyed susan long generations ago learned that they are not able to serve as pollen-bearers in exchange for her nectar.

THE JEWEL WEED OR TOUCH-ME-NOT (Impatiens pallida Nutt.)

(See page 494)

Though somewhat rarer than its close relative, the spotted touch-me-not, the jewel weed, or pale touch-me-not, is a common plant of wet and shady situation in the northern part of the eastern United States. It reaches as far south as Georgia. Its flower is somewhat bell-shaped, almost as broad as long. It develops its stamens first and its pistil afterward, so that self-fertilization is almost impossible and cross-fertilization a usual thing. Late in the season, after the brilliant jewel-like flowers have gone, they bear inconspicuous blossoms which fertilize in the bud and are called *cleistogamus* flowers. It thus becomes, in a measure, independent of its insect guests for fertilization; but, realizing that degeneracy follows close inbreeding among plants as well as animals, it tries to have as many seeds set by cross-fertilization as possible. It is a curious fact that in England, where there are no humming-birds, the native jewel weed. nineteen times out of twenty. produces cleistogamus flowers instead of showy blossoms, and that even when producing the showy blossoms they seldom set seed. Many botanists have wondered whether this does not look like a determination on the part of the plant to secure a firm foothold in its new environment before expending its energies on flowers which, though radiant and attractive, are quite dependent on insect facilities for fertilization and perpetuation.

The jewel weed belongs to the seed-shooting family of plants. Its seed capsule is connected with a delicate hair trigger, and at the slightest touch this sets the seed-spreading mechanism to work with a suddenness that makes one jump. It is from this hair-trigger arrangement that it gets its popular name of touch-me-not. Often the seeds are catapulted a distance of four feet or more.

BULB-BEARING LOOSESTRIFE (Lysimachia terrestris (L.) B.S.P.)

(See page 495)

The bulb-bearing loosestrife, if it were as efficacious as legend declares, might be used with effect in Europe today. This legend is the basis of its popular name—a loosing of strife. It is said that in ancient times yokes of oxen were rendered gentle and submissive by attaching a loosestrife plant to the tongue of the cart.

This plant is to be found blooming from July to September in open woodland and along roadsides. It prefers a moist, sandy soil and finds hospitable surroundings in almost the entire eastern half of the United States and Canada. Its yellow flowers are dotted with reddish spots. The slender flower spike is distinctly characteristic; it forms an aggregation of misty yellow color (when a large colony of plants is seen) which is never to be found with other species. Often little elongated bulblets appear at the base of the leaves, and this caused Linnæus to mistake the plant for a mistletoe that grew on the ground.

EASTERN BLUE-EYED GRASS (Sisyrinchium graminoides Bicknell)

(See page 495)

The violet-blue eastern blue-eyed grass, flowering in May and June and lending its beauty to the coastal region from Maine to Florida, is a charming member of the iris family. It is a tall, bending species, with a slender stalk sometimes two feet long. It has been called a little sister of the stately blue flag. Only on bright days do its flowers venture out, and then only one at a time. On being gathered, this

little "eye bright" of the fields promptly closes its eyes and refuses again to open them except under the persuasion of the sunshine itself. The flower of the blue-eyed grass not only takes the sunshiny day to come out, but after that one day is past it closes its eye never to again open it.

CARDINAL FLOWER OR RED LOBELIA (Lobelia cardinalis L.)

(See page 496)

Throughout the eastern United States and Canada and as far west as Kansas the red lobelia is one of the most striking of the country's wild flowers. It blossoms from July to September and its favorite haunts are wet, low grounds beside streams and ditches.

Called the cardinal flower, the red lobelia excels its namesake of birddom in the richness of its colors.

The lobelia was named after Mathis de Lobel, a native of the French city of Lille, who was botanist and physician to James I. The plant has a certain pharmacological resemblance to tobacco. In large doses it is a powerful gastro-intestinal stimulant, causing giddiness, headache, nausea, and extreme prostration, with clammy sweats and irregular pulse.

The closest friend of the red lobelia is the humming-bird, and while the bees sometimes visit it they are never its most welcome guests. Sir John Lubbock, the great English scientist, many years ago presented to the world a striking example in the lobelia of the tendency of plants to color themselves to delight the eyes of their favorite visitors. He found that the humming-bird has a peculiar affinity for red, just as the eye of the bee is delighted with blue. It therefore happens that the shallow-cupped lobelia, which looks mostly to the bees for carrying its pollen, is blue, while the deep-cupped lobelia, whose nectar can be sipped only by the long-billed humming-bird, is red.

The humming-bird reminds one of Eugene Field, who, when asked what his favorite color was, replied: "Why I like any color at all so long as it is red!" Some botanists believe that scarcity of red flowers is due to the fact that there are so comparatively few humming-birds, and it is noted that red flowers are fewer where humming-birds are scarcest, showing again the particular community of interest between the flower and nectar-sipping creatures.

SWAMP OR MARSH BUTTERCUP (Ranunculus septentrionalis Poir.)

(See page 497)

One of some 250 species of the crowfoot family, the swamp or marsh buttercup flowers from April to July. Its range is from Georgia and Kentucky northward, and it seldom is found outside of the confines of swamps and low, wet ground. Its flowers are a deep yellow and fully an inch broad. The stem is hollow and generally smooth, though in some instances it has developed fine hairs. This buttercup is very variable in both size and foliage. It depends mainly upon bee-like flies and very small bees for fertilization. Many of the members of the buttercup family are naturalized flower citizens of North America, having come in from Europe as immigrants many years ago. The marsh buttercup preserves itself from inbreeding by putting out only a few blossoms at a time, thus making more or less certain its cross-fertilization.

The swamp buttercup is not to be mistaken for the common meadow buttercup, which has first place among the members of the family in distribution and hardiness. The marsh buttercup has longer petals and sometimes spreads by developing runners, while the stem of the meadow buttercup is nearly always erect and propagation depends entirely upon seeds. The meadow buttercup has such an acrid flavor and such caustic propensities that cattle will not eat it. In this it follows the example of most of the members of the crowfoot family in secreting such bitter and poisonous juices that they get a wide berth from animal kind. It is said that the juice of the meadow buttercup is capable of raising blisters, and that beggars use it to produce sores upon their skins. The members of the crowfoot family borrow their botanical name from *rana,* which means a frog. It was alleged by Pliny that the buttercup stirs him who eats it into such a gale of laughter that he scarce can contain himself. He further states that unless the eater washes it down with pineapple kernels and pepper dissolved in date wine, he may guffaw his way into the next world in a most unseemly manner.

According to historical authorities, one species of buttercup was used by the ancients to poison their arrows, while the double crowfoot, or St. Anthony, would cure the plague if rubbed on the spot most affected, and was good for lunacy if applied to the neck in the wane of the moon, when it was in the sign of the bull or the scorpion.

AMERICAN HOLLY (Ilex opaca Ait.)

(See page 498)

A small, slow-growing evergreen tree, with tiny greenish or yellowish white flowers and round red berries, the American holly loves the moist thickets and is to be found from New England to the Gulf of Mexico and as far west as Texas. The flowering season of this tree is from April to June. Its leaves are thick, rigid, glossy, and edged with spines.

There are many interesting customs and romantic stories in which the holly figures. It is believed that the custom of employing the holly and kindred plants for decorative purposes at Christmas dates back to the time of the Roman Saturnalia, or else to the old Teutonic custom of hanging the interior of dwellings with evergreens as a refuge for sylvan spirits from the inclemency of winter. Even in Pliny's day the holly had all manner of

supernatural qualities attributed to it. Its flowers were said to cause water to freeze; it was believed to repel lightning, and therefore the Romans planted it near their houses; and the story ran that a branch of holly thrown after any stubborn animal, even though it missed him, would serve to subdue him instantly and cause him to lie down meekly beside the stick. Some friends of the holly have suggested that the notion of the Italian peasant that the cattle kneel in their stalls at midnight on the anniversary of Jesus' birth grows out of the survival of the old pagan legend of the effect of the holly upon domestic animals.

In parts of England it is deemed unlucky to introduce the holly into the house before Christmas eve. In some sections the prickly leaf and the non-prickly leaf species are designated as "she" and "he" holly, and the belief is that, according as the holly brought at Christmas is smooth or rough, the wife or the husband will be master of the household for the ensuing twelve months.

The European relative of the American holly has a leaf more spiny and a berry of a deeper red than our own, but it is too tender to withstand the rigorous winter of the North or the hot summers of the South.

VIRGINIA or SCARLET STRAWBERRY (Fragaria virginiana Duchesne)

(See page 498)

Who has not gone out into the shady open woodlands and gathered wild strawberries, as toothsome as they are beautiful, has missed one of the charming experiences of life in the country. Its white, loosely clustered flowers; its broad, oval, saw-edged green leaflets, and its glistening red berries make a combination that delights the eye of the most unsentimental. "Doubtless God could have made a better berry, but doubtless He never did," declared the patient fisherman, Izaak Walton, who was also a connoisseur of things to eat. And whoever has tasted a strawberry that represents the last word of the plant breeders' art, and then the strawberry of the open woodland, will agree that cultivation has added nothing to flavor, however much it has added to size. The Duke of Gloucester, who became Richard III, had a weakness for the wild strawberry. It is said that in 1483, as certain great lords were sitting in counsel arranging for his coronation, the duke came in and, "saluting courteouslie, said to the Bishop of Ely: 'My lord, you have verie good strawberries in your garden in Holbonne; I require you to let me have a mese of them.'"

It is said that during the reign of Henry VIII the price of strawberries was eight cents a bushel.

The favorite haunts of the Virginia strawberry are in dry fields, along roadsides, and in open woodlands. It flourishes from Nova Scotia to the Gulf of Mexico and has secured a foothold as far west as the Dakotas.

The berry of the strawberry is a false fruit. It is the tiny pincushion-like receptacle of the strawberry flower that fleshens and reddens into the fruit.

The strawberry sends out many children in the shape of runners. These tiny runners take root in the ground, and as soon as they get a firm foothold, the connecting stem promptly wilts and the baby strawberry plant is set loose to fight its own battle in the world. How prolific this strawberry plant may be is strikingly shown by an experiment made some years ago. One plant in three years developed 200 plants, which covered more than seventy times as much ground as the progenitor of the family.

Many people regard the strawberry as the most healthful of fruits. It was the firm conviction of Linnæus that they cured his gout, while others have found them beneficial in fevers and bilious disorders. They are said to have a very excellent effect upon the teeth, dissolving the tartar that gathers upon them.

WILD YELLOW LILY OR CANADA LILY (Lilium canadense L.)

(See page 499)

The boundaries of the wild yellow lily's American domain reach from Nova Scotia on the north to Georgia on the south and the western half of the Mississippi Valley on the west. It flowers in June and July and most often is found in low meadows, although it thrives in swamps and fields to some extent.

With its pendulous, brown-dotted, buff-yellow blossom hanging so as to protect its nectar from the rain, the yellow lily is a favorite friend of the wild honey-bee and the leaf-cutting bee, which visit the flower to gather its brown pollen as well as to sip its nectar.

When the Master, in His magnificent Sermon on the Mount, bade the world to "consider the lilies of the field," He did not refer to the lilies we know, but how well does His injunction fit; for what richer lessons can we gain from nature than by studying the life, form, and behavior of the lilies that render such helpful aid in lending enchantment to the summer by their beautiful nodding bells, which seem to toll the hours of flowerland! Less gorgeous, it is true, than its beautiful sister, the Turk's cap, the wild yellow lily still justifies the inspired verdict that Solomon in all his glory was not arrayed as it. Some have called the bell-like flowers of the yellow lily "fairy caps," while others have called them "witch caps." But whether the fairies or whether the witches adorn themselves in such dainty headgear, we know that the bee often uses the flower for a "shelter in the time of storm." Some one has said that the form of the lily stock and flower suggest an exquisite design for a church candelabra.

Among all races and in all ages the lily has been a favorite of man. In both tradition and in legend it has played its rôle. The tomb of the Virgin was filled with lilies to allay the doubts of the ever-doubting Thomas. The Greeks and Romans considered the lily a sym-

bol of purity, and the Easter lily is the symbol of the Christian faith in the hope of a life beyond the grave.

TURK'S CAP LILY (Lilium superbum L.)

(See page 499)

Lilium superbum is the Latin name for that beautiful flower we call the Turk's cap, and it deserves the name, for of all the "lilies of the field," it is tallest, stateliest, most prolific of bloom, most variable in form, color, and size. Its domain reaches from Maine to the Carolinas and westward to and including Tennessee and Minnesota. Like many other wild flowers, it loves to be petted by the horticulturist, and responds with wonderful alacrity to good treatment. Growing wild, from three to seven leaves appear in a terminal group on the lily stock. Pampered by the horticulturist, it will crown itself with as many as 40 blossoms and grow to a height of 9 feet. July and August are the months when the Turk's-cap lily lends its flowers to the enrichment of the landscape.

WITCH HAZEL (Hamamelis virginiana L.)

(See page 500)

With its home in thicket and low-lying woodland and its range reaching from Nova Scotia to the north of Mexico, the witch hazel is the rear guard of the flower army that marches in panoplied splendor through the spring and summer and fall. Where the trailing arbutus, the jonquil, the crocus, and the buttercup lead the invading hosts of beauty, the witch hazel is so far behind the procession that one might almost wonder whether it be rear guard or straggler.

It follows the fringed gentian, whose beauties have been acclaimed by many poets, and it seldom lends its blossom to the scene before September is well on toward the equinox. From that time until Christmas, even, it gladdens the wood. Surely one may feel when beholding it that time has indeed "grown sleepy at his post and let the exile summer back," or else that it is "her regretful ghost" that stalks abroad. The witch hazel is about the last feast that nature prepares for the insect world. Even its leaves have gone, and it has joined the ranks of the "brown and sere" before its flowers come.

As soon as the insect hosts have rendered their toll of pollen-carrying in exchange for the nectar of the flower, it begins to fade and fall. Then comes the seed pod, which hangs on to the tree all the year following, and does not turn loose its seeds until the witch-hazel flowers come again. Then the large, hard, black seeds are discharged through the rupture of the capsule, whose walls pinch them out. They are discharged with enough force to sting the face sharply if they hit an observer. Thoreau once wrote that he heard in the night a strange snapping sound and the fall of some small body on the floor from time to time. Getting up to investigate, he found it was produced by the witch-hazel nuts on his desk springing open and casting their seeds across his chamber.

We owe our knowledge of the value of witch-hazel bark for medicinal purposes to the Indians, and it is now used in the making of many kinds of extracts.

For generations the branches of the witch hazel have been used as divining rods for the location of waters and precious ores.

A good story is told on Linnæus in relation to the divining rod made of the branches of the European cousin of the American witch hazel. On one occasion, on one of his trips, his secretary highly extolled the powers of a witch-hazel divining rod. Linnæus was sure that it had no virtue, and to prove it concealed a purse containing one hundred ducats under a flower which grew by itself in a meadow. The divining rod could not locate it, and the assembled company, watching the experiment, trampled down the plant under which it was hidden. When Linnæus went to take it from its hiding place, he could not locate it. His secretary again brought his divining rod into play and told him that it lay somewhere in the opposite direction. Going in the direction the divining rod pointed, Linnæus finally found his gold, and declared that another such experiment would be sufficient to make a proselyte of him.

WOODY NIGHTSHADE OR BITTER-SWEET (Solanum Dulcamara L.)

(See page 501)

Like the great bindweed, the woody nightshade has almost girdled the globe in the northern hemisphere. In the United States it has followed the northern part of the country as far westward as Kansas. It is also found in Canada and came to us as a plant immigrant from Europe. It belongs to the potato family and is also a relative of the tomato and the egg-plant. It used to be asserted that the berries were poisonous, even to the touch. Thoreau declared "they hang more gracefully from the river's brim than any pendant in a lady's ear, yet they are considered poisonous; but not to look at, surely. . . . But why should they not be poisonous? Would it not be bad taste to eat these berries which are ready to feed another sense?" It loves the moist thicket and fence row and flowers from May to September. Possessed of no nectar with which to attract the insects, the purple flowers of the nightshade are wall-flowers in the carnivals of floral beauty, and they get few visits from the gallants of the insect world.

PURPLE FLOWERING RASPBERRY (Rubus odoratus L.)

(See page 502)

Growing in rocky woodlands, dells, and shady roadsides, flowering from June to August, and claiming as its own a territory reaching from northern Canada to southern Georgia and from the coast to Michigan and Tennessee, the purple flowering raspberry has a beauty all

its own; yet so closely does it resemble the wild rose that many a passerby confounds it, although a glance at the undivided leaves would correct such an error. Although it is called the purple flowering raspberry, it is quite incapable of producing a true purple flower. At first its color is deep crimson pink, which finally fades to an unattractive magenta pink. The large leaves are three to five lobed and a trifle hairy. The fruit is insipid and resembles the flat red raspberry. Some people call it the thimble berry.

The leaves of the purple flowering raspberry are rather large and children often fold the lower ones, which sometime measure a foot across, and make drinking cups of them.

This flower is the "poor relation" of the exquisite wild rose; yet even at that, when its bright blossoms burst forth in rich confusion at the edge of the woods, it lends enchantment to the scene.

BLACK HAW OR STAG BUSH (Viburnum prunifolium L.)

(See page 503)

The boy who has not wandered through woodlands and gathered and eaten the smooth bluish-black, sweet and edible fruit of the black haw has missed one of the pleasures of boyhood. The black haw is a very early bloomer, the flat-topped whitish clusters appearing in April and lasting until July. The black haw has it range between the Gulf States and New England and Michigan.

The black haw belongs to the honeysuckle family.

PURPLE LOOSESTRIFE (Lythrum Salicaria L.)

(See page 504)

An immigrant from Europe, loving wet meadows, marshy places and banks of streams, and flowering from June to August, the purple loosestrife has secured a foothold in North America and thrives from eastern Canada to Delaware and from the Atlantic seaboard to the Middle States. So beautiful is it that many are ready to forgive Europe for all the weeds it has sent us, when they see an inland marsh in August aglow with this beautiful flower born to the royal purple. The purple flowering loosestrife is different from any other heretofore mentioned, because it has what are known as trimorphic flowers. Being unable to set seed without the aid of insects, the purple flowering loosestrife has devised a most ingenuous sort of arrangement to make sure that it shall not pass away until its flowers have been fertilized.

This plant produces six different kinds of yellow and green pollen on its two sets of three stamens; these six different kinds of pollen are deposited on the stigmas, which are of three different lengths. Darwin showed that only pollen brought from the shortest stamen to the shortest pistil and from the other stamens to the pistils of corresponding length could effectually fertilize the flower. He found that the reproductive organs when of different length behaved toward one another like different species of the same genus, both with regard to direct productiveness and the character of the offspring. When he made his famous discovery concerning the trimorphism of the loosestrife, he wrote to Gray, the botanist: "I am almost stark, staring mad over Lythrum; . . . for the love of heaven have a look at some of your species, and if you can get me some seeds, do."

Dressed in such bright-hued clothing and secreting abundant supplies of nectar at the base of its flower tubes, it is natural that many insects should seek out the purple loosestrife. When visiting the flower, they alight on the stamens and pistils of the upper side first.

MOTH MULLEIN (Verbascum Blattaria L.)

(See page 504)

Belonging to the figwort family, other members of which are the great mullein, the blue toad-flax, the butter-and-eggs, the small snapdragon, the turtle-head, the beard-tongue, the monkey-flower, the false foxgloves, the eyebright, the yellow rattler, the lousewort, and the cow-wheat, the moth mullein is another of those hardy immigrants of the weed world that has traveled up and down the lanes of international commerce, gained a foothold in the United States, and overrun the country almost from ocean to ocean and from lake to gulf. For it the marsh and meadow have little attraction. It prefers the dry, open land of roadside and field, and while the grass of the pasture may be parched in the dry, hot dog-days, the moth mullein, like its larger sister, the great mullein, is somewhat akin to the cactus in its ability to resist drought. If all of the cultivated plants that grow in garden and on farm could defy dry weather with as much success as the mullein, every year in America would be a bonanza crop year. The flowering time of the moth mullein is from June to November. It is one of those plants that have learned to take advantage of the kindness of the agriculturist, as it always stays close to the haunts of man and never thinks of taking to forest and mountain for a habitat.

The moth mullein for many a year has been a rural moth-ball. The country-dwelling housewife has used its leaves in packing away woolen garments of winter to keep out the tiny cloth moths of summer. It is also believed to be a bane to cockroaches, from whence comes the latter part of its scientific name.

John Burroughs was able to see much beauty in the moth mullein in spite of its belonging to the category of weeds. He once declared it a favorite of his, which reminds one of a remark of Dr. Liberty Hyde Bailey concerning the dandelion. He declared that mental attitude has much to do with the attractiveness of flowers—that if a man could only bring himself to think so a dandelion might be as fair a touch to a lawn as a hyacinth. It is also a curious fact that the white ox-eye daisy and the black-eyed susan, which are admired so

much for their beauty and their decorative value, are detested by the farmer, who has to fight them in season and out to prevent them, along with the ragweed, the plantain, and many other weeds from taking possession of his fields and ruining his crop of hay.

SHOWY LADY'S-SLIPPER (Cypripedium reginae Walt.)

(See page 505)

Living in peat-bogs, or in rich, low, wet woods, flowering from June to September, and having a range that reaches from Nova Scotia to Georgia and from the Atlantic to the Mississippi, the showy lady's-slipper, a member of the orchid family, has been voted by Dr. Gray the most beautiful belle that ever came out from beneath an orchid roof tree. It never seeks the haunts of man, but tries to remove itself as far from their comings and goings as it can, and it succeeds so well that only the flower lover who is willing to take pains can approach its dwelling-place and behold its liberty in its native environment.

Further than this, it is so persistent in its efforts to be let alone that it has come to have tiny glandular hairs which contain an oil that is somewhat poisonous to the human skin, and it is said that a number of cases of dermatitis have followed the efforts of flower lovers to carry it in triumph out of the woods.

As a member of the orchid family, the showy lady's-slipper shares the tradition of that family's origin, which is one that is neither beautiful nor attractive; for the first Orchis was the son of a nymph and a satyr, hence a fellow of unbounded passion. At a festival of Bacchus, being warm with drink, he attacked a priestess; whereupon the whole congregation fell upon him and rent him limb from limb. His father prayed the gods to put him together again, but the gods refused, tempering their severity, however, by saying that whereas the deceased had been a nuisance in his life, he should be a satisfaction in his death; so they changed him to the flower that bears his name. Even the flower was alleged to retain temper, and to eat its root was to suffer momentary conversion into the satyr state.

THE TWIN BERRY OR PARTRIDGE BERRY (Mitchella repens L.)

(See page 506)

Another of the truly "wild" flowers that asks man only to be let alone in the fastness of the forest is the twin berry, which is a member of the madder family. Strange to say, it is a distant relative of the coffee and the cinchona tree, and also of the madder, whose fruits furnish the red dye and the artist's permanent pigment of that name. It is also a relative of the dainty little quaker-lady, the bedstraw, the goose grass, and the wild licorice. Its flowering season is from April to June and it sometimes fills a return engagement in the autumn. Its range is from Nova Scotia to the Gulf of Mexico and from the Atlantic seaboard to Minnesota and Texas.

The flowers of the twin berry have a system of securing cross-fertilization which is different from any of those heretofore described. This is known as dimorphism. There are two different kinds of flowers—the one has mature stamens and immature stigmas and the other has mature stigmas and immature stamens. By this process no flower can fertilize itself and must rely upon its insect benefactor to prevent it from disappearing from the world through lack of ability to mature its seeds. Short-tongued bees and flies cannot reach the twin berry's nectar because of the hairs inside the tube, but the larger bees and butterflies which suck the nectar from the flowers with the tall stamens receive pollen on the exact spot on their long tongues that will come into contact with the sticky stigmas of another flower.

The two flowers at the top of a branch grow united in such a way that they seem to be Siamese twins of flowerland. It is from the fruit resulting from this union that the twin berry gets its name. Experience is said to prove that when only one of the twin flowers is pollenized by insects fruit rarely sets as a result, but when both are pollenized a healthy seeded berry follows.

MAYFLOWER OR TRAILING ARBUTUS (Epigaea repens L.)

(See page 506)

The eastern half of North America, from Newfoundland and the Northwest Territory to Florida and the Gulf of Mexico, possesses that delightful little harbinger of spring, the mayflower or trailing arbutus. With its evergreen leaves nipped by the frosts of winter and weather-worn by the cold, relentless battle they must fight for existence through the grim winter, and with its flowers seeming to form nature's prelude to the fragrance of summer, from the days of Plymouth Rock itself the mayflower or trailing arbutus has gladdened the heart of man as it has proclaimed the dawn of spring. The poet tells us that the mayflower was the first sign that the Pilgrim fathers had that the winter was over; that the springtime was coming, and that the summer was appearing in the distance—not only the winter and the springtime and the summer, climatically speaking, but the winter of the Pilgrims' fear, the springtime of their hopes, and the summer of their dreams realized.

With all of its message of hope and cheer, as it proclaims the ending of the season of snow and harbingers the beginning of the season of bud and blossom, the mayflower still resists the effort of man to lead it into captivity. No more is the eagle at home in the farmyard or the cardinal in the cage than the mayflower in the garden. As the imprisoned cardinal pines away and dies when the gilded bars of a bird-cage separate it from its liberty, so the mayflower lives unhappily and unprofitably in the garden, and finally gives up its effort to adapt itself to its new environment as vain. However, man's patience and skill is finding a means of taming this wild flower (see page 518).

THE CULTIVATION OF THE MAYFLOWER

By Frederick V. Coville

Author of "Taming the Wild Blueberry"

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THE fruit of the mayflower, or trailing arbutus, is reputed to be of rare occurrence. Certainly it is rarely seen; it has hidden itself for centuries among the leaves and moss. To be found, it must be sought lovingly, if not indeed reverently, upon the knees. Furthermore, it must be sought at the right time, and that time is when wild strawberries are ripe.

It is a curious and remarkable fact that a plant so universally known and so well loved for the beauty, charm, and fragrance of its flowers should have been unknown as to the character of its fruit. Before the year 1913 none of our botanies adequately and correctly described it. The mayflower has not a dry pod, but a white-fleshed edible fruit as juicy as a strawberry, though of smaller size.

The Japanese have surpassed us in this matter, for they class their species of trailing arbutus as one of their edible wild fruits.

The secret of the mayflower fruit was known to one other also—that greatest of hunters, the ant. It is she who seeks the juicy pulp and bears the seed to new gardens on the bare, dull green soil of moist and shady hummocks.

The fruit of the mayflower is not in reality rare. I have found hundreds of them in a woodland pasture in New Hampshire in a single forenoon. (See the illustration by J. M. Shull, page 506.)

In an earlier article* were described certain experiments in the culture of that delicious but hitherto undomesticated fruit, the blueberry. It was found that this plant luxuriates only in soils so acid as to bring starvation to the ordinary plants of agriculture, and that it bears upon its roots a beneficial fungus which appears to nourish the plant in much the same way as the nitrogen-fixing bacteria in the root tubercles of clover nourish the clover plant. In the first trial plantation, in the pine barrens of New Jersey, blueberries are now produced of the size and color of Concord grapes.

A microscopical examination of the roots of the mayflower showed that it possessed the same sort of mycorhizal fungus as the blueberry, and as the two plants inhabit the same kinds of soil in their wild state and are similar in their geographic distribution, it was believed that the mayflower might respond to the same system of culture that had been successfully worked out for the blueberry. It was while searching for seeds with which to experiment that the remarkable character of the mayflower fruit was discovered.

In the most successful trials the seeds were sown while fresh in a mixture of two parts finely sifted upland peat, from laurel thickets, and one part of clean sand. The seeds sprout in about four weeks; and the plants, though exceedingly small at first, grow steadily under successive repottings, until at the age of 14 months they make rosettes about 5 inches in diameter, with flowering buds already formed. After exposure to cold weather during the winter they bloom freely. The flowers have the same fragrance and range of color as the wild ones, but larger size, some of them reaching seven-eighths of an inch in diameter; and the leaves are not so disfigured by insects as are those of the wild plants.

In their second year the plants reach a diameter of 12 inches and sometimes bear over 30 clusters of flowers.

It is useless to try the culture of the

* Taming the Wild Blueberry. National Geographic Magazine, February, 1911.

Photo by F. V. Coville

PHOTOGRAPH OF THE FIRST MAYFLOWER PLANTS, OR TRAILING ARBUTUS, GROWN FROM SEED

"The flowers have the same fragrance and range of color as the wild ones, but larger size, some of them reaching seven-eighths of an inch in diameter; and the leaves are not so disfigured by insects as are those of the wild plants. . . . It is to be hoped that the mayflower will become a familiar plant of woodland gardens and florists' windows, and thus be saved from the practical extermination with which it is threatened, and which indeed in the neighborhood of many of our cities has already actually occurred."

mayflower in a fertile garden soil or in any potting soil enriched by lime, manure, and fertilizer. Kindness of that sort is fatal.

Although florists are slow to take up the culture of new plants until popularity and profit are assured, there appears no reason, concerned with practicability or skill, why any competent flower-grower cannot repeat commercially with these plants what the writer has done in scientific experiment.

It is to be hoped that the mayflower will become a familiar plant of woodland gardens and florists' windows, and thus be saved from the practical extermination with which it is threatened, and which indeed in the neighborhood of many of our cities has already actually occurred.

Photo by Ernest L. Harris

THE PLAIN OF TROY, AT THE ENTRANCE TO THE DARDANELLES (SEE MAP, PAGE 532)

The plain of Troy today presents a very peaceful and pastural appearance. Beautiful valonia groves are everywhere in evidence, and the bark and nuts are exported in large quantities to foreign countries for tanning purposes. The old-time yoke of oxen tills the classic soil upon the banks of the Scamander now as diligently as at any time during the past 7,000 years.

HOMER'S TROY TODAY

BY JACOB E. CONNER

THE Trojan walls, unvisited by the idle tourist, are still in evidence; those same walls that defied the onslaughts of Agamemnon and Menelaus, of Ajax, Nestor, Diomed, Ulysses, and Achilles, to fall at last by stratagem. They remain as a ruined and abandoned stage minus its paraphernalia, whereon was played so many centuries ago an insignificant little drama compared with modern events; but it was a drama so big with human interest divinely told that the world has never known its equal.

Wars in these crowded modern times are for gain—for shameless gain—but in the youth of the world, *if we take the Iliad literally,* men could afford to fight for an ideal. Hence the Homeric warfare was a beautiful, a poetic pastime, seriously resulting to some happy few, who were thenceforth rewarded with immortality in song.

To be sure, it was all in the telling; and what would Troy have been without its Homer? Still, as the theater of the world's greatest epic poem, it deserves a visit any year, every year. In the thoughts and emotions it revives and stimulates, in the aroused sense of indebtedness of all subsequent literature and art, it richly repays a visit. The classical student will leave it in a daze of meditation upon things more real to him than the actual things he has seen and touched.

NEAR THE DARDANELLES

Let the narrator conduct you to Troy as he saw it, setting out from the village of Dardanelles for a five hours' hot and dusty ride, accompanied by a mounted Turkish escort. The road strikes timidly out from the village, following a course southward and approximately parallel to the coast, a mile or so distant. Along the plain moved dusty caravans, sometimes of dromedaries, sometimes of donkeys, bearing no spices or other valuable merchandise, but firewood, skins, and other local commodities, advertising unmistakably the poverty of the country. Scattered here and there were the encampments of the "muhajirs," or refugees from Macedonia—for the Balkan war was still in progress—living goodness knows how, for they had been driven from home and all they had possessed by the cruel and desolating struggle. Now and then a stork would rise from the tall grass near the watercourses, stretching his head forward and his feet backward, making that long, straight, horizontal line which so unmistakably marks his flight.

After a couple of hours' travel through the plain the road grows rougher and begins to ascend into hilly country. We should be nearing historic ground now, and we glance around the horizon to see if we can identify Mt. Ida, and toward the sea for a first sight of Tenedos; but no, this is only common soil. Soon we shall be upon the plains of Troy, and we peer anxiously over that next rise of ground in all expectancy. Rounding the summit, we see instead the road leading down into Eren Koui, a Turkish village, where we halt half an hour for coffee. Thence the road begins to wind through the village in a gradual descent until it makes a sudden jerky little turn into the open country, and behold! the plain of Troy is about us; not the plain of the historic action, but the drainage area which includes Troy.

The road, a beautiful government highway, well graded and well kept, leads straight toward a ridge in the distance, "the Hill of Ilium," at the lower point of which we shall presently see the ruins. It was down that identical ridge, or so we tell ourselves, there being no antiquarian present, that the angry god Apollo strode toward vengeance, while the arrows in the quiver on his shoulder clanged in ominous music.

Yonder the summit of Mt. Ida, where the gods in solemn conclave so often sat, where "cloud-compelling Zeus" sometimes "thought two ways in his mind at once," or else ended all debate with a nod

that shook high Olympus and caused the heavens to reverberate and glow with the flash of his thunderbolt.

Away over yonder, skirting the ridge of Ilium, is Simois' stream, or should be; but the bridge across it shows upon our approach that modern Simois is no more than a creek. Worse than that; following its attenuated course, less than a mile downstream, we discover that it ends in a morass instead of joining the Scamander as of yore. And the latter stream is scarcely less disappointing, for it is no more dignified in size or appearance. In fact, their sluggish currents united can scarcely boast of banks except at occasional intervals, for both streams are now only broad swales merging with the adjacent plain, with no continuous current toward the sea except in seasons of high water, if such are ever known.

And such beautiful plains! they were well worth fighting for, gently undulating as they retreat from the former river courses, and most homelike, cultivable places for peaceful abode. Little rounded oak trees are studded about the plain in solitary, independent fashion—oak trees resembling apple trees in size and periphery. Not many are the fields under cultivation, though an occasional patch of barley is to be seen; for there are too many Arabs, refugees, and other nomads in the country pasturing where they will. Poppies are in bloom of a most brilliant crimson. Yonder is a field of them, in appearance a field of blood, while here and there a solitary flower seems to mark the spot where one of Homer's heroes fell. The peaceful cattle are grazing about the plain, "whole hecatombs" of them if need were, herded by their far from peaceful-looking owners, who give us surly looks as we pass.

Behold the ruins at last! A long, low ridge, some four or five miles in length, ends abruptly like a promontory projecting into the sea, above which it rises about 30 feet. The ridge is the so-called "Hill of Ilium," the sea is the floodplain of the Simois and Scamander, historically known as the plain of Troy, and the promontory, with its crown of ruins, is Troy itself. You walk around the ruins and make the surprising discovery that if the walking were good you could easily do it in 10 minutes. Astonishing! Is this all there was of Troy, and did this little stronghold withstand a nine years' siege and still remain unconquered by force? Impossible! The whole Hill of Ilium may have been fortified and to some extent populated; otherwise how was the garrison provisioned? Unpoetic details like these never troubled Homer, so why bother about them.

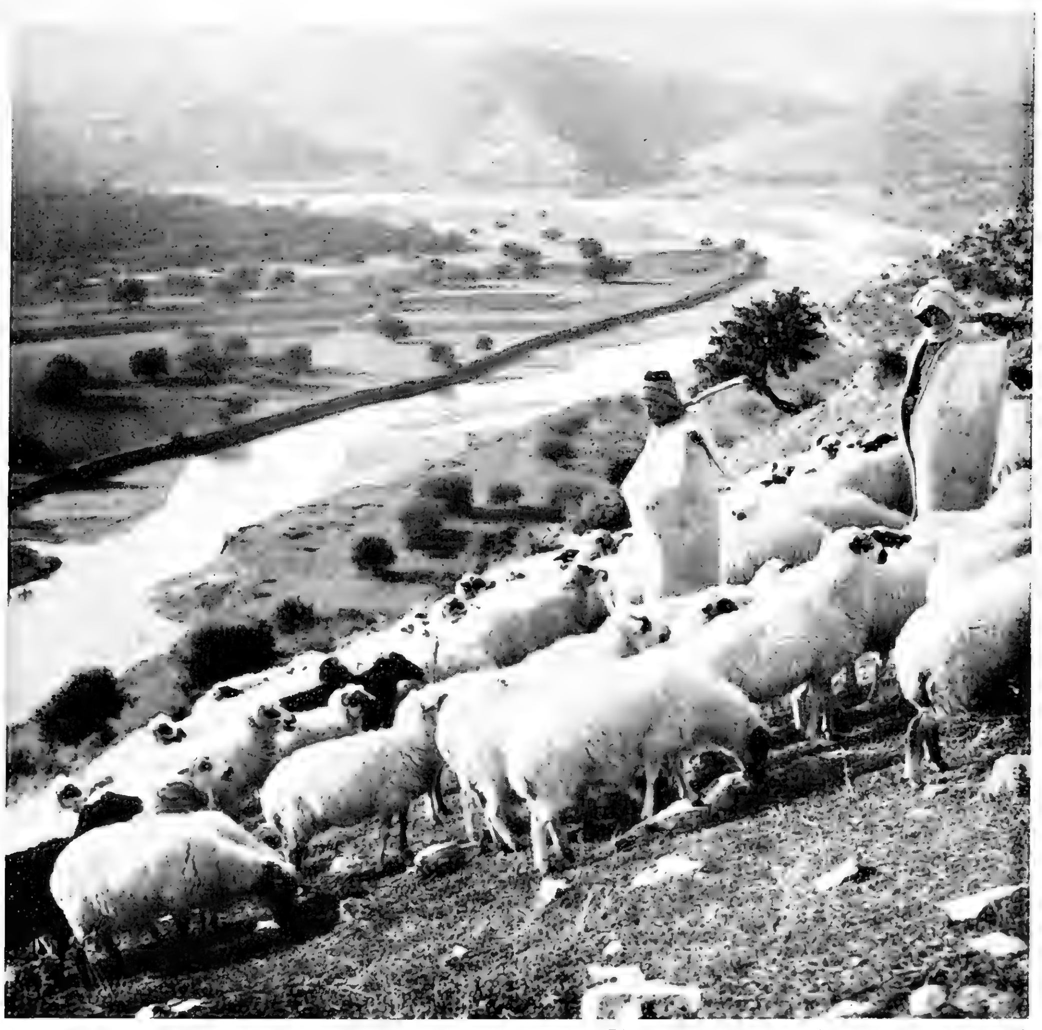
Topping a mound of material thrown out from the excavations are the emplacements for two batteries of artillery. A company of Arab "irregulars" is on guard to hold the place for the Sultan, and these come forward, headed by their sheik and his staff. These wild children of the desert have all the inquisitiveness of their kind, and in spite of the presence of the escort, who saved us from ungentler things, no doubt, a leisurely examination of the place, free from intrusion, was not to be had.

Every student knows of the remarkable work of Schliemann in unearthing these ruins and establishing their identity as those of the veritable Troy of Homer; of the indefatigable zeal, the determined search for the location, the half-willing consent of the Turkish government, and the financial and physical obstacles to be overcome. But the work did begin at last, and the first walls to appear beneath the spade were strange walls, not those described by Homer, and the order was to dig deeper. Still further ruins of city after city were unearthed, till Homer's Troy, all that is left of it, was laid bare.

Only the antiquarian can see the significance of all these things as he scrambles up and down within and among these disordered piles of what once was masonry; but even an uninformed tourist can see the difference between the rubble walls of a later date and the worthier structures which preceded them.

There are walls, too, which show the marks of a mighty conflagration, and these, it is opined, are the same whence Æneas

> "Did from the flames of Troy upon his
> shoulder
> The old Anchises bear"



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THE SCAMANDER RIVER OF HOMERIC FAME, LOOKING SOUTH FROM TROY TOWARD THE MOUNTAINS OF ASIA MINOR

on that last terrible night of destruction. One instinctively looks for the gap in the wall through which the wooden horse was introduced (oh, crafty Ulysses!), but he looks in vain. Earthenware cisterns of some 20 gallons capacity, for holding oil or wine, were built into the walls, while bits of iridescent glass, pieces of pottery, cobblestones, and clay were filled in around them. Corners of masonry formed by the intersection of interior walls were left standing by the excavators as not worth removing, and these are now crowned by tufts of stunted trees standing lonely to the view as one looks off toward Tenedos.

But there is still left one precious bit of Homeric architecture, if the archæologists are correct, raising its crown as high as any of the walls of subsequent date. It is part of a bastion facing toward the Hill of Ilium and known as the

Photo by Ernest L. Harris

A GROUP OF VILLAGERS ON A HIGHWAY IN ASIA MINOR, NEAR TROY

The Turkish wagons are covered with black canvas and have little ornamented windows around the sides. There are also curtains which may be adjusted to keep out the rays of the sun or inclement weather (see page 450)

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THE TROJAN PLAIN OF HOMERIC STORY, LOOKING NORTHWEST FROM TROY TOWARD THE DARDANELLES

"Wall of Priam." It was meant to stand throughout the ages, whoever was its builder, and one ardently wishes to give the credit for its construction to those times. It is a noble wall, well pointed, well laid, well preserved, capable yet of withstanding such assaults as when

"Ajax strives some stone's vast weight to throw."

From its corner overlooking the plain of Simois an outside stairway descends toward the river, possiblv a later feature. Could this have been the corner of the wall where stood the Scæan Gate; where the venerable Father Priam brought the beautiful Helen in order to show her the enemy, her own countrymen and kindred, on the plain below; where he pointed out the leaders, naming them individually?—"and there is Menelaus, thy former husband." It may well have been the same, and romance at least will have it so.

Photo by Ernest L. Harris

THE RUINS OF TROY

The excavations at Troy have revealed that no less than nine layers exist upon which, at various times during the past 5,000 years, human habitations have been built. The topmost layer are the remains of the Roman city of Ilium (see page 531). "Next beneath it lie two Hellenic villages which flourished between 1000 B. C. and the Christian era. The sixth city from the bottom is now widely accepted as Homer's Troy. It has a mighty circuit wall, with imposing towers, and is built of massive ashlar masonry. Its area is about two and a half times as great as that of the Second City and it flourished in the latter half of the second millennium B. C. Immediately below this stratum are the remains of three prehistoric settlements, with unimportant houses of stone and brick built on and with the ruins of the Second City and covering the period of *circa* 2000-1500 B. C.

"Archæologists were especially interested in the discovery of the Second or Burnt City, which antedates Homeric Troy by as many years as separated the latter from classical times. It was a small fortress, not more than one-third the size of the Acropolis at Athens, but well built with stout walls of stone surmounted by brick. At this level was unearthed an extraordinary mass of treasure, including silver jars, gold daggers, and diadems of pure gold, one of which was woven of more than 16,000 rings and leaves—a Crown jewel indeed. The Burnt City had a chequered career, for during an existence of about 500 years, 2500-2000 B. C., it was attacked and destroyed three times. Its predecessor was an unimportant primitive settlement, with walls of small quarry stones and clay, built upon the virgin rock." (From "Crete, Forerunner of Greece," by C. H. and H. Hawes.)

Scattered about are bits of sculptured marble, the remains perhaps of Roman or Alexandrine occupation. Off in the dreamy distance lies Tenedos—sinister Tenedos, not discernible except in the clearest weather—and by the shore near where the Dardanelles meets the sea, whence Thetis might at any moment arise, is a tumulus known as the Tomb of Achilles, and near by another, the Tomb of Patroclus.

The coast, perhaps five miles away, could scarcely have been so remote in ancient times. In other words, the Simois and Scamander have been behaving just like other rivers under the same circumstances—thrusting their silt and detritus into the sea, building up the adjacent shore, filling in their lower courses, and so becoming stagnant and marshy behind their work of repletion. In spite of their marshiness, however, the plains of Troy are beautiful, *decidedly* worth fighting for; and when one has seen the barren mountain-sides of Greece and the narrow, limited valleys that never could have nourished a large population in a generous fashion, it sets him thinking.

THE RUINS OF TROY

Some of the old Trojan towers are intensely interesting. The one situated at the northeastern corner of the outer Mycenic wall is a gigantic pile having a thickness of no less than 60 feet. Even some of the prehistoric walls are from 30 to 40 feet in height at certain places, with a width of 12 feet.

Photos by Ernest L. Harris

THE RUINS OF THE ROMAN THEATER AT TROY

One of the Roman theaters is sufficiently preserved to give some idea of the use it was formerly put to. It was apparently similar in construction to like theaters, on a smaller scale, found at Priene and Miletus, and were perhaps used more as counsel chambers than as actual theaters. To the left is standing a Greek shepherd in his capote.

Photo by Ernest L. Harris

RUINS OF AN ANCIENT GRECO-ROMAN BRIDGE ACROSS THE EURYMEDON RIVER NEAR ASPENDOS, SOUTHEASTERN ASIA MINOR

This bridge is situated near the scene of one of the most sanguinary struggles in ancient history, namely, the double battle on the Eurymedon in 466 B. C., where the power of Persia was completely broken by the genius of the Athenian general, Kimon

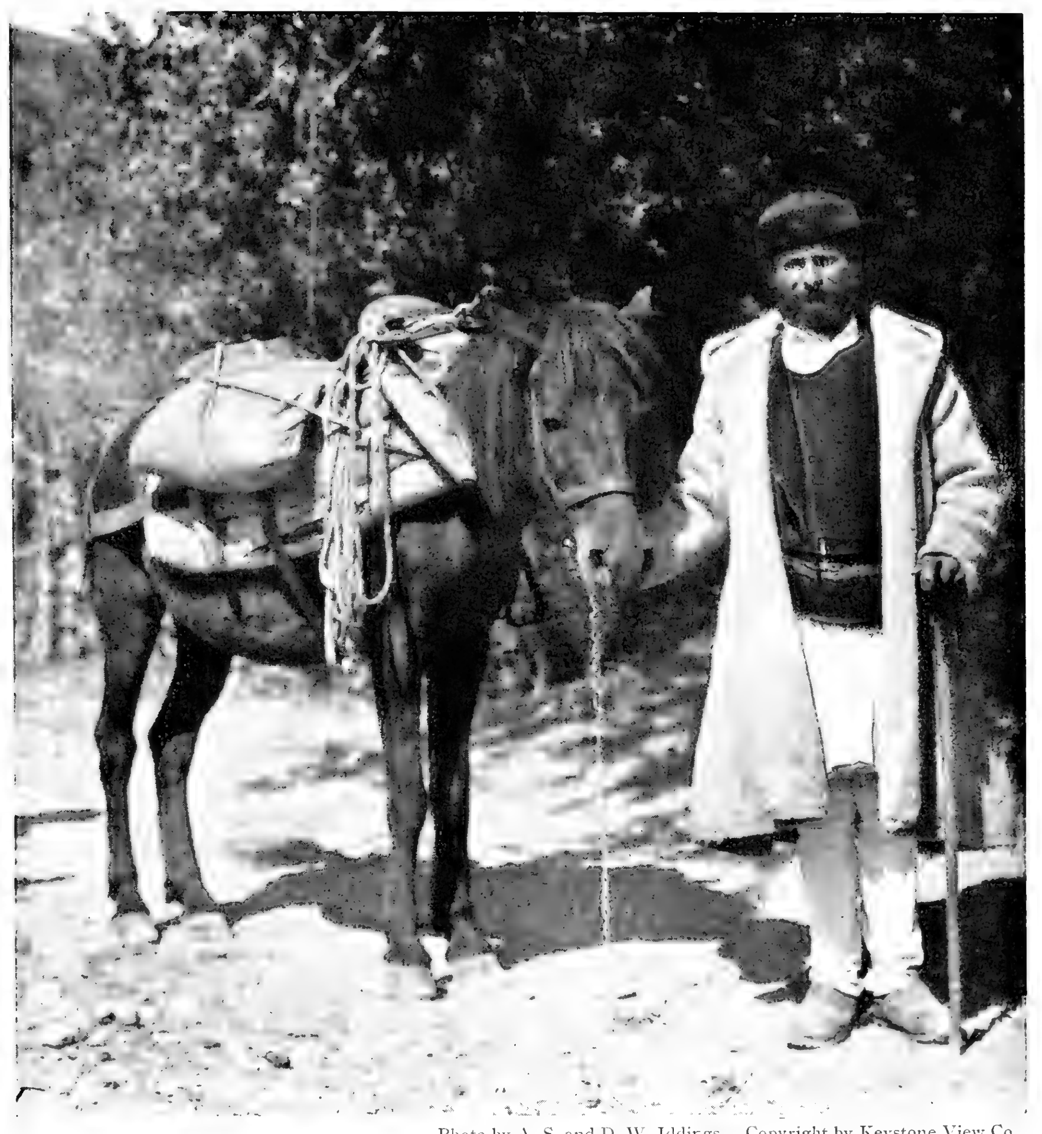

Photo by A. S. and D. W. Iddings. Copyright by Keystone View Co.

THE GREEK OF TODAY

Pardon the impious suggestion, ye who worship only at the shrine of the classics, but could it have been possible that Helen of Troy was only a myth? Or, to put it in another way, is it not possible, or even probable, that the beautiful Helen was only an impersonation, a figure of speech, for these beautiful plains which the Greeks coveted for their own sake? The valley of Argos, where ruled "Agamemnon, king of men," the greatest monarch of them all, could hardly have supported more than 10,000 farmers. Good, fertile valley soil, accessible to the sea, was certainly scarce in Greece and very desirable to men like the sons of Atreus.

Their stronghold, Mycenæ, at the head of the valley of Argos, where the famous "Lion Gate of Mycenæ" still guards the ancient threshold of Agamemnon and Clytemnestra, was apparently the stronghold of a piratical race, whose vessels roamed the seas. A people that could send out expeditions after somebody's

GREEK SHEPHERDS OF ASIA MINOR CLAD IN THEIR SHEEPSKIN CAPES

Photo by H. G. Dwight

GREEK TYPES AT A CHURCH FESTIVAL IN THE MARMORA

The islands and villages of the Marmora are today as they always have been—more Greek than anything else.

Photo by A. C. Barler

THE TOMB OF AGAMEMNON AT MYCENÆ, GREECE

else golden fleece and then write undying accounts of their heroic buccaneering would not halt long for a pretext to attack, nor scruple to gild their cupidity by means of a poetic story.

Oh, well, we have the story, which is its own excuse for being; so never mind about the history or its rationale. We prefer to believe in Helen as beauty personified rather than as greed personified, regardless of the evidence. Hence her future is secure as long as men are what they are, and hence also the eternal charm and freshness of the story. The assured immortality of the Iliad lies in this: That two nations engaged in a heroic struggle with each other, not for gain, not to reassert the rights of Menelaus, but for that which all men agreed was the most beautiful object in the world—in a word, for the principle of beauty itself.

NOTES ON TROY

It was under Roman rule that Ilium, the ninth city built on the site of Troy, reached the height of its splendor and importance. It is evident that the Romans thoroughly believed the legend that the fleeing Æneas, after many wanderings, finally landed in Latium and became the lineal ancestor of the kings and founders of Rome.

What Jerusalem and Mecca are today to those of the Christian and Mohammedan faiths, so once was Ilium to the inhabitants of Rome. In other words, Troy was the mother of Rome, in their belief, and the classic citadel of Homeric fame became an object of veneration to every true Roman and something to which to make a pilgrimage before he died. This belief is abundantly supported by the fact that Ilium in turn was visited by Sulla, Cæsar, Hadrian, Cara-

MAP OF THE GATES TO THE BLACK SEA

calla, Marcus Aurelius, and Constantine the Great.

It was Sulla who began to adorn Troy with beautiful temples, as conceived by Alexander and partly executed by Lysimachus, and to see in Ilium the cradle of the Roman race. Cæsar also offered up sacrifices to the gods at Ilium and, what may not be generally known, he conceived the idea of making Troy the residential city and center of the Roman Empire. Even Constantine thought of erecting his capital at Ilium before he finally selected Byzantium, in 330 A. D., and he gave it the name of Constantinople.

During the reigns of the Byzantine emperors the town and citadel of Troy fell into decay and was completely neglected. The stones and marbles were carried away and used as building material. The Turks never attempted to build a town at or near Troy. The soil and debris of a thousand years finally settled down upon the classic mound, completely veiling it from the outside world until it was uncovered by Schliemann, 40 years ago.—Ernest L. Harris.

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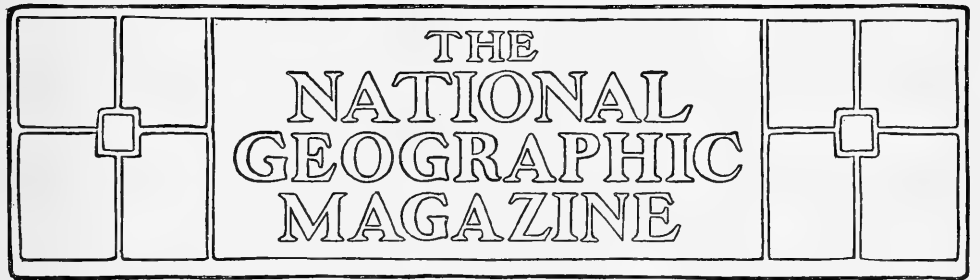


FRONTIER CITIES OF ITALY

By Florence Craig Albrecht

Author of "Austro-Italian Frontiers," "Münster—The Town of Many Gables," and "The City of Jacqueline," in the National Geographic Magazine

Illustrations from photographs by Emil Poole Albrecht

Italia, Italia, O tu cui feo la sorte
Dono infelice di bellezza, onde hai
Funesta dote d'infiniti guai,
Che in fronte scritti per gran doglia porte;

O fossi tu men bella, o almen più forte,
Onde assai più ti paventasse, o assai
Ti amasse men chi del tuo bello ai rai
Par che si strugga e pur ti sfida a morte!

Che or giù dalle Alpi non vedrei torrenti
Scender d'armati, nè di sangue tinta
Bever l'onda del Po gállici armenti.

Nè te vedrei del non tuo ferro cinta
Pugnar col braccio di straniere genti,
Per servir sempre, o vincitrice, o vinta.

Vincenzo Filicaia, 1642–1707.

Italia, Italia, O thou to whom fate gave
The unhappy gift of beauty, so that thou
A funest dowry of infinite woes must bear
All on thy forehead written by great grief;

O wert thou but less lovely or more strong,
So that thou mightest be more feared or less beloved
By those who in the beauty of thy radiance fain would bask
And then all suddenly challenge thee to death!

That from the Alps descending no more shouldst thou see
Torrents of warriors; nor should vast Gallic hordes
Drink more the blood-tinted waters of the Po.

Nor shouldst be seen again thee, in foreign armor girded,
Battling with aid of hireling stranger peoples,
Only to serve them ever, conquering or conquered.

A literal translation.
For metrical one see Byron's Childe Harold.

TO THE great plain of northern Italy, the basin of the River Po, which stretches from the Alps to the Apennines, from Saluzzo to the Adriatic, Genoa la Superba does not belong. The little strip of coast land between the Maritime Alps, the Apennines, and the sea, stretching from Nice to Spezia, the Liguria of ancient days, the Riviera of our own, is ridged by spurs and branches of the great mountain chains to the northward; its level places are but floors of steep, narrow valleys or meadows at river mouths. But Genoa is such a charming gateway into northern Italy that one may not ignore it nor press too hastily up into that fair land beyond.

Rivals in loveliness she has—Naples close at home, Constantinople, Hongkong—but superbly indifferent she sits upon terrace above terrace, encircling her close port, looking far out over the

Photo by Emil P. Albrecht

THE "PORTO," THE OLDEST HARBOR OF GENOA, AND THE MOLO VECCHIO, BEGUN ABOUT 1270

The older and newer harbors, with the Avamporto, or outer basin, comprise 470 acres. There are seven miles of quays. A rampart studded with forts crowns the hills that encircle the town, the highest, Forte dello Sperone, 1,690 feet above the sea. The small ancient lighthouse (Fanale) of the picture serves only for the inner harbor; there are others upon the newer breakwaters; and upon Capo del Faro, the rocky headland between Genoa and San Pier d'Arena, stands the Lanterna, a lighthouse 230 feet high, whose light can be seen for 30 miles. Out of this port hailed Columbus, who gave us our new world.

Photo by Emil P. Albrecht

NOT ADMIRALS OF THE FLEET, BUT CITY POLICEMEN, "GUARDIA MUNICIPALE," IN THEIR SUNDAY CLOTHES: GENOA

They are usually seen in pairs, as here, where they are watching the passengers boarding a steamer, about to sail, for tokens of smuggling or other suspicious actions. The Carabinieri—literally, bearers of rifles or carbines—are a national police force similar to the French gendarmerie.

blue Tyrrhenean Sea. Along her dusky streets file rows of stately palaces—marble, soft rose, rich cream, or yellow brown.

GENOA'S FAIR SETTING

Backed against the hills, which come straight down to the water, the ground floor is often but a court or vestibule, above which story after story sets back as the slope gives way. Fountains there may be in these courts, and palms and oleanders grown in tubs, and roses and clematis that climb and twine to upper floors, to which broad stairs lead so invitingly.

Gardens there are, all green and fragrant, melodious, too, with bird song; great churches, cool and quiet; goldsmiths' shops gay with filigree; museums

Photo by Emil P. Albrecht

THE "FESTA" OF SANTA MARIA DEL CARMINE IN THE QUARTER OF GENOA DEVOTED TO HER SERVICE

The small boys in uniform are from an orphanage and are in the care of sympathetic Sisters of Charity, who allow them a full share of the sights. In the foreground is the ice-cream vender. "Gelati" is our own familiar "hoky-poky," from the Italian *"gelare,"* to freeze; hence, frozen. The piazza is full of booths—all sorts of medals, pictures, and souvenirs calculated to catch pious fancy, and a great many things pandering to more fleshly tastes. Against the house in the background a shrine and altar with a picture of Our Lady have been erected for the morning service. The gap between this house and its neighbor is not a cañon, but an average Genoese street. Between the hill and the sea Genoa can build nowhere but into the air!

with wondrous pictures; high cornice roads and open spaces, whence one takes in marvelous stretches of earth and sky and sea.

Like all Italy, she bears traces of ancient Roman rule, suggestions of an earlier race than they, remembrances of the time when, chief city of a great republic, she rivaled Pisa and Venice; scars of the strife between Guelph and Ghibelline; huge modern "improvements," due to the present prosperity which came with a united Italy.

UNIFIED ITALY IS YOUNGER THAN THE UNITED STATES

The "fatal gift of beauty," which is Italy's dower, is that of each of her children, as their history is hers. The unified Italy, which our generation has known, is no older than us. The peninsula bounded, roughly speaking, by the Alps, the Mediterranean, the Adriatic, the Tyrrhenean Sea, has been occupied from the dawn of history to our own time by countless rival states; has been in turn both conqueror and conquered; ruler of half the world, vassal of petty kings. Each of its ancient cities presents a shield so dented with scars, so overwritten with words and deeds, that no casual tourist may decipher it. Its loveliness, however, he may none-the-less enjoy.

If Italy's pages in history are drenched with blood, they are gilded and glowing also with music and poetry and song, with valor and love and art. If she were not a nation, she was the home of many; a bit of earth so lovely that the coolest-headed geographer must admire; a place that gave birth not only to wondrous fruits and flowers, but to marvelous children of men.

AN IMMEASURABLE DEBT

What our debt to her may be—in architecture, in sculpture, in painting, in music, in poetry, in all that raises life from dull necessitous routine—none may measure. Her political past we may criticize; her artistic, never. Nor here at Genoa may we, Americans, be filled with less than gratitude; for from a village of the neighborhood and out of this port sailed that mariner, Columbus, who gave us our new world.

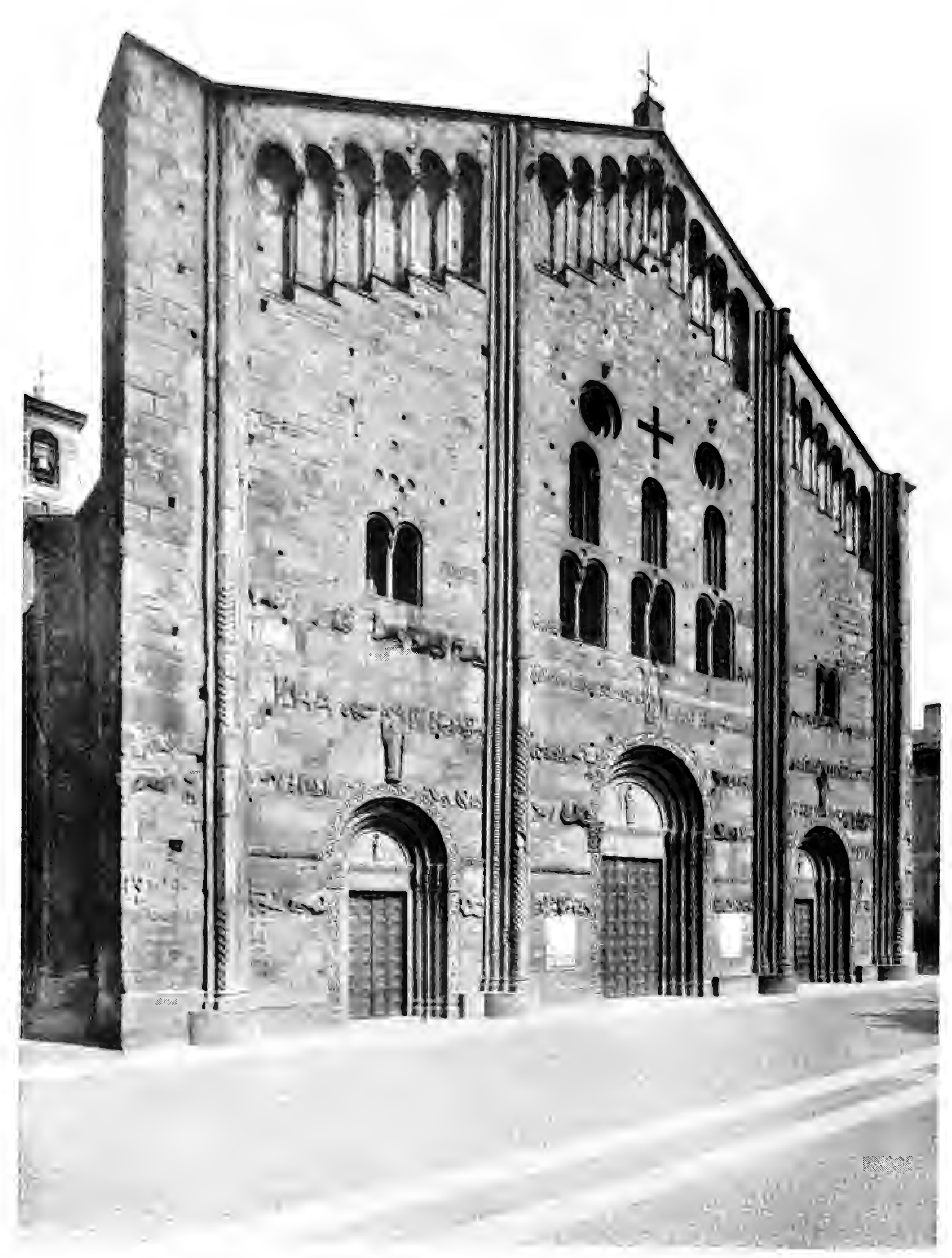
From Genoa northward to Pavia is but a little way, but that way is over the Ligurian Alps, all green and gray with vineyards and olive groves, and noisy with swift little rushing rivers and mill-wheels clacking around—a lovely way, not to be hurried, but eventually bringing us into the plain of Lombardy. And here there are many rich cities and much of art and of history, for in this great fertile plain between huge mountain chains armies have ever gathered, looking up toward the Alps, to great victories over the pagans beyond them, or, themselves pagans, rejoicing in the luxuriance spread before them, as they faced joyously the Apennines and Rome.

ALPS THE NATURAL BOUNDARY

Northward the snow peaks of the Alps form a natural barrier, it would seem, to the nation tenanting this peninsula; but soldiers have little sympathy with geographical boundaries save for strategic purposes, and diplomatists none. The western chain of Alps bends southward to the Mediterranean, ending presumably in the great headland between Nice and Monaco. Across this physical boundary line Italy's western limits have been thrust back and forth through centuries, reaching once far beyond Nice, at present not quite touching Mentone, which is 15 miles to east of it. In the central Alps the southern slopes belong to Italy, although, of course, the greater portion of the chain lays in Switzerland; but the eastern Alps, to south as well as north, are Austrian.

This most southerly province of the Austrian Empire, this beautiful, romantic Tyrol, has acquired new interest at present as a pawn in the great war game. Logically and sympathetically, if not politically, the southern slopes of Tyrol belong to Italy.

Occupied at the dawn of its history by a wild Celtic tribe—the Rhætians—tamed by all-conquering Rome into the tributary province of Rhætia, the northern part of Tyrol was Germanized as early as the fifth century. On the other hand, the southern part remained Roman, even



THE CHURCH OF SAN MICHELE: PAVIA

In San Michele those kings of Italy from whom the present reigning line, the House of Savoy, claims descent were crowned 1,000 years ago. The old church is one of the finest specimens of Lombard architecture in existence. The present structure is a restoration, executed toward the latter part of the eleventh century, of the original church that burned in 1004.

ANCIENT DOORWAY TO SAN MICHELE, AT PAVIA

Among the most highly prized details of Pavia's old Lombard home of worship are its heavily carved portals, deep and massive sandstone arcades, surfaced everywhere with fanciful reliefs. Here the builders allowed themselves a rich profusion in line and ornament. Otherwise the exterior of San Michele is Puritan in its unimaginative simplicity.

THE WONDERFUL CHURCH OF OUR LADY, IN THE CERTOSA DI PAVIA

Generations of artists spent their lives in building the church and the component structures. Here, it is said, one may study a practical text-book of Italian art covering well nigh three centuries; and the text-book is rich in examples of unsurpassed inspiration. The façade of the church has been styled the finest piece of richly adorned Renaissance architecture in existence.

to the extent of Romanizing the Teutonic Langobardi, who swept up into it from the plains of the Po. But Latin south and Teuton north, all Tyrol passed, with its neighbors, under the rule of the Carolingians, and thence to the rule of the tributary bishops of Bavaria. In the thirteenth century arose the House of Tyrol, which through inheritance, imperial grant, force, and persuasion, was destined to unify the land under a secular lord and give it its name. For fifteen centuries the northern, early Teutonized, portion of the province has been loyal to a Germanic house, Bavarian or Austrian.

TRENTINO'S ITALIAN ASPECT

But the southern part, like Italy itself, conquered its Teuton conquerors, imposing upon them its language, its customs, its life and thought, even while submitting to their laws. In part at least this much-disputed, Italian-speaking, Italian-looking district was long ruled by Verona and by Venice; a hundred years of Austrian rule have not made of Trent, the most prosperous little city of south Tyrol, or Riva, the picturesque port upon Lake Garda, anything but Italian towns. (See article and photographs of this region by Mr. and Mrs. Albrecht in the GEOGRAPHIC MAGAZINE for April, 1915.) Natural sympathies and geographical boundaries combine to make the Trentino most desirable to Italy; yet no one may wonder that Austria is reluctant to yield it. If Bavaria should claim her ancient inheritance, what then would be left to her?

But we have come far from Genoa without pausing to look by the way. Let us go back and take the slowest train, that we may stop as often as we will. Perhaps the first time should be at Pavia, but I am not sure. Much of history has been made there; it should be interesting. For two hundred years, until Charlemagne overthrew them, it was the capital of the Lombard kings, the kings of that one-time Teuton tribe of Langobardi, who conquered Italy, only to be themselves slowly conquered and become Italian or, more accurately, Romanized. It is they who ruled over this great fertile plain between the Alps and the Apennines, the plain watered by the Po and its tributaries, adorned by a chain of wonderful lakes that hang like sapphire pendants dripping from the glacier-clad Alps into the rich green meadows—the plain that has been the coveted possession of every European tribe and nation, the prize of battle, the field of war, since history began.

A CROWNING PLACE OF KINGS

Here, in the church of San Michele, kings of Italy were crowned a thousand years ago; here two Germans, at least, Henry II (1004) and Frederick Barbarossa (1155), received upon their brow that "iron crown of the Lombards" which conveyed the sovereignty of Italy. In the castle garden, Francis I was defeated by the forces of Charles V; in the palace, Petrarch was an honored guest and perhaps wrote sonnets (see pictures, pages 538-539). Yet all this cannot make of Pavia an alluring town to me; let us go on rather to the Certosa, a short five miles away.

If a few hours suffice for Pavia, how many should be given here? Who shall say? Not I; but only that it deserves more time than it usually receives, sandwiched in between a morning at Pavia and an afternoon at Milan, or the casual objective of a pleasant motor tour. Yet am I fair? Superficially, casually, attentively as the perfunctory guide will allow, one may "look it over" in a morning; to really see it would be to scrutinize it foot by foot, almost inch by inch, especially its great church, which is a jewel without and within. That St. Bruno would quite approve its magnificence I much doubt. Coming to it directly from the mother-house across the Alps near Grenoble, the differences are marked indeed.

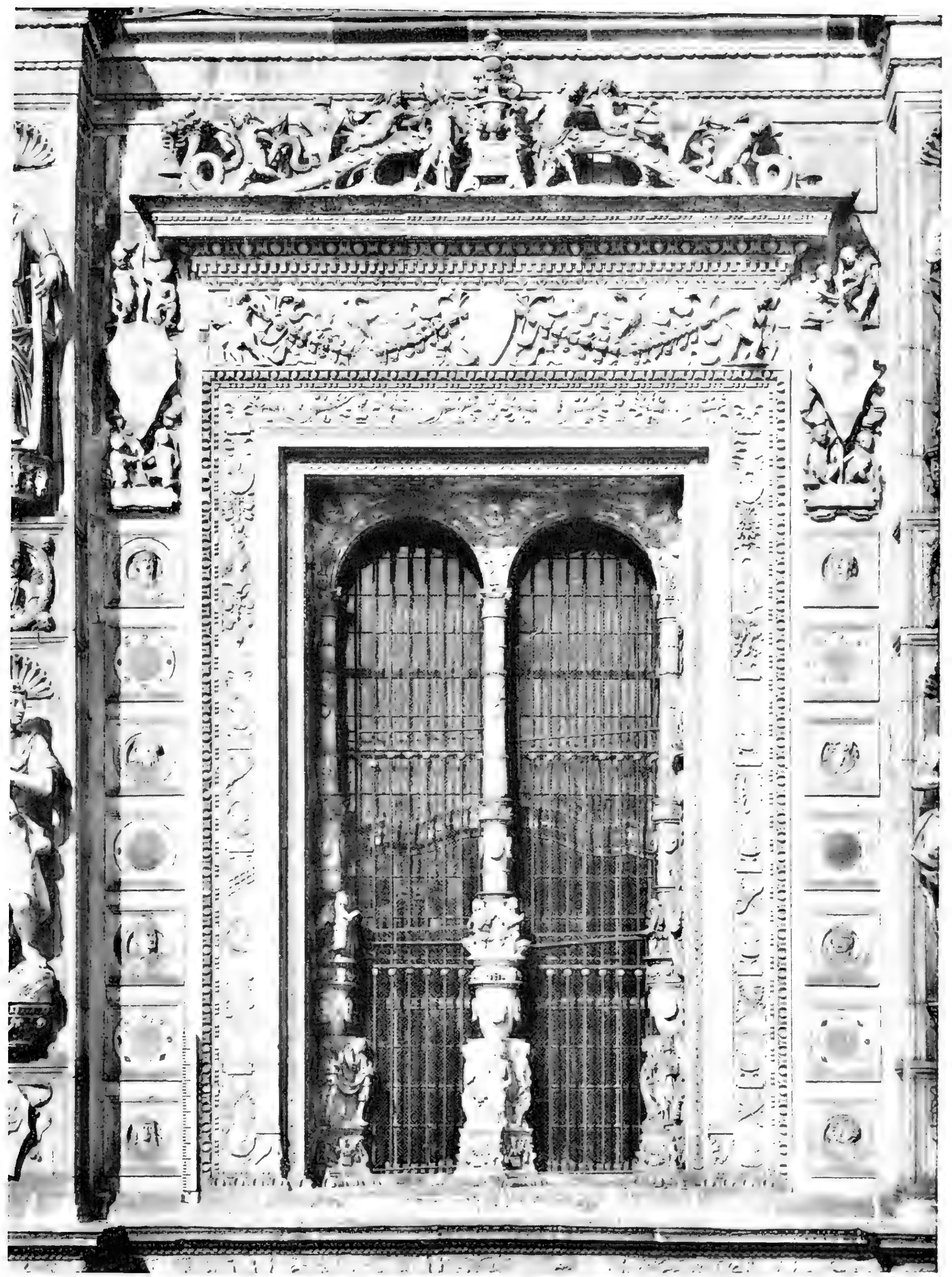
FEATURES OF CARTHUSIAN MONASTERIES

The salient features of the Carthusian monasteries, the small houses or cells made necessary by the rule of the order as to solitary life, are, of course, here grouped about the usual court or cloister, and they are no larger, no more luxurious, than those across the mountains; but the cloisters themselves—above all, the church—bear little resemblance to the

Photo by Emil P. Albrecht

THE ENTRANCE TO THE CHURCH AT CERTOSA (SEE PAGE 540)

The whole façade is of wonderful richness, not only in the number, but also in the character, of its carvings. The medallions of the plinth are the heads of Roman emperors; above are scenes from the life of Gian Galeazzo, the founder, and from sacred history; and around and about the windows, which are exquisite in themselves, is a wreath of delicate sculpture, heads of angels, statues of saints and martyrs—all perfect as when they left the sculptor's hand and mellow with the sunshine of 400 years.



A WINDOW FROM THE CERTOSA DI PAVIA

"No words can describe its beauty, no photograph do it justice. The centuries have passed over it gently. Under that benign Italian sky it has mellowed perhaps a trifle; but as it is, so it seems it must ever have been—a wondrous flower blooming alone at the heart of its silent meadows" (see text, pages 541 and 551). Now the church at Certosa, together with many other beautiful examples of olden art, has been brought within a few scant miles of the ever-extending, unsparing battle line of Europe's great war.

MONUMENT IN CERTOSA DI PAVIA TO GALEAZZO VISCONTI, FOUNDER OF THE MAJESTIC MILAN CATHEDRAL AND ALSO OF THE CERTOSA CATHEDRAL

"According to local story, Catharina, wife of Gian Galeazzo, gave, when dying, a park adjoining the ducal palace at Pavia, a part of her own dowry, for the perpetual use of twelve Carthusian monks. The park comprised some 13 miles in extent, an unimproved, boggy forest, full of game, her husband's hunting ground. In sorrow and devotion he confirmed the gift and expanded it until 20 square miles of territory between Milan and Pavia were tributary to the monastery for its support, for its construction or its embellishment" (see text, page 551).

Photo by Emil P. Albrecht

THE VESTIBULE OF THE CERTOSA, OR CARTHUSIAN, MONASTERY

The frescoes are by Luini (1470–1532), but are sadly faded and damaged. Enough remains, however, to tell us how beautiful this entrance must have been

LODOVICO SFORZA, THE MOOR, AND HIS WIFE, BEATRICE D'ESTE: CERTOSA

One of those restless, adventurous Italians who, during the late Middle Ages, made Italy mean again almost what Rome had meant—Lodovico, the Moor—now sleeps in a tomb at Certosa beside his wife. The recumbent statue in their memory is one of the finest works of Cristozoro Solari

Photo by Emil P. Albrecht

THE STRANGER'S LODGING-HOUSE AT THE CERTOSA MONASTERY

In its prosperous days the Certosa was visited constantly by scores of pilgrims eager to pray at its shrines, to beg the good offices of its monks, or to buy the liqueurs or cordials that they made. There were no inns in medieval days; the monks must provide a lodging. So within their inclosure upon the left of the great court which stretches between vestibule and church—the Piazzale—they built their "Farmacia," where the cordials were made and sold and the quarters where humble pilgrims could be lodged. Upon the other side of the Piazzale—the right as you enter—stands the Novices' Convent and the great Palazzo Ducale, now a museum, where titled visitors were housed.

VIEW FROM THE PENSION CASTAGNOLA, ON LAKE MAGGIORE (SEE PAGE 554)

The sons and daughters of Italy have spread through all the sunny valleys of the southern Alps, taking their language, customs, and many of the peculiarities of the southern plain with them. The climates of these southern Alpine valleys are among the softest in the world; the cold is seldom more than a spicy zest to the out-of-doors, while the summers are filled with the lazy mellowness of Riviera sunshine.

"THIS IS THE WAY WE WASH OUR CLOTHES" IN LAGO MAGGIORE: STRESA

Photo by Emil P. Albrecht

A kneeling-box, a cake of very yellow, very "smelly" soap, a scrubbing-brush or a paddle—but Italians seem to prefer the brush, where French and German laundresses use a paddle—and the lake; that is all the equipment. The clothes are washed and rinsed and squeezed as dry as is possible without mechanical wringers, then are slung over poles balanced on the laundress' shoulder and carried home to dry, to starch, to iron. The picture was taken near Stresa. Isola Bella lays in the distance.

Photo by Emil P. Albrecht

THE VILLA ARCONATI ON THE PUNTA D'AVEDO OF BALBIANELLO, WHICH PROJECTS FAR INTO LAKE COMO BETWEEN CAMPO AND LENNO: LAKE COMO

When the oleanders are in flower, their soft rose and glossy green reflected with the creamy villa and drifting summer clouds in the radiant blue of the lake, one can think of nothing more prosaic than fairyland (see page 553).

austerities of the Grande Chartreuse. St. Bruno had been three centuries dead when this beautiful group of buildings was begun.

Nor was it the creation of poor, laboring monks alone, nor raised by the small offerings of the poor. According to local story, Catharina, wife of Gian Galeazzo Visconti, gave, when dying, a park adjoining the ducal palace at Pavia, a part of her own dowry, for the perpetual use of 12 Carthusian monks. The park comprised some 13 miles in extent, an unimproved, boggy forest, full of game, her husband's hunting ground. In sorrow and devotion he confirmed the gift and expanded it until 20 square miles of territory between Milan and Pavia were tributary to the monastery for its support, for its construction or its embellishment.

Photo by Emil P. Albrecht

IN THE PUBLIC GARDEN OF RIVA, ON LAKE GARDA

Riva belongs to Austria, but looks Italian. One sees blond and brunette here; one hears poor German and poor Italian; one pays in Austrian money for articles with Italian names. The blond-haired child is Angelica; the dark one, Gretchen. Can contrast go further?

There was a little "string" to the gift. When the monastery should be quite completed, the revenues from its lands were then to be applied to aiding the poor of Pavia. The poor of Pavia have never received a penny to this day. One must not be unjust, however. The monastery, the church, were long in building. Gian Galeazzo died; his sons were not so strong as he; their inheritance melted away; war desolated the fields and ruined the harvests of Lombardy; the monastery's revenues suffered with the rest; doubtless there were few pennies to give away. The work was commenced in 1396, the monastic buildings being erected first; the façade of the church was finished about 1492.

No words can describe its beauty, no photograph do it justice. The centuries have passed over it gently; under that benign Italian sky it has mellowed perhaps a trifle, but as it is, so it seems it must ever have been, a wondrous flower blooming alone at the heart of its silent meadows.

MILAN A HALF-WAY HOUSE

Milan is today such a half-way house for people rushing up and down the earth, from the Mediterranean to the Alps, from Venice to Como; it is so very well known, so very crowded, so busy, so bustling, one feels there is nothing more to be told of her. Perhaps because she seems so entirely modern, because she bears so few traces of her earlier years, because while her sister cities point so proudly to Etruscan, to Greek, to early

IN THE HOTEL GARDEN: RIVA

This is as lovely a spot as can be found on any of the Italian lakes. Across the harbor to the west is the precipitous Rocchetta (5,000 feet), dominating the town and casting over it in the afternoon a welcome shade. Part way up its steep side an old ruined tower recalls the day when Riva was subject to Venetian rule.

Roman remains, she invites the visitor to contemplate her Galleria Vittorio Emanuele, one feels she does not appreciate her past.

It is not so. She has been literally trampled into the dust so often she would have nothing but scars to show but for the invincible courage which made her instantly build on her ruins the foundations of yet greater things.

Gian Galeazzo, who made the Certosa possible, did much for Milan. To him we owe the cathedral, one of the largest in the world. What joy must have been his to see these wonderful structures growing, to know that from his care they came. I hope Catharina shared the pleasure a little time. The cathedral was begun in 1386, a few years before she died.

It is not possible to leave Milan without a visit to Leonardo da Vinci's "Last Supper," I suppose; yet it would be well to do so, for it is but a ghost. One derives no pleasure from it, unless the melancholy one of meditating upon "might have been's," and in thought it speedily sends one back to Certosa; to the tomb of Duke Lodovico Sforza, the Moor, and his wife, Bianca Maria (Beatrice d'Este), for they were Leonardo's patrons and were pictured upon this same wall (see picture, page 546).

JEWEL-LIKE LAKE COMO

And Milan cannot hold any one long who remembers that Lake Como is but two short hours away, with open-air pictures far lovelier than any that Milan's rich museums hold. That is not meant to deny art's due to art. There are days when picture galleries and churches are places delectable, their glorious paintings, their statuary, their jewels of surpassing interest; but there are others when nothing compares with the matchless beauty of the great "out-of-doors." On such a day go to Como. The little town of the name at the southern end of the lake is quaint enough; it has a charming cathedral; it looks straight up to the snow-peaks, but it is not a place to linger; choose rather some quieter place farther up the lake — Cadennabia, Menaggio, Bellagio.

When people speak of the Italian lakes it is usually Como and its neighbors that are meant: Como, which is all Italian; Lugano, which is largely Swiss, and Maggiore, which is largely Italian; but there are others, very tiny perhaps, but also lovely: Orta, Varese, and to the east Iseo, Idro; above all, beautiful Lake Garda, whose upper end is Austrian. So many poets have sung their charms for twenty centuries, so many artists depicted their beauties, what remains for ungifted lovers to say? So much of history is sleeping in their shining waters, so many world-known names connected with their shores, what could one summer bring to all their memories?

BEAUTIFUL VILLA CARLOTTA

Which is the loveliest? Who knows? Undoubtedly Lake Como is the most popular. And does any visitor fail to row across its blue, satiny surfaces to the marble steps of the Villa Carlotta to see the Thorwaldsen Frieze and Canova's Cupid and Psyche? One does not need eyes to know which is the favorite. The "oh's" and "ah's", the sighs and silences, tell it; but, then, love is immortal, while war is transient. The frieze has more of history, however. Commanded of Thorwaldsen by Napoleon I to adorn the palace of the Quirinal, it was not yet completed when the Empire fell. Twelve years later Count Giovanni Battista Sommariva had it finished and placed in his villa here. The triumph of Alexander of Macedon cannot seem quite at home in gardens where nightingales sing—Psyche suits the environment.

The Villa Carlotta—it was Sommariva, but in 1843 a certain Princess of Prussia bought it and named it for her little daughter, Charlotte, afterward Duchess of Saxe Meiningen, long since dead, to whose family the villa still belongs—is not the only lovely one upon this radiant, pleasure-loving lake, nor are its gardens the only ones whose wonderful flowers bloom. So many gardens there are, and so many lovely views from every one, such marvelous color changes on lake and mountain as clouds drift by or sun and moon go down, such a succession of radiant sunny days and starry, perfume-

filled nights, that all too soon a springtime passes, a summer is gone.

LUGANO'S NATURAL BEAUTY

Lugano is quite a different lake from Como, although so near—but a single rocky ridge, an outlying spur of the great Alpine chain, between. It is wonderfully picturesque, with its steep, wooded sides and quaint towns, pink and yellow and mauve, staged upward from the lake like galleries at a theater. If there are fewer luxurious villas, fewer overrich gardens, there is more of romantic naturalness.

On Como one senses luxuriously a civilization 2,000 years old; on Lugano one feels ageless nature's unmatched loveliness. If largely Swiss politically, in appearance Lugano is wholly Italian—the half-wild Italian which recalls the ancient, freedom-loving Celt, not that which reminds us of polished Rome.

It is all the difference between strawberries and strawberries. I am not sure, but I think they ought to grow in Como gardens big, red, juicy, sweet, comfortable, and comforting fellows, each one almost a meal. I do not know at all, but there should grow upon Lugano hillsides the little spicy, deep-red, fragrant berries no bigger than a thimble, which make one work for every mouthful, but whose flavor exceeds the garden variety as the sun exceeds the moon. There will always be those who can see no good at all in one or the other; so it is with the lakes. There are those that in moods like both, and to these I belong.

SEEING LAKE MAGGIORE

Lake Maggiore is almost as well known, as much traveled, as Como. Its individuality is just as strong as that of the other two; to see one is by no means to see all. One must travel up and down it by boat in the morning light and in the sunset glow. One must make excursions along its shores and to the Borromean Islands, which float so picturesquely on its surface. One must climb the rocky hillsides about it and get new and surprising views of its size and splendor. One must see it in storm as well as sunshine; see the white snow to northward sharply defined against the blue sky; look in vain for peaks that are hidden in swirling masses of mist and cloud. Is it lovelier than Como? Ah, well—that, too, depends upon the point of view (see pp. 548-549).

In crossing the plain of Lombardy, that plain so dotted with rich old cities and lovely lakes that one ought to find no temptation to turn to right or left, the idler who listens to the voices of the wind is apt to be reminded of Lombardy's rivals, of Genoa's peers; his steps turn aside to Pisa, with its leaning tower; to Florence, with its treasury of art. Hard indeed it is to pass them by; but did we go, Rome, too, would beckon—Perugia, Assisi, how many more? Not for us today is it to walk in the Boboli garden, to linger in the Pitti Palace or the Uffizi; not for us to chatter under the arches of the Ponte Vecchio, to sit silent in San Croce, to see Ghiberti's marvelous doors or Giotto's soaring tower.

One may not squeeze Florence in between two tamer cities as one does the meat in a sandwich. Too much of history, of art, of beauty, of very human passion and divine inspiration, is mixed with her mortar, built with her stones, to be satisfied with half-hearted attention.

VERONA IS THOROUGHLY ITALIAN

Then, too—whether it be the English accent heard continually in her streets, the large English colony that for generations has tenanted her ancient palaces; whether it be the crowds of tourists of all nationalities one meets in every gallery and garden and church—Florence does not today give the impression of a thoroughly Italian city, not as Verona, for instance, is Italian. As a great museum of art, Florence is without rival; as an open page of Italian life—Basta! who am I to judge her!

Verona suffers at tourist hands today from her situation as she once profited by it long ago. Travelers passing westward are too satiated with the glories of Venice to observe her; going eastward they are too eager for the sea to tarry by the way. The train leaves Brescia's picturesque towers behind and presently skirts the southern shore of Lake Garda, whose marvelous blue draws the eye up

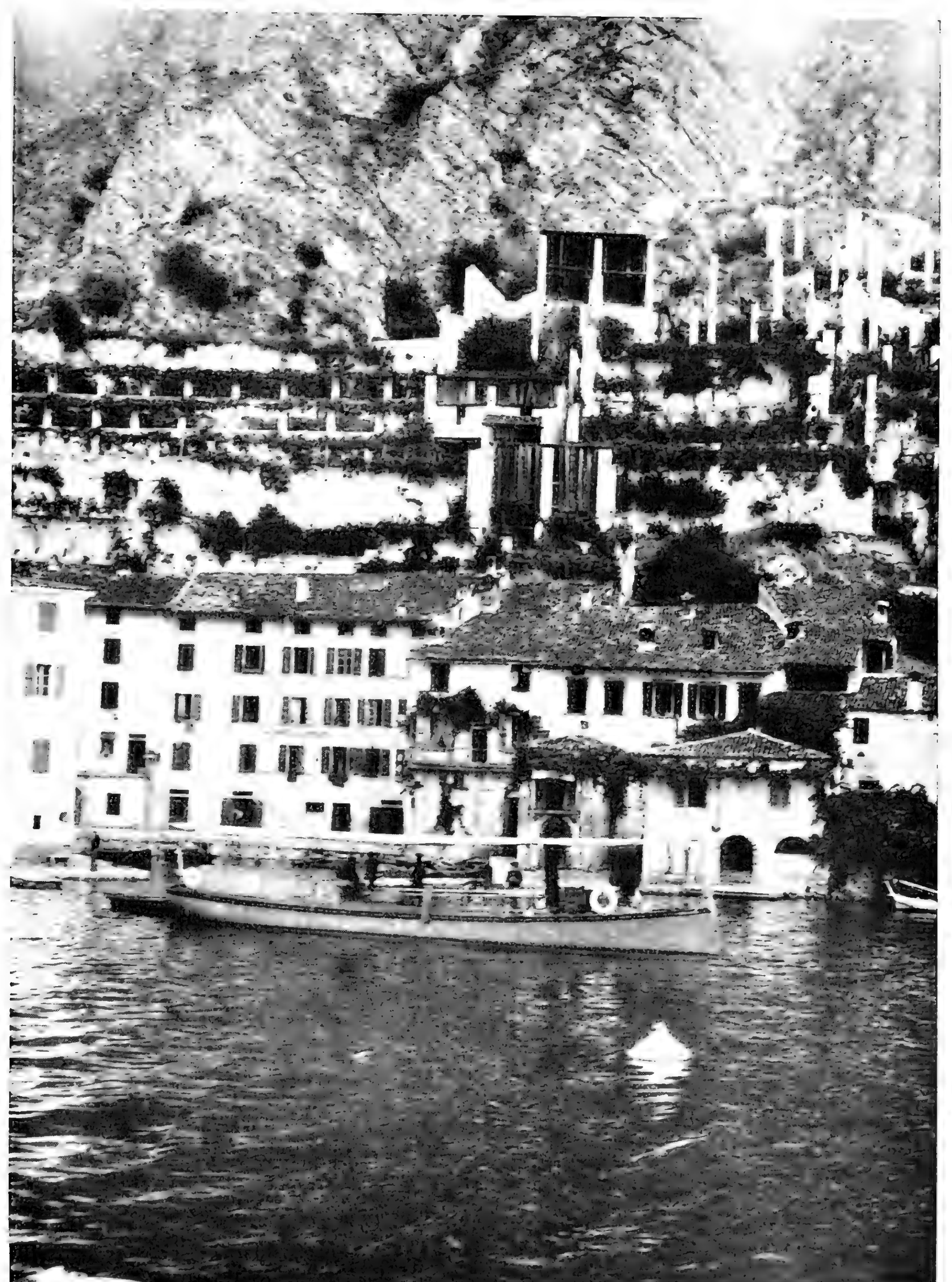


Photo by Emil P. Albrecht

LIMONE, THE LAST TOWN UPON LAKE GARDA'S WESTERN SHORE BELONGING TO ITALY

Perched upon a steep slope among its lemon trellises and olive groves, it smiles invitingly in the sunshine. As the frontier is but a short distance to the northward, there is usually to be found in the harbor one or more armed boats (*torpediniere*) belonging to the customs, whose searchlights at night play over the lake's surface on the lookout for smugglers.

Photo by Emil P. Albrecht

ALONG THE QUAY BY LAKE GARDA, ON THE AUSTRIAN END OF THE LAKE

The quay is bordered by double rows of horse-chestnut trees, which cast a welcome shade. The great creamy oxen yoked to the high upward-turned pole of the heavy wagon are a familiar and picturesque note in a lovely scene

Photo by Emil P. Albrecht

SCENE IN RIVA, AT THE AUSTRIAN END OF LAKE GARDA

The ox-team is in general use around Riva, their great strength and slow, steady pull enabling them to draw heavy loads over the mountain roads. They are beautiful creamy creatures, well groomed and shining. The pole is a picturesque feature of all the ox-carts of this region. "One hundred years of Austrian rule have not made of Trent, the most prosperous little city of south Tyrol, or Riva, the picturesque port upon Lake Garda, anything but Italian towns" (see text, page 541).

Photo by Emil P. Albrecht

IN THE PIAZZA DELLE ERBE: VERONA

Note the fading frescoes on the old palace to the right and the Venetian lion on his stately pedestal. The lady of the fountain is Madonna Verona, an antique statue, much restored; about her feet the market women freshen their flowers and wash their vegetables. The market here is the most varied, most picturesque, most "Italian" in all the world. Writing of Verona, Ruskin says: "She has virtually represented the fate and beauty of Italy to me."

Photo by Emil P. Albrecht

THE DUOMO, OR CATHEDRAL, A ROMANESQUE STRUCTURE OF THE TWELFTH CENTURY, WITH GOTHIC WINDOWS OF THE FIFTEENTH: VERONA

This west doorway is most beautiful, with its delicate and well-preserved carvings. Behind the two columns which, resting upon the backs of griffins (or lions), support the canopy, are two small figures in rough belief, which, according to an inscription of 1135, represent Roland and Oliver, the paladins of Charlemagne.

Photo by Emil P. Albrecht

IN THE PIAZZA SANTA ANASTASIA: VERONA

The statue is that of Paolo Caliari, usually known as Paolo Veronese (1528–1588), whose pictures adorn many of Verona's churches and museums and whom she recognizes as one of her most gifted sons. The tomb raised high above the arch in the background is that of Count Guglielmo da Castelbarco, friend of the Scaligeri, patron of Dante. Ruskin considers this Gothic tomb the finest in Verona, but few would prefer it to the magnificence of the Scaligeri tombs. The wall upon which it rests connects the old church of San Pietro Martire with that of Santa Anastasia. The brick façade of the latter is unfinished, but the marble doorway is very beautiful, and the interior is a treasury of works of art. The church was built 1290–1323, but the doorway is later by a century.

Photo by Emil P. Albrecht

IN THE PIAZZA DEI SIGNORI : VERONA

Part of the Domus Nova—the "New House"—erected for the Podestá in the thirteenth century, but much mutilated, both by abuse and restoration. The archway leads to the Via Mazzanti and a beautiful old well. Pigeons are not quite so numerous at Verona as at Venice, but equally tame.

Photo by Emil P. Albrecht

IN THE PIAZZA DEI SIGNORI : VERONA

Behind the statue of Dante is the Palazzo del Consiglio, or Old Town Hall, usually called La Loggia, one of the finest early Renaissance buildings in northern Italy. It was built 1476–1493. When Columbus sailed to discover America it was having its finishing touches

and away to the hills, green in the foreground, misty violet as they rise higher into the distance, into the spaces of eternal snows. The rugged valley of the Adige is crossed; the river spreads out on a plain, and in its folds sits Verona; but she turns her back upon the train and is passed almost unnoticed, while eyes are yet straining for the last glimpse of lake and mountains.

She does not come very close to the railroad nor show it her best side; even if one is watching, there may be disappointment. One must go to her, walk her streets, linger on her bridges, idle in her churches, gossip in her market, drink sweety syrups and eat tiny ices under her stars, absorbing every murmur of her breezes, every moaning of her ancient stones, and then one may know not Verona only, but Italy.

RUSKIN TRIBUTE TO VERONA

It is old-fashioned today to read Ruskin, but a line comes back: "She [Verona] has virtually represented the fate and beauty of Italy to me." We have not all Ruskin's eyes to see nor language to describe, but Verona's history is that of northern Italy; Verona's beauty — ah, well! there are those that deny it; Venice is so near and ever her rival. They are so different, however, these two Italian cities; there can be no comparison, so let us make none; certainly Verona was the richest and loveliest city on the Venetian "terra firma."

Just when the few little hillocks by the Adige came to be tenanted no one certainly knows, but Rhætians, Euganeans, and Cenomani had come and gone before Verona became a Roman colony, in 89 B. C. Seated by a great river coming straight from the Alps, a swift highway for every ambitious northern tribe, it was inevitable that Verona should suffer and profit from invasion. "There are no tragedies like the tragedies of Verona under the Gothic and Lombard kings;" but through them all the city prospered fairly; the history written in blood and passion lends her beauty to that tragic veil which so adorns her today.

Much beloved she ever was by her conquerors, Theodoric the Ostrogoth, the Dietrich of Bern of German legend, loved to linger there, although Ravenna was his capital. On the fortified height of Veronetta, the little old city on the Adige's left bank, he built a spacious castle and fortress and robbed the old Roman structures, the Theater and the Arena, to strengthen his fortifications.

ROSAMUNDA'S TRAGEDY

Fifty years later Rosamunda, wife of the Lombard King Alboin (568), gave Verona one of its gruesome tragedies. Rosamunda's father, Cunimond, King of the Gepidæ, third of the Gothic nations who maintained a home in the Balkan plain, had been conquered by Alboin and slain, his skull being mounted as a drinking cup for the victor. Rosamunda, prize of conquest, became Alboin's bride.

One evening at Verona, flushed with many successes, inflamed by much beady wine, Alboin forced his consort to drink a toast with him from her father's skull. Now, Rosamunda had naturally never loved Alboin, and had loved, with none too nice taste or discrimination, the King's armor-bearer and, so rumor has it, one or two of his men. Hate flamed in her heart and tools for vengeance lay ready to her hand; her lovers were easily incited to slay the King.

It profited Rosamunda little, however. Verona rose against the murderers. She and the two men fled, but never so fast that punishment could not overtake them. One was slain; the other she caused to be poisoned, and he, dying, slew her. Alas! Verona can tell more than one such tale.

PEPIN'S LOVE FOR VERONA

The Frankish rulers loved Verona too; Pepin, son of Charlemagne, made it his best-beloved town and Charlemagne himself tarried gladly there. One of his wives was Desideria, daughter of the last Lombard King, Desiderius, and Charlemagne's repudiation of her adds another to Verona's sorrowful tales. But it is with the della Scala family that Verona reaches her greatest importance; it is after the bitter and bloody struggles of Guelphs and Ghibellines that Mastino della Scala, a man of no particular birth

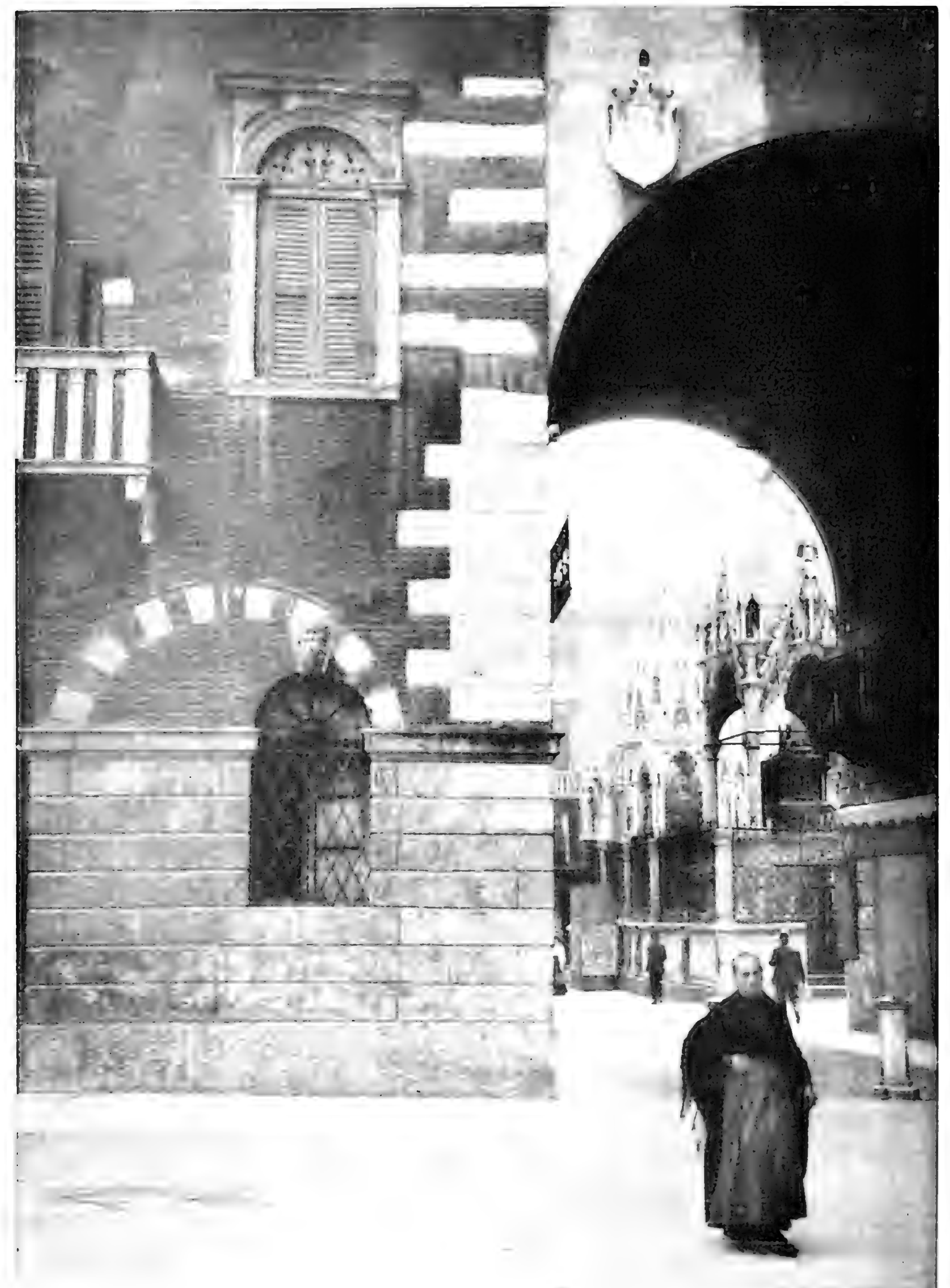


Photo by Emil P. Albrecht

IN BEAUTIFUL OLD VERONA

Where the Piazza dei Signori passes into the Via Santa Maria Antica, and the tombs of the Scaligeri, the "Signori" for whom the piazza was named and who built the palaces about it. The tombs are of the fourteenth century (see page 565). "It was in the days of the Scaligeri—that is, the rulers of the della Scala family—that Romeo and Juliet lived and loved and died. Stern history pours much cold water upon this romance, but it will not down, and hundreds of visitors to Verona who find no time for the Arena yet make a pilgrimage to Juliet's tomb" (see text, page 569).

ONE OF THE TOMBS OF VERONA'S FAMOUS RULERS

"In the Via Santa Maria Antica and adjoining the church of that name is the private graveyard of the Scaligeri. The space is tiny and the monuments large; they tower above one's head until the winged helmets of the statues cut the sky like swallows; they are conceived in sternest Gothic style, suiting the grim men whom they immortalize . . ." (see text, page 569).

Photo by Emil P. Albrecht

VERONA

The Gran Guardia Vecchia, or old guard-house, begun in 1609, but enlarged and completed in 1821. Adjoining are the Portoni della Brá, a gateway and tower of the medieval fortifications.

or prestige, was elected Podestà and founded a princely family, which ruled Verona for a century and a quarter.

To them she owes most of her great palaces, much of her art, half of her fame. The tiny ladder of their crest (scala means a ladder), the swallow-tail decorations of their architecture, are found today in cities far distant from Verona—in Brescia, Parma, Lucca, far up Lake Garda and in Tyrol—for under the greatest of them, Can Grande I, the State was the largest that medieval North Italy ever saw, save for a very brief time in Gian Galeazzo Visconti's governorship from Milan. And this proud city commemorates them; for the great theater, La Scala, derives its name from this Veronese family, a certain Beatrice della Scala, wife of Bernabò Visconti, founding a church upon whose site some four centuries later this theater was built.

WHERE ROMEO AND JULIET LIVED

It was in the days of the Scaligeri—that is, the rulers of the della Scala family—that Romeo and Juliet lived and loved and died. Stern history pours much cold water upon this romance, but it will not down, and hundreds of visitors to Verona who find no time for the Arena yet make a pilgrimage to Juliet's tomb. Certain it was that two families of the names of our lovers did live once in Verona; certain also that Italian families quarreled and nursed their wrath through generations; but if one had a son, the other a daughter, if they met and loved and parted, there is no other proof than Shakespeare's page.

As to the Tomba di Guilietta—a romantic pilgrimage hurts no one in this prosaic world; but the romance must be taken with one. The cloister is very, very modern; the medieval stone in the center of the tiny close looks as much like a horse-trough as a tomb.

The house of the Capuletti is equally unbelievable. It is ancient enough, in all truth, and the narrow, dusky street, the Via Cappello, is very favorable to shy lovers; but alas! the only balcony is four stories above the pavement. Romeo certainly had a climb of it! Verona really ought to consider this; it is not fair to credulous visitors.

VERONA'S MARKET-PLACE

The gayest, the noisiest, the most picturesque market in all Italy is held in the one-time forum of the Roman city, the Piazza delle Erbe of today. Surrounded by the stately old palaces of the Scaligeri, now alas far fallen from their high estate, their frescoes fading into blurs of charming color, their marbles discolored by neglect and decay; spreading its huge umbrellas, all shades of sun-faded blues or weathered whites, over a curving 500 feet of stone pavement; heaping its flowers and fruits and greens about the trickling fountain; bargaining, buying, selling, talking, laughing with full throat as only an Italian laughs; flaming into sudden wrath or melting with pity; chanting the last new music from the opera or whistling the last gay tune of the streets; shifting and surging, ever in motion and yet ever at rest—the market is not only the pulse of Verona, it is the heart of Italy.

What is sold there? Everything. Fruits from the sunniest of orchards, the richest of vineyards; vegetables warm from the soil, crisp from the fountain; pigeons and chickens and ducks and legions of tiny birds, alive and dead; hares and rabbits and turtles—fish, flesh, and flowers. There a parrot is scolding wildly; the demure monkey behind him had a share in that tail-pulling in spite of the meditative eye with which he follows the swallows circling about the great tower. The rabbits are wriggling their anxious little noses and twitching their sensitive ears in an agony of curiosity, but the falcons sit grimly on their perches, looking disdainfully at nothing; the parrot gets no sympathy there.

A woman has brought a great arm-load of lilies to the fountain and trims their stems for the vase a sweet-faced Sister of Charity holds waiting; a little girl in a dull-blue dress scrubs carrots until they glow with the color of flame; a small boy balances a pair of snow-white bantams upon his black curls while he seeks purchasers; the mischievous monkey pelts them with a fig and looks the other way.

The fountain in the piazza has been variously ascribed to Alboin and to Pepin, but its present useful state is due to the Scaligeri, who first gave it adequate

Photo by Emil P. Albrecht

IN THE PIAZZA DELLE ERBE: VERONA

Note the small boy endeavoring to chain himself to the Tribuna for the benefit of the photographer. The parrot is squawking in every language known around the Mediterranean as it watches the camera. The magnificent Palazzo Trezza (or Maffei) in the background was built in 1668. The lofty Torre del Gardello beside it is of 1370.

water supply. The statue surmounting it, Madonna Verona, is of ancient Rome, but the head is a very poor medieval restoration and the tin crown is pathetic or monstrous, dependent upon your own mood (see page 558).

THE LION OF ST. MARK (PAGE 568)

The beautiful marble column, surmounted by the lion of St. Mark, at the northern end of the piazza, was erected in 1523 by the Venetians, to whom Verona had then belonged, but for brief intervals, for more than a hundred years. The last of the Scala had been expelled by Gian Galeazzo Visconti in 1387, and thereafter the town was a pawn hotly contested by its neighbors and the German emperors until Venice took and held her until the time of Napoleon. From 1814 until 1866 she belonged to Austria.

The lion was displaced in 1797, but reërected—no longer a sign of sovereignty, but of gratitude—in 1888; one cannot fancy the market-place without him. Round about it rise the palaces of the Scaligeri, and, as already noted, upon some can yet be traced the frescoes that were the usual embellishment of Italian houses in their day. Some of Verona's most noted painters adorned these palaces—Girolama dai Libri, Liberale da Verona, Alberto Cavalli—scarcely to be mentioned, however, with the other two. What pity it is that so much skill and color and beauty must perish thus!

WHERE DANTE DWELT

Through the little Via Costa we reach the Piazza dei Signori, a small, beautifully paved square walled by palaces, as quiet and grave as the Piazza delle Erbe is colorful and noisy. Here lived the richest of the Scala; here in the days of their affluence they entertained distinguished visitors not precisely as "angels unawares," but eagerly gathered in when banished from Florence or Milan. Giotto was here, but has left no traces behind him; and Dante, who sang of Can Grande, his host, in more than one line.

There has ever been much strife over just which lines these are; those who find Can Grande in the "veltro," the greyhound, of the first canto of the Inferno, are contradicted sharply; those who maintain that the scenes of the Inferno are laid in that waste of gray rock north of Lake Garda are quickly informed that Dante sang of upper Lombardy. What matters it? Dante was here a visitor in Verona, and in the Piazza dei Signori stands his statue to attest it. The loveliest building on the piazza, perhaps the finest of its kind in northern Italy, is the Palazzo del Consiglio, usually called La Loggia (see page 562).

GRAVEYARD OF THE SCALIGERI

In the adjacent Via Santa Maria Antica and adjoining the church of that name is the private graveyard of the Scaligeri. The space is tiny and the monuments large; they tower above one's head until the winged helmets of the statues cut the sky like swallows; they are conceived in sternest Gothic style, suiting the grim men whom they immortalize; they are railed with beautiful grilles in which their tiny ladder climbs up and down and repeats itself unendingly (see page 565).

Presumably they had wives, but none are here; this is no place for ladies. Three bear equestrian statues, and on two of these the visor is lifted, and one at least smiles down upon the visitor; but the third, Mastino II, wears the visor close shut, and for that Verona tells this tale. A very successful ruler indeed, as medieval rulers go, was this della Scala, but most unscrupulous. So long as he had aught to gain, he smothered conscience; but when his life was nearly run—no della Scala lived to very great age—he began to bethink him of his sins and could not face the sun. Not even his well-beloved and faithful wife might look upon his features, so marked they were with shame; and thus he rides today with closed helmet, and 550 years after him the swallows shriek his name.

MOST PERFECT GOTHIC MONUMENT

Over a gateway near the church of Sant' Anastasia, to the left, between it and the little old church of San Pietro Martire, is another tomb, which Ruskin called "the most perfect Gothic monument in the world." It belonged to Count Guglielmo da Castelbarco, Dante's friend and host at Rovereto, in the mountains beyond Lake Garda. There is something

Photo by Emil P. Albrecht

REMAINS OF THE OLD ROMAN ARENA AT VERONA

The four arcades above the tiers of seats are all that is left of the outer three-storied wall (ala) of the Roman arena, which was 105 feet in height, 500 feet long, and 402 feet wide and could seat 25,000 people. The tower in the distance is the Torre del Comune (272 feet), on the Piazza delle Erbe. It is the loveliest, as well as the tallest, of Verona's stately towers, and commands a wonderful view to the Alps, to Venice and Milan.

Photo by Emil P. Albrecht

THE ROMAN ARENA FROM THE PIAZZA BRÁ, OR VITTORIO EMANUELE: VERONA

In 1814 an earthquake destroyed all but these four arcades of the outer wall, or "ala." The interior has been carefully, almost too carefully, restored; but the exterior of the arena suggests at once its great age and its stupendous plan. "Originally serving for the combats of wild beasts, it was next used by gladiators, then by those awful slaughters of man by beast that marked the coming of Christianity, and fell slowly into disuse as the faith gained power" (see text, page 572).

very cheerful and sociable in the way these Veronese tombs are set about in busy places; one feels that the sleepers could not be lonely there (see page 560).

The façade of Sant' Anastasia is incomplete, but the doorway is perfect, while within, the church is a jewel-box, as indeed are most of Verona's shrines.

The cathedral is perhaps the least attractive, but not uninteresting. It was erected upon the site of a temple to Minerva very early in Christian days, but in its present form belongs to the twelfth century. Hidden behind the columns of the door—columns that rest, like San Zeno's and many another Lombard church, upon what I presumed were lions, but more scholarly folk call griffins—are two small figures in rough relief of Roland and Oliver—the paladins of Charlemagne. Were they done in Charlemagne's own time? How near they bring us to him! And for Verona they are not old; in the eight hundreds she was long past youth (see page 559).

VERONA'S ARENA

It is the Arena which speaks of that, the Arena whose three-storied outer wall is all gone but for four arcades, whose two-story inner wall, whose oval of stone seats served so often as a quarry, whose adornments all are gone. Baedeker gives its date positively as 290 A. D., but that is disputed. It was there, then, most certainly, but may be much older. In German ballads it is known as the "Home of Dietrich of Bern," but Theodoric treated it rudely, using its stones to strengthen his fortress upon that far-away hill across the Adige which was Verona's birthplace and citadel.

Originally serving for the combats of wild beasts, it was next used by gladiators, then by those awful slaughters of man by beast that marked the coming of Christianity, and fell slowly into disuse as the faith gained power. Neglected for centuries, since the sixteenth it has been gradually repaired and restored: the interior looks almost new—too much so to inspire imagination or awaken memory. It is now used frequently for small circuses, vaudeville, moving-picture shows, and gives pleasure to many humble residents of Verona (pages 570-571).

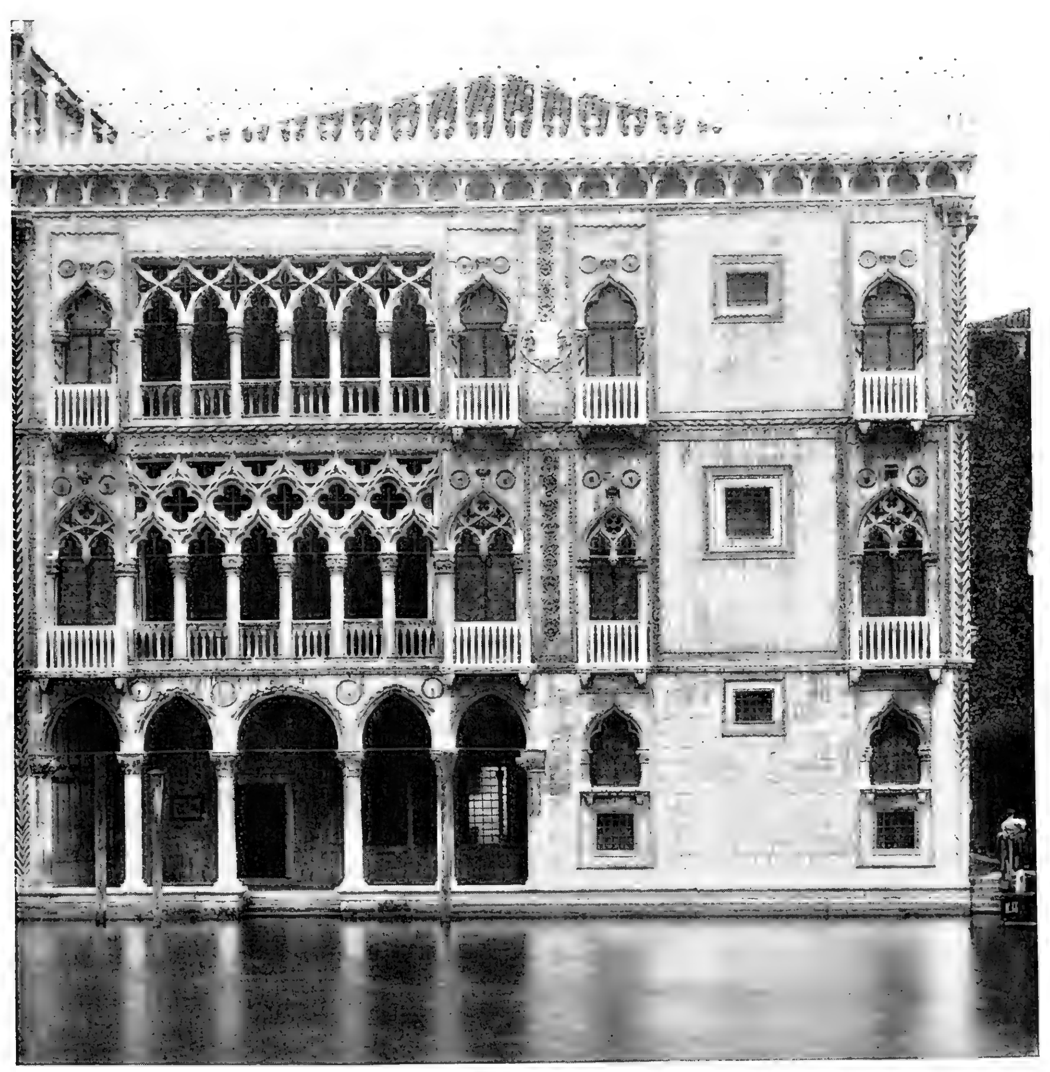
Besides the arena, the most noted Roman remain is the theater at the foot of the hill of San Pietro. Here we are in the most ancient part of Verona, but so overlaid with centuries of building that one does not readily find trace of the earliest. Part of Theodoric's palace covered the theater, and after that many houses and churches in succession. It is only within very recent years that it has come again into the light of day.

THE ADIGE'S BRIDGES

That it is beautiful, I will not say, but it is interesting; and if you want beauty, look about you at the cypresses on the hill by the castle, at the bridge spanning the swift foaming Adige. Two arches of that bridge are Roman, while the others and the tower were built by Alberto della Scala in 1298. The Adige is no respecter of bridges; more than one has gone down in its floods. It speaks well, then, for the masonry of those that remain through centuries.

The river is somewhat tamed now by the great containing walls recently erected. Its banks are not so picturesque, perhaps, but more secure. And the washer-women spread their suds and spill their voices just as merrily upon its waves and winds as before. Go down by the Ponte della Pietra and watch and listen a moment.

To San Zeno you must go and to San Fermo, and to many more old churches and ancient palaces. You must walk in the Giardino Giusti by sunset and watch the colors fade in the far-away Apennines. You must saunter some night in midsummer through the narrow, dusky streets, feeling the throbbing life of them. Perhaps a flower will fall to you from a far-away balcony; you may hear the soft call of a serenade; you will certainly catch the odor of patchouli, the fragrance of jessamine and roses; you will sit for a time in the piazza, with your frozen fruit or a tall, beady glass in which ice rattles, and watch the gay-colored, soft-voiced throng shift to and fro; and then you will stand on the bridge in the moonlight or starlight listening to the ripple of the waters, cool with the breath of the mountains; listening to the breathing of the city, the great, hot, passionate



THE GOLDEN PALACE, OR CA' D'ORO: VENICE

The history of Venetian relations with the West and the East may be read in the palaces and churches of Venice. They tell of the rise and development of the Republic's commerce both in the Levant and with England and Flanders. The wealth of the rich Venetian merchants and their appreciation of the beautiful is nowhere borne witness to more strikingly than in the Golden Palace, built by Marino Contarini in 1421.

city, thinking of the centuries that have come to its building, striving to get the heart of its charm.

THE BEST OF VERIEST ITALY

At Verona our journey ends. Truthfully speaking, the city belongs rather to Venetia than to Lombardy. Its river, rushing swiftly to join the Po, turns abruptly eastward and parallels it to the sea. All other streams, all of the Italian lakes, including Garda, inclosed in this great basin drain to the Po, but the Adige will none of it; she is Venetian. Yet before a Venice was Verona was, and so she stands alone. The sovereign of an independent State; the vassal of Rome, of Lombardy, of Venice; a part of the modern province of Veneto, but neighbor to Lombardia; rich in tradition, dowered by art, unspoiled by modernity, going her own way unashamed and unafraid, Verona, for me, means the best of veriest Italy.

THE BEAUTIFUL HARBOR OF VENICE

Situated 2½ miles from the mainland, in the lagoon, a shallow bay of the Adriatic, Venice, with its 15,000 houses and palaces, chiefly built on piles, covers 117 small islands formed by more than 150 canals and connected by nearly 400 bridges. The population of the city is about 150,000 and its industries limited mainly to ship-building, cotton and torpedo manufacturing, the production of art objects, and the keeping of open house to the vast annual tide of strangers who pass in and out of its gates.

THE WATER FRONT, SHOWING THE DUCAL PALACE IN THE CENTER

This magnificent building facing the lagoon proclaims the rich history of Venice. The foundation of the city's Eastern supremacy was laid by Doge Enrico Dandolo in 1204. It continued to grow in influence as the supreme naval power until the discovery of the new sea route around the Cape of Good Hope to India. Yet "the arts, which had meanwhile been silently developing, shed a glorious sunset over the waning glory of the mighty republic."

THE GRAND CANAL, WITH THE SPLENDID CHURCH OF SANTA MARIA DELLA SALUTE IN THE BACKGROUND: VENICE

The Grand Canal is the main artery of traffic of Venice, being fully two miles in length, with an average width of 77 yards, running in the shape of an inverted S from northwest to southeast. Its depth is 17 feet, and its banks are lined with the splendid houses and great palaces of the ancient aristocracy of Venice.

Photo by Emil P. Albrecht

THE PALACE OF CAVALLI: VENICE

Venice has had a remarkable history during the period contemporaneous with our own. The last Doge began his reign the year before Washington became President of the United States and abdicated the year his second term ended. That same year Venetia, by the Peace of Campo Formio, was assigned to Austria. Eight years later the Treaty of Pressburg gave it to Italy, and nine years afterward, in 1814, it was restored to Austria. In 1848 Venice declared herself a republic under the presidency of Daniele Manin, but after a siege of 15 months she was reconquered by the Austrians, who held her until 1866, when the defeat of Austria by the Prussians led to her incorporation in United Italy.

Photo by Emil P. Albrecht

THE PALACE OF CONTARINI : VENICE

No city state, after Rome and Athens, maintained itself in the face of great calamities as did Venice. Left single-handed to fight the Turks, the Venetians went to war with them six different times in the two centuries from 1464 to 1668, upon one occasion winning the glorious victory of Lepanto.

ONE OF THE MANY CANALS OF VENICE

"In Venice no horse, no carriage is to be seen; nothing but the dark throng of gondolas which thread their way in and out of its canals. All firm foundations seem to sink away from one's feet, and we see only the black pliant waters from which the weather-stained houses rise up perpendicularly." This was true in the day of Charles Dickens, but since the railway came and connected the city with the mainland horses are to be seen occasionally

THE FAMOUS RIALTO BRIDGE

For a long time this bridge was the only one which crossed the Grand Canal. Here the laws of the old republic were published at a column which bears the name of "The Hunchback of the Rialto." The bridge itself is almost as much an arcade of small shops as it is a highway across the canal, either side of the roadway being lined with these little emporiums.

A "CAB" STAND IN MODERN VENICE

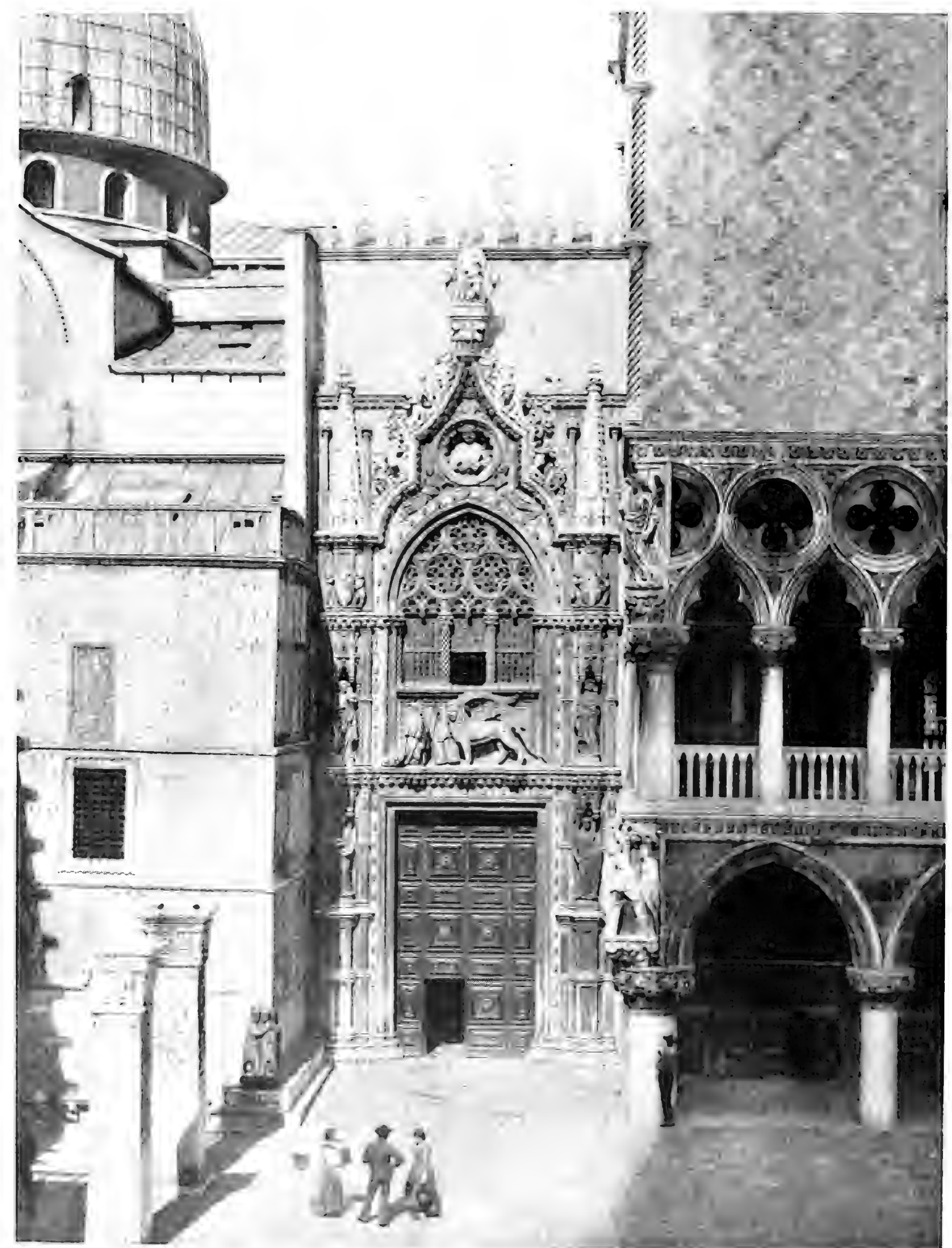
With waterways for streets, Venice has gondolas and barche for "cabs." The gondola holds from four to six persons, while the barca carries eight people. There are always "hookers" at the stands to assist passengers to embark and disembark and they expect a gratuity for their services. The shouts of the gondoliers as they turn their corners are weird and melancholy.

THE DOGE'S PALACE, OR WHITE HOUSE OF THE VENETIAN REPUBLIC

Note the dome of St. Mark's on the left and the famous lion of St. Mark's surmounting the column on the right. "What St. Mark's is as the expression of the religious spirit, that the Ducal Palace is to the secular power, of Venice: it has scarcely a rival even in Italy. It was begun in the 14th century and completed in the 15th after a long interruption. . . . The very position of the palace, its relation to the church of St. Mark, its two fronts—one commanding the Piazzetta and the other the sea—declare the inner significance of the building; it is the foundation, the very, corner-stone, of all Venetian splendor.

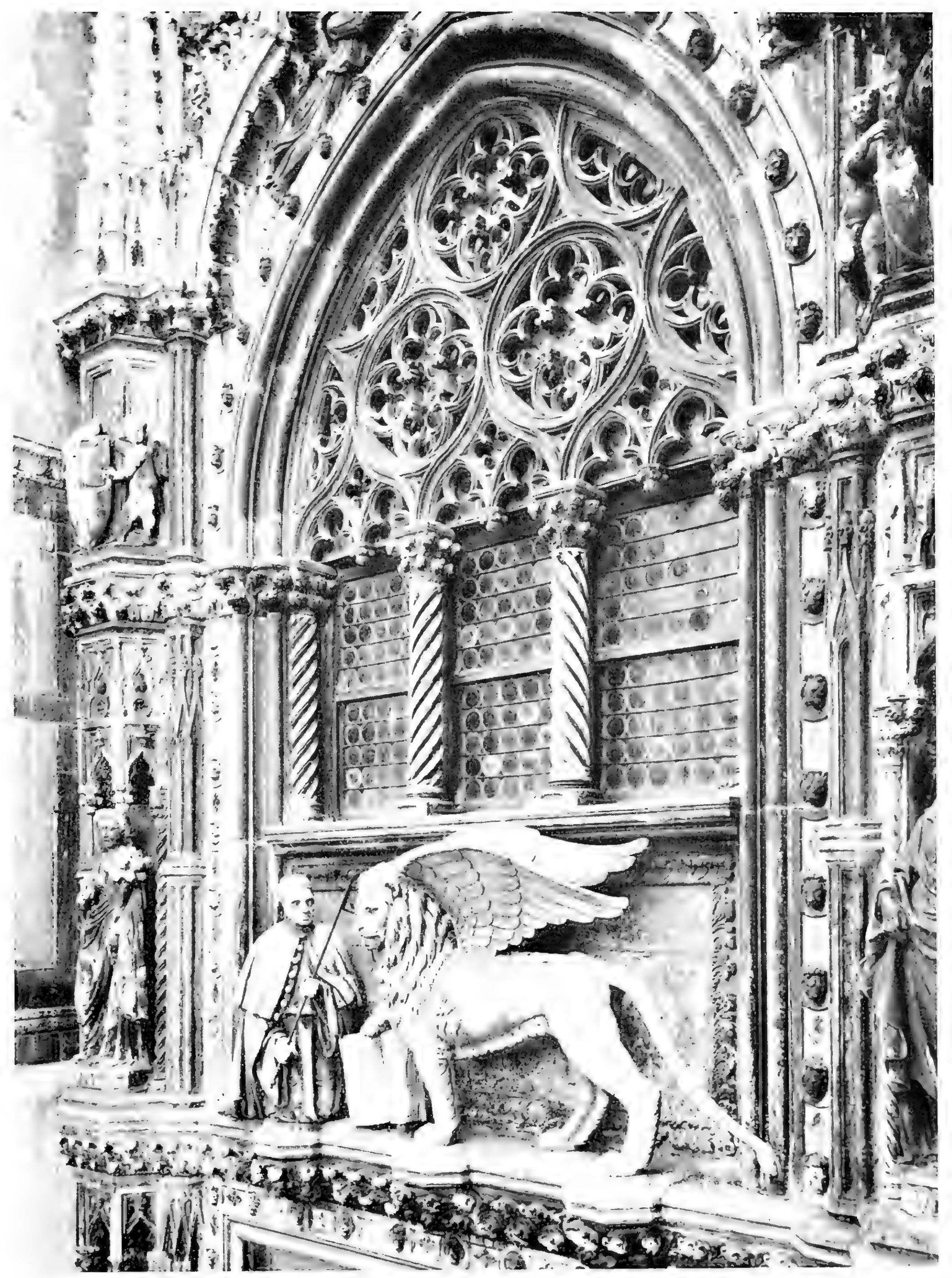
THE WONDERFUL ENTRANCE TO THE OUTER VESTIBULE OF ST. MARK'S: VENICE

The church, which is the tomb and also a memorial of the Apostle St. Mark, contains trophies from all parts of the world. The two great pillars at the entrance to the baptistery were part of the booty of Acre; the bronze folding doors were once in the Church of Sancta Sophia at Constantinople; the marble columns which stand right and left of the main portal are said to have come from the temple in Jerusalem, and the broad flagstones still narrate how Barbarossa once prostrated himself before Pope Alexander.



THE MAGNIFICENT DOORWAY OF THE DUCAL PALACE: VENICE

On its summit Venice, enthroned between her lions and with sword and scales, watches over all who enter. The doorway leads to the open court of the palace and adjoins St. Mark's Cathedral. It represents the transition period of Venetian architecture.



A DETAIL OF THE FAMOUS DELLA CARTA DOORWAY OF THE DUCAL PALACE

This doorway is late Gothic, with marked Renaissance tendencies. It is perhaps the most ornate of all the portals of Venice, being regarded by some as overdone. The Lion of St. Mark, before which the Doge Francesco Foscari kneels, is a restoration, the original having been destroyed during the French Revolution. In the niches by the sides, the virtues—Courage, Prudence, Hope, Charity—watch over the entrance.

THE COLUMN OF THE WINGED LION IN THE PIAZZETTA: VENICE

This striking column, with its splendid capital, proclaims to the present-day world the fact that Venice once captured Tyre. With its companion column it was brought to the Piazzetta, where they laid for half a century before an engineer appeared who was capable of raising them into position (see page 582).

VENICE*

By Karl Stieler

MIDNIGHT is past; a boat glides through the narrow canals, the figure of the gondolier shows like a black shadow, and a sepulchral cry, "Giaè, giaè!" sounds as the gondola shoots past the sharp corners. The moon is high in the heavens, but her light reaches not to these narrow watery ways. Only a few twinkling stars peep between the tall houses, and now and then a tardy light glimmers behind some barred window. Hark! Who goes there? Behind a half-opened door that is nearly on a level with the water a girl peeps forth and then hurriedly scuds away; ours is not the gondola she was waiting for. On the marble steps that lead down from noble doorways to the water sleepers are lying stretched. From time to time a boat glides past us, so close that the sides almost graze each other; the gondoliers greet each other with secret signs, and we peer curiously at the masked figures reclining on the cushions. Then all is still again, and we hear nothing save the lapping of the water against the keel and the splash of the oar.

We listen, and now strange sounds meet our ears. Far away there, beyond the Lido, murmurs the sea in which the Doge was wont to throw his golden ring in token of betrothal. It is the hour of flood, and the tide, slowly rising, fills the lagoons and flows into the Canal Grande, among the palaces of the proud old names.

> "All is still; the sea breathes only.
> Sighing deep, lamenting sore,
> Knocks the Doge's bride, deserted,
> At each lordly palace door."

And that, really, is what we seem to hear; we feel the power of the great deep, but we do not see it; we are imprisoned in a labyrinth of narrow watery paths, which cross and are tangled endlessly in one another and lead — who knows whither?

IMPRESSIONS OF VISITORS

Some such impression as that above described is felt by a traveler arriving at night by the train from Mestre and then rowing from the station into the city. No horse, no carriage, is to be seen; nothing but the dark throng of gondolas which thread their way in and out with snake-like agility. All firm foundations seem to sink away from one's feet, and we see only the black, pliant waters, from which the weather-stained houses rise up perpendicularly. The sad, gloomy hues which they display, even in broad daylight, become mere dreary darkness by night, and the long, intricate voyage has in truth something Stygian about it! Disappointment makes us dumb.

The May sun was shining brilliantly when we entered the Piazza of St. Mark the next day. Who has not felt the enchantment of such sunshine, breathing of spring and morning, penetrating the soul with an awakening power? Now the dark veil was lifted that lay last evening over Venice; now the sea was blue, and the old gray blocks of stone of which the palaces are built looked bright and strong, and the delicate open-work of the façades glittered in the light. She is still alive, the silent city of the Doges! With full hands she pours out her treasures; with wondering eyes we contemplate her marvelous form; but St. Mark's is the very heart of her.

A FAMOUS SQUARE

The Piazza di San Marco is closed in on all four sides, and although the piazzetta adjoins it on the northeast, the unity of the picture is not destroyed by it. On the right and left stretch out the huge rows of buildings called the *procuratie*. The lower stories consist of open arcades, under which the crowd throngs; the upper have rows of columns whose structure combines grace and vigor.

The *procuratie* are joined by a cross wing (the edifice called the Ala Nuova), which terminates the piazza on the west. At the opposite end there lies before us St. Mark's Church, with its great cupolas and porches, its marble minarets and

* From "Italy, from the Alps to Mt. Etna."

mythic figures—the wonder of Venice! Immediately in front of it stands the colossal mast, or flagstaff, from which once floated the banners of conquered kingdoms, and the Campanile, where the bells of St. Mark's sound (see page 587).

VENICE A SPHINX

Here for the first time we realize the wide-spread power of Venice, that fairy city which sprang not from the earth, but the sea; still touched with the glamour of the East, and yet mistress of all Western culture—so rich in arts and arms, in loves and hatreds! Venice is a sphinx whose enigma we never wholly penetrate. In vain we strive to find an image that shall express her mysterious essence. The unique brooks no comparisons.

As in the old times, even so today, the center of life and movement is the Piazza of St. Mark's, although it offers but a pale shadow of the life of former days. Here on sunny mornings all the foreigners assemble; here lounge the *ciceroni,* and on the neighboring piazzetta the gondoliers. Itinerant vendors of all kinds push their way among the chairs that are set out in front of the cafés under the open arcade.

But the most brilliant spectacle is at night, when hundreds of gas-jets are alight in the huge bronze candelabra, when the gold sparkles in the jewelers' windows and the sound of gay music is borne across the piazza. Then the crowd gathers from all sides. Here come the *nobili* with their wives. The gondolas throng to the piazzetta, and the *merceria* seems far too narrow for the press of people.

But the Piazza di San Marco seems almost to grow and widen in the blue moonlight that peeps down into the dazzle of gas and then hides coyly behind the pillars of the *procuratie.* It seems as if its rays had touched the faces of the fair women whose delicate pallow is renowned. They trail their rustling garments over the marble pavement, leaning carelessly on their husbands' arms, while their glowing glances stray far and wide above the rim of the black fan they carry.

A PICTURE OF NIGHT LIFE

The noise and the passion which runs through the publicity of Italian life continue deep into the night; then last hasty words are spoken, yet one more stolen glance is shot from beautiful eyes, and the happy individual for whom it is intended understands the farewell. Around the steps of the piazzetta—all of white marble, so that you cannot miss them even at night—the gondolas gather again and then separate on their different ways through the dark and dead-silent canals.

On the great piazza the lights are extinguished in the candelabra, the music ceases, and stray boatmen stretch themselves to sleep on the bases of the columns. Further and further the moonlight advances into the center of the piazza, the echo of the last footstep dies away in San Moise, and then all is silent throughout the vast space.

But morning succeeds to night. At an early hour next day, when everything was full of life and sunshine, we stepped beneath the portal of the church of St. Mark, which stands alone amidst all temples of the world. Although age and the moist sea air have spread their veil over these walls, yet the brilliant coloring and the mighty outlines shine through all the gray dimness of the past. The bronze horses above the great door are rearing; the cupolas and arches stretch their great curves in intensity of power; each portion of the huge building seems alive and animated; yet in the whole reigns the profound and noble peace proper to the house of God (see page 589).

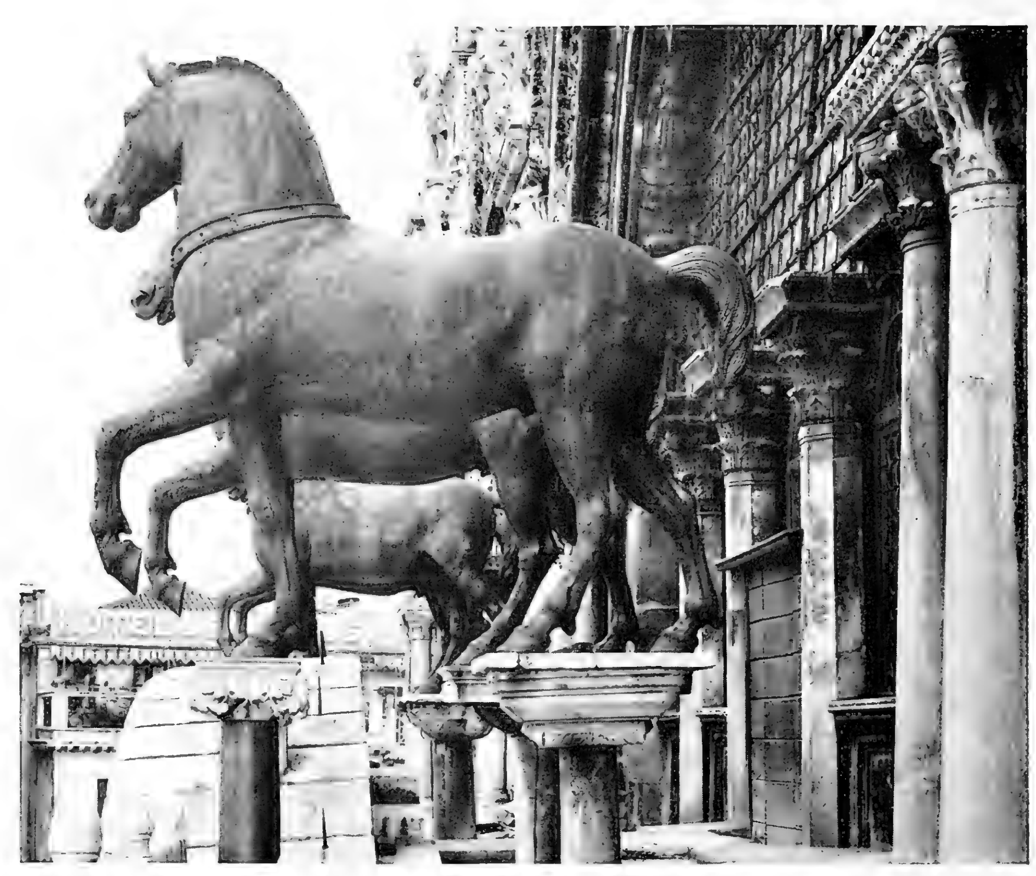
DETAILS OF ST. MARK'S

It is difficult to shake off the grand impression of this whole sufficiently to examine the rich abundance of details which are displayed before us, almost every one of deep historical interest, almost every one of perfect beauty.

It is now exactly 800 years ago since the building of St. Mark's was completed; its ecclesiastical sanctity is bestowed on it by the relics of the great evangelist; its historical sanctity consists in its intimate connection with the fortunes of the city and of her rulers. It was the theater of their triumphs and

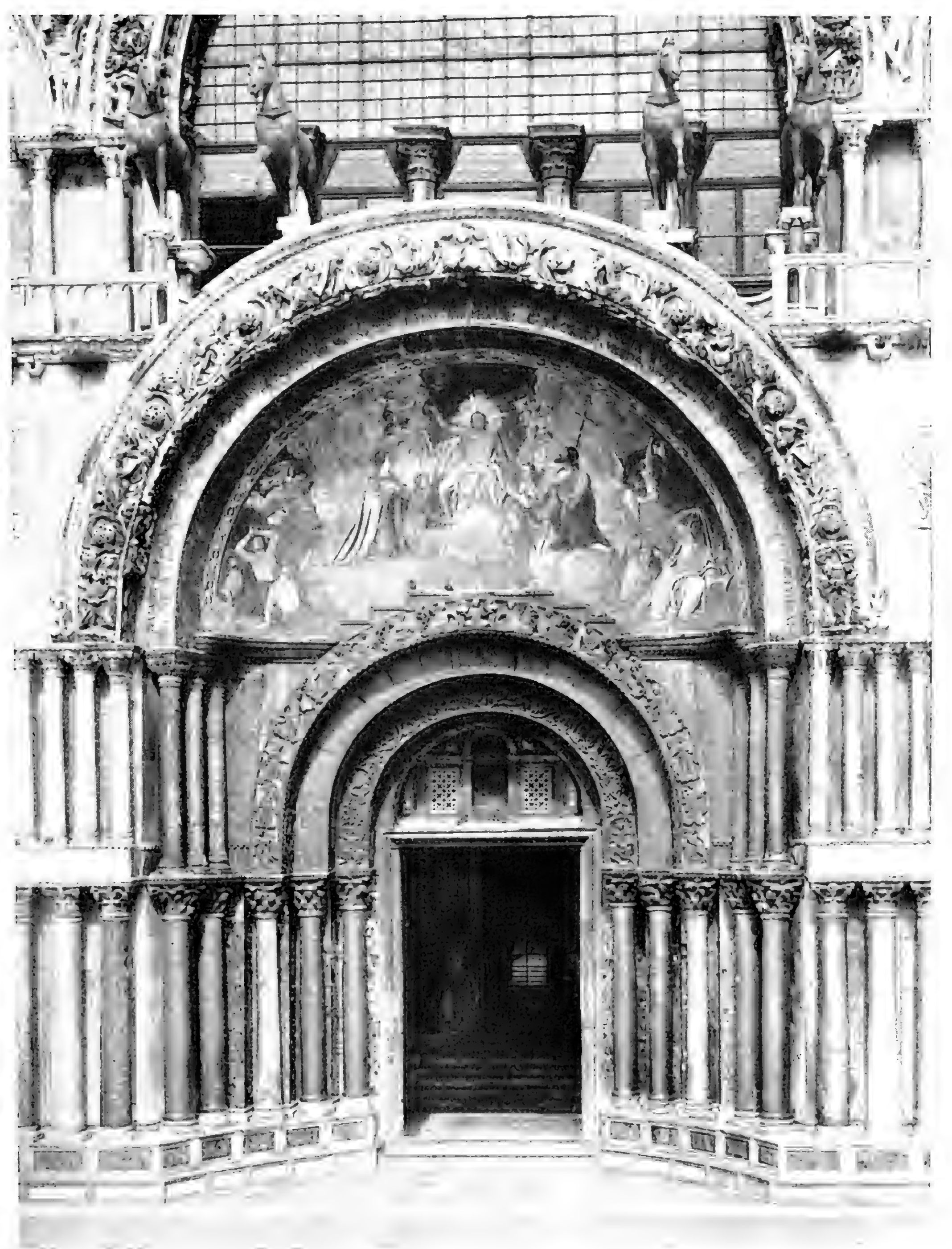
THE WONDROUS CATHEDRAL OF ST. MARK AND THE CAMPANILE: VENICE

"There rises a vision out of the earth, and all the great square seems to have opened from it in a kind of awe, that we may see it far away;—a multitude of pillars and white domes, clustered into a long, low pyramid of colored light; a treasure heap it seems, partly of gold, and partly of opal and mother-of-pearl, hollowed beneath into five great vaulted porches, ceiled with fair mosaic, and beset with sculptures of alabaster, clear as amber and delicate as ivory."—RUSKIN.



THE CELEBRATED BRONZE HORSES OF ST. MARK'S, WHICH, SINCE THE BEGINNING OF THE PRESENT WAR BETWEEN ITALY AND AUSTRIA, HAVE BEEN REMOVED FROM VENICE, SO AS TO BE SAFE FROM AVIATOR AND CANNON

No small part of the world's history is connected with the four magnificent bronze horses which stand over the main portal of St. Mark's. It is said to be almost certain that once they adorned the triumphal arch of Nero, from which they were removed to adorn those of Trajan and subsequent emperors. When Constantine founded Constantinople he took them to adorn the hippodrome of his New Rome, from whence they were carried from Venice and placed in their present position. There they remained until 1797, when Napoleon took them to Paris to adorn his triumphal arch in the Place de Carrousel. In 1815 the Austrians, to whom Venice was assigned, restored them to St. Mark's. As one views St. Mark's main façade across the piazza, he feels with Ruskin: "It is a confusion of delight, amidst which the breasts of the Greek horses are seen blazing in their breadth of golden strength, and the St. Mark's Lion, lifted on a blue field covered with stars, until at last, as if in ecstacy, the press of the arches break into a marble foam, and toss themselves far into the blue sky in flashes and wreaths of sculptured spray, as if the breakers on the Lido shore had been frost-bound before they fell, and the sea nymphs had inlaid them with coral and amethyst. Between that grim cathedral of England and this, what an interval! There is a type of it in the birds that haunt them; for, instead of the restless crowd, hoarse-voiced and sable-winged, drifting on the bleak upper air, the St. Mark's porches are full of doves that nestle among the marble foliage, and mingle the soft iridescence of their living plumes, changing at every motion of the tints, hardly less lovely, that has stood unchanged for 700 years."



THE MAIN DOORWAY TO ST. MARK'S: VENICE

"The Venetian Republic (down to the French Revolution) was the one part of Western Europe which never at any time formed a part of any Teutonic Empire,—Gothic, Lombard, Frank, or Saxon. Alone in the West it carried on unbroken the traditions of the Roman Empire, and continued its corporate life without Teutonic adulteration. Its peculiar position as the gateway between East and West made deep impress upon its arts and architecture."—GRANT ALLEN. Note the bronze horses above the doorway.

Photo by Emil P. Albrecht

THE DOVES OF ST. MARK'S

The doves of St. Mark's Cathedral are almost as much the feature of the broad piazza as the great campanile itself. The visitor cannot enter there without attracting the doves, which flutter down at his feet in expectation of peas and grain. For a long time these birds were fed at public expense, but now they depend on private charity.

the refuge for their cares; all that she has achieved and suffered Venice has done under the protecting wing of St. Mark.

On looking toward the main façade, we are overpowered by the mass which has been piled up by the wealth of the city and the fertility of her creative power. Five mighty arches, supported on noble columns, form the entrance to the outer vestibule, and the bronze doors leading into the interior, the mosaics upon a background of gold, the many-colored marbles—all these make so profound an impression on us that we stand still and gaze upward in bewilderment. Each by itself is a wonder! (page 583).

It is known that the famous group of four horses, which stands above the main portal, is of the antique Roman period and was for a long time in Byzantium, the capital of the Empire of the West. The Doge Dandolo, at the age of 95, led on the Venetians to the storming of Constantinople (1203). He was nearly blind, but a fiery life still glowed in his veins; his name indicates the apex of the Venetian military power; his monument consists of the noblest architectural treasures of the city (see page 590).

TROPHIES FROM EVERYWHERE

The Church of St. Mark contains trophies from all parts of the world; every stone has a history. Those two great pillars at the entrance to the baptistery were part of the booty of Acre. The bronze folding doors were once in the Church of St. Sophia at Stamboul. The marble columns, which stand right and left of the main portal, are said to have been taken from the Temple in Jerusalem. The broad flagstones on which we stand—three squares of red marble—still narrate to us how Barbarossa once prostrated himself before Pope Alexander: "*Non tibi, sed Petro.*" "*Et Petro et mihi!*"

In examining the mosaics which fill the vaulted roof we find ourselves in the midst of the Old Testament history; among forms which, with all their hardness, are yet not devoid of fervent expression and, with all their Byzantine stiffness, have still much earnest dignity. Paradise, the First Blessings, and the First Sorrows of Man are the subjects of them (see page 604).

But let us pass beyond this outer vestibule into the interior of the church, in whose half twilight a richer depth of color glows. All is covered with a mass of mosaics and somber marbles. On the parapet which divides the choir from the nave stand figures of the Apostles in blackened bronze, and above the high altar, where the bones of St. Mark repose, rises a baldaquin upon twisted columns (see page 594).

How wondrous is the effect of the whole when the sunshine streams through the windows; when the organ fills every corner of the church with its invisible flood; when we seem to realize the fervor of all the past generations who have knelt here in prayer and praise, offering them up with different minds from ours of today, but with hearts so like to our hearts!

THE DUCAL PALACE

What St. Mark's is as the expression of the religious spirit, that the Ducal Palace is for the secular power of Venice; it has scarcely a rival, even in Italy (see page 582). The Doge's palace, as it stands before us now, was begun in the fourteenth century and completed in the fifteenth after a long interruption, for the earlier building, which dated from Carlovingian times, fell a prey to the flames. Two mighty ranges of columns, one above another, support the broad, massive upper buildings—a huge, clear, flat surface, whose peaceful unity is only broken by the Gothic arched windows which admit light into the noble halls within.

Here every line is classic. The very position of the palace, its relation to the church of St. Mark, its two fronts—one commanding the piazzetta and the other the sea—declare the inner significance of the building; it is the foundation, the very corner-stone of all Venetian splendors. The court, into which the Porta della Carta leads, is princely and has something colossal about it, even before we perceive the Scala dei Giganti—that marble staircase, with the figures of Mars and Neptune, on whose topmost step the Doge was wont to be crowned.

AN INTERIOR VIEW OF ST. MARK'S CATHEDRAL: VENICE

Few religious edifices in the entire world surpass the Cathedral of St. Mark in beauty of exterior and interior. More than 500 marble columns adorn its construction, and their capitals are formed in an exuberant variety of style. The mosaics cover an area of nearly 46,000 square feet, and the interior is profusely decorated with gilding, bronze, and oriental marble. It is now more than 800 years since the building of St. Mark's was completed. Its ecclesiastical sanctity is bestowed on it by the relics of the great evangelists, while its historical sanctity consists in its intimate connection with the fortunes of the city and her rulers.

And now let us mount by the Scala d'Oro to the wide, echoing, gold-incrusted halls, where the Great Council held its sittings, where are the statues of the famous men who have sprung from the Republic, and the portraits of the Doges who ruled over it.

SHADOWS AMID SPLENDORS

But yet a little shadow rests on these splendors. A slight shudder mars the enchantment, for the hands of Venice are stained with blood—much noble blood sacrificed to unworthy passions. There is the Bocca di Leone, into which envy threw its secret accusations. We pass by the door that leads to the prisons and the Bridge of Sighs; we see amidst the line of Doges, the black space from whence Marino Faliero's portrait was effaced when his head had fallen beneath the axe of the executioner.

In the Sala del Maggior Consiglio the Great Council held its sittings. All the members wore scarlet robes. Here the die was cast for war or peace, for honor or disgrace; and the pride that uplifted their hearts is, as it were, embodied in the masterpieces which adorn walls and roof.

Everywhere victories, coronations, gods—nay, Tintoret, who produced in this hall the largest painting known in the history of art—chose no meaner subject than the World of the Blessed! Venice dreamt only of Paradise. We pass on through a long series of saloons. Here the Doge was elected by the Nobili; there he received ambassadors from foreign lands; yonder was his bedchamber, and here the guards paced to and fro watching over the most precious jewel of Venice—the Doge's life.

A BLOODY TRIBUNAL

The triumphal arch through which we entered was erected for Morosini, the hero who subjugated the Morea, the barbarian whose cannon destroyed the Parthenon, burying hundreds of Athenians under the most magnificent ruin that the earth has ever seen. We come to a little chapel on our way, in which the Doge was accustomed to hear mass every morning. He was accompanied during the ceremony by the Council of Ten, and in the last room which we enter this council held its bloody tribunal.

"Consiglio de' Dieci!" That was a word of terror to all citizens of Venice; and whatsoever pains her defenders may take to prove the contrary, it must be allowed that though the Republic might be free in other respects, yet in this tribunal she had a power which could only be compared with that of Robespierre or the bloodthirsty Marat.

All crimes against the security of the State (and therefore all crimes!) were subject to their jurisdiction. The Doge himself was liable to feel their mysterious power. In secrecy and silence the witnesses were examined; in secrecy and silence the sentence was carried out; and, in order still further to simplify their proceedings, three inquisitors were, moreover, named of whom no one was allowed to know the persons or the residence. But they existed, and their invisible omnipresence lay like a dark ban upon men's spirits.

INTO VENETIAN DUNGEONS

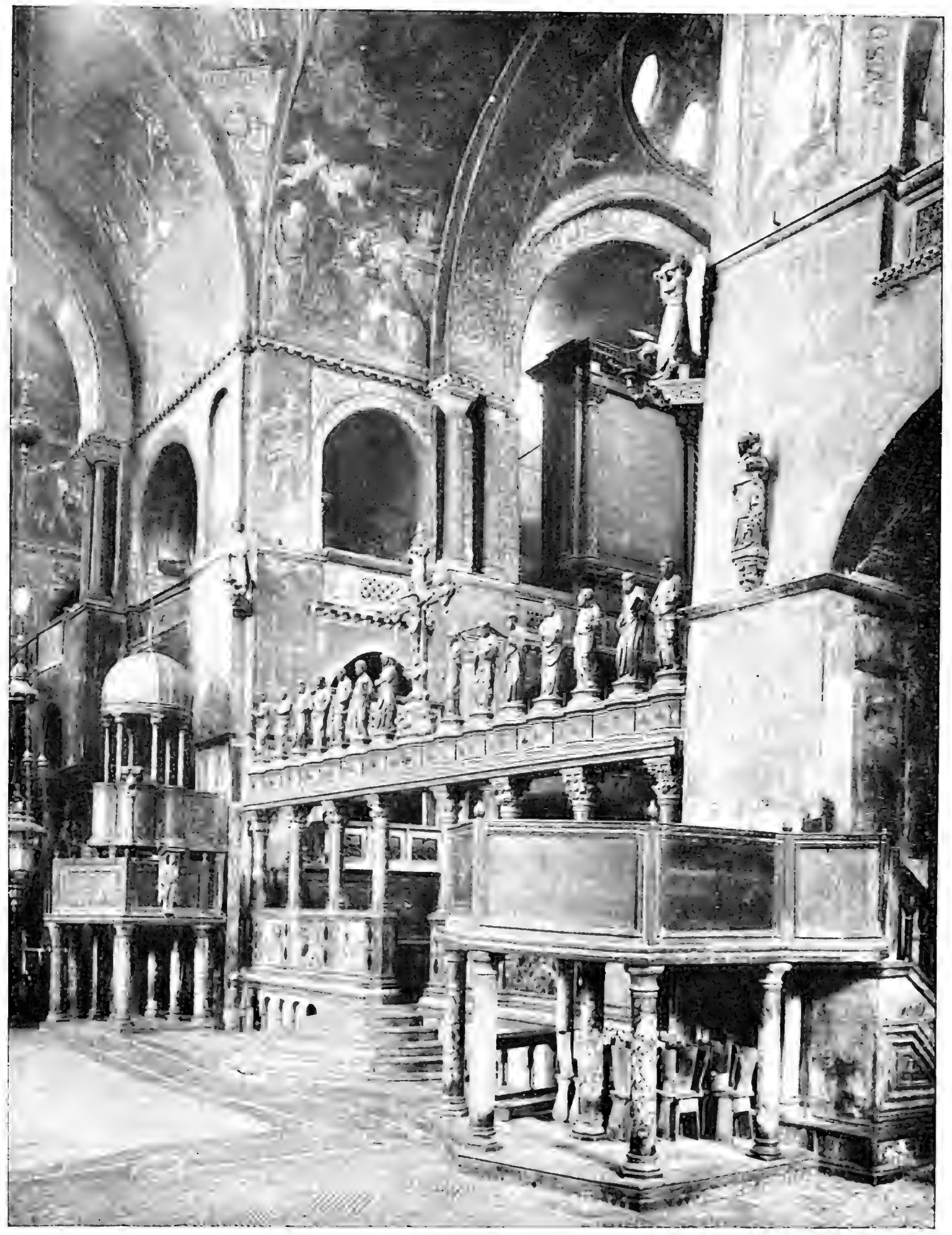
The complete truth about Venice cannot be learned in the lofty Ducal Palace, where the ceilings are full of gold and where art, free and untrammeled, created her masterpieces. We must go down even as far as the Pozzi, into the dungeons below the level of the water, or we must mount into the hot leaden cells (the Piombi); then we begin to conceive what was the secret canker gnawing at the root of all this beauty; then we feel with unspeakable horror what is the shadow on the conscience of the proud Queen of the Adriatic.

But this shadow is necessary to the perfect portrait. Who does not know whence the Bridge of Sighs derives its name?—that wondrously elegant arch which spans the Rio del Palazzo, leading from the noblest beauty to the deepest misery! And who could see the fearful Piombi unmoved?

It was a smiling May morning when we first visited them; first the prisons, and then the torture chamber, on whose ceiling the hook may still be seen to which the unfortunate wretches were hoisted up, and whose floor is paved with smooth

ONE OF THE PULPITS OF THE CATHEDRAL OF ST. MARK

There are two very fine pulpits in St. Mark's. The one here illustrated is double, or built in two stories. The marble work of the staircase is exquisite in detail, and on the whole the entire pulpit is regarded as one of the finest conceptions in the entire cathedral. The other, which is single-storied, is also considered a rare example of pulpit construction.



ANOTHER INTERIOR VIEW OF THE CATHEDRAL OF ST. MARK

"On the parapet which divides the choir from the nave stand figures of the apostles in black and bronze, and above the high altar, where the bones of St. Mark repose, rises a baldaquin upon twisted columns. How wondrous is the effect of the whole when the sunshine streams through the windows; when we seem to realize the fervor of all the past generations who have knelt here in prayer and praise—offering them up with different minds from ours of today, but with hearts so like our hearts!"—STIELER.

ONE OF THE STRIKING LUNETTES OF ST. MARK'S: VENICE

"No sense of disappointment will be felt at the first view of the interior of St. Mark's. The symmetry of the architecture, the gorgeousness of the mosaics, the rich pavement, manifold variety of the columns, and the dazzling brilliancy of the Pala d'Oro glittering with jewels, make a scene not soon to be forgotten."—THOMAS OKEY.

A DETAIL OF ST. MARK'S, SHOWING SOMETHING OF THE PROFUSE USE OF THE COLUMN IN ITS ARCHITECTURE

When the Venetian Republic decided to build St. Mark's a law was enacted which required every merchant trading to the East to bring back some material for the adornment of the structure. The result was that the peaceful conquests of commerce, as well as sanguinary victories of war, resulted in the architectural, sculptural, and artistic enrichment of the great edifice. It thus forms a museum of sculpture of the most varied kind, representing nearly every century from the fourth to the latest Renaissance and nearly every region from the Adriatic to the Far East.

A DETAIL OF ONE OF THE ENTRANCES TO ST. MARK'S CATHEDRAL: VENICE

It was in connection with the building and adornment of St. Mark's that the art of mosaic first came to Venice. With the mosaists came other artists, and on the island of Murano various Byzantine craftsmen began working, transferring something of the spirit of Sancta Sophia to St. Mark's of Venice, the "Queen of the Sea."

stones in order that the blood should easily be wiped from it.

THE PRESS OF GONDOLAS

With a sensation of relief we return to the open air, to the grand piazzetta, where the sea breeze blows, where the "Zecca" opens its pillared halls—that ancient mint which as early as the year 1280 coined gold sequins. And what a press of gondolas! On every side is heard the cry "La barca, Signore!" "Commanda la barca?" The gondolier greets us, his oar in his left hand, his right raised with a slight gesture of salutation; the blue shirt, bound at the waist by a red sash, reveals his open breast, and his sunburnt face looks frankly at us. A moment and the picturesque, sinewy figure is in full movement; the oar dips into the wave and the bark shoots like an arrow along the Grand Canal (see p. 576).

It is the largest of the 400 watery ways which intersect Venice. Nearly 4 miles in length stretches the broad stream from Santa Chiara to the Giudecca. Along the Canal Grande rise the noblest palaces of those great old families whose names were written in the "Libro d'Oro"—the Golden Book—of the Republic. That book was burned on the open piazza in 1797, when the Western Tempest broke over Venice; it was a hurricane such as even those children of the ocean have never yet witnessed, and its name was *Egalité!*

On the narrow point of land exactly opposite to the steps of the piazzetta are the Dogana di Mare (sea custom-house) and the Seminary of the Patriarch, both dominated by the fine church of Santa Maria della Salute. This church was built as a votive offering by the Venetians in the time of the plague, after more than 40,000 persons had fallen victims to the pestilence, and has come to be one of the great landmarks of the city, with its gigantic cupola and white mass of building shimmering in the morning light. In almost every pictorial representation of Venice you see Santa Maria della Salute.

WONDERFUL PALACES

We glide onward until we come opposite to the Palazzo Contarini Fasan (see page 578), and here the gondolier pauses. It is one of the finest façades in Venice; the marble balconies are as delicate and slender as if worked in precious metals; tall and narrow rise the arched windows, with their columns opening onto the balcony; and yet amidst all this elegance there is a strength which shows us that mighty times and mighty men once reigned here.

Now great names throng upon us. Here is the palazzo corner, and there are the houses of the Foscari, the Balbi, Mocenigo, Grimani, and Loredan. Before each princely door are white marble steps leading down into the water, and great wooden posts — painted with the colors of the family — which serve to moor the gondolas to.

A CITY ON PILES

We pursue our voyage, and a splendid arch is suddenly seen spanning the Canal Grande; it is the Bridge of the Rialto (see page 580), for a long time the only one which crossed the Grand Canal, and still by far the most interesting of all the bridges that Venice possesses.

A busy tide of life flows hitherward, for it is the central point for retail dealers. Here the fishermen bring their wares to market; here the laws of the old Republic were published at a column which bears the name of the "Gobbo di Rialto" (the hunchback of the Rialto), and on the bridge itself stands a double row of little *botteghe* (shops), built of marble and roofed with lead.

As the story goes, the first of them were erected because it was feared that the bridge might be forced upward in the center; and Da Ponte, whose opinion was asked, advised in his last moments that the two ends of the bridge should be weighted in this manner. Thus the Ponte di Rialto obtained the upper buildings, which give it almost an inhabited air, but deprive it of the imposing boldness which once distinguished the unencumbered arch. It is nearly 150 feet wide, and its foundations under water rest upon a platform of 12,000 piles.

In the same manner, as is well known, all the houses and palaces in Venice have arisen out of the sea; the whole city is

the most colossal edifice upon piles that the world has ever seen. In order to support the enormous weight put upon them, it was necessary to choose only the mightiest trunks and the finest sorts of wood, which were brought from foreign lands by the enormous sea commerce of Venice; and it happened in the last century that a noble family resolved to pull down their splendid palace on the Canal Grande in order to get at the precious cedar stems on which it is built, and thus rescue themselves from a slough of debt; but the Republic forbade this desperate measure.

Among the palaces on the Grand Canal two have an international importance—that is to say, they reveal to us not only the enchantment of beauty and the luxury to which Venice attained at home, but the world-wide commerce which the city of the lagoon once commanded. The Fondaco dei Tedeschi, close to the Rialto Bridge, was the chief place of meeting for the German merchants and the central point of their commerce.

The whole traffic of the Levant with the North passed through Venice, and the Turks, as well as the Germans, had their national house on the Canal Grande—the Fondaco dei Turchi. This house, too, was the property of the Republic, and was by its hospitality dedicated to the use of the Mussulmans. Here the Koran was read and the praises of Allah recited; it was the focus of Oriental life in Venice. The building is tolerably well preserved, but it shares the fate of all the palaces on the Grand Canal—it has fallen into the hands of strangers.

When the gondola has glided on beneath the Ponte di Rialto, we come upon yet more beautiful palaces—the Ca' d' Oro (page 573), with its wonderfully richly sculptured façade, and the Palazzo Pesaro, with its heavy, massive walls; but the finest of all is the Vendramin-Calergi. The gondola silently pauses before the marble steps; we enter the colossal doorway, and a porter shows us the way and greets us in the most undeniable French. This is the palace of the Duchess de Berri, now the property of the Count de Chambord.

It would be foolish to calculate the worth of such a building by the price that it fetches; but to show the deep fall from its glories of former days which Venice has experienced, I know no more striking comparison than that furnished by the figures concerning the Palazzo Vendramin. This palace, which was sold *300 years ago* for 60,000 ducats, came into the possession of the Duchess de Berri in recent times for 6,000 ducats!

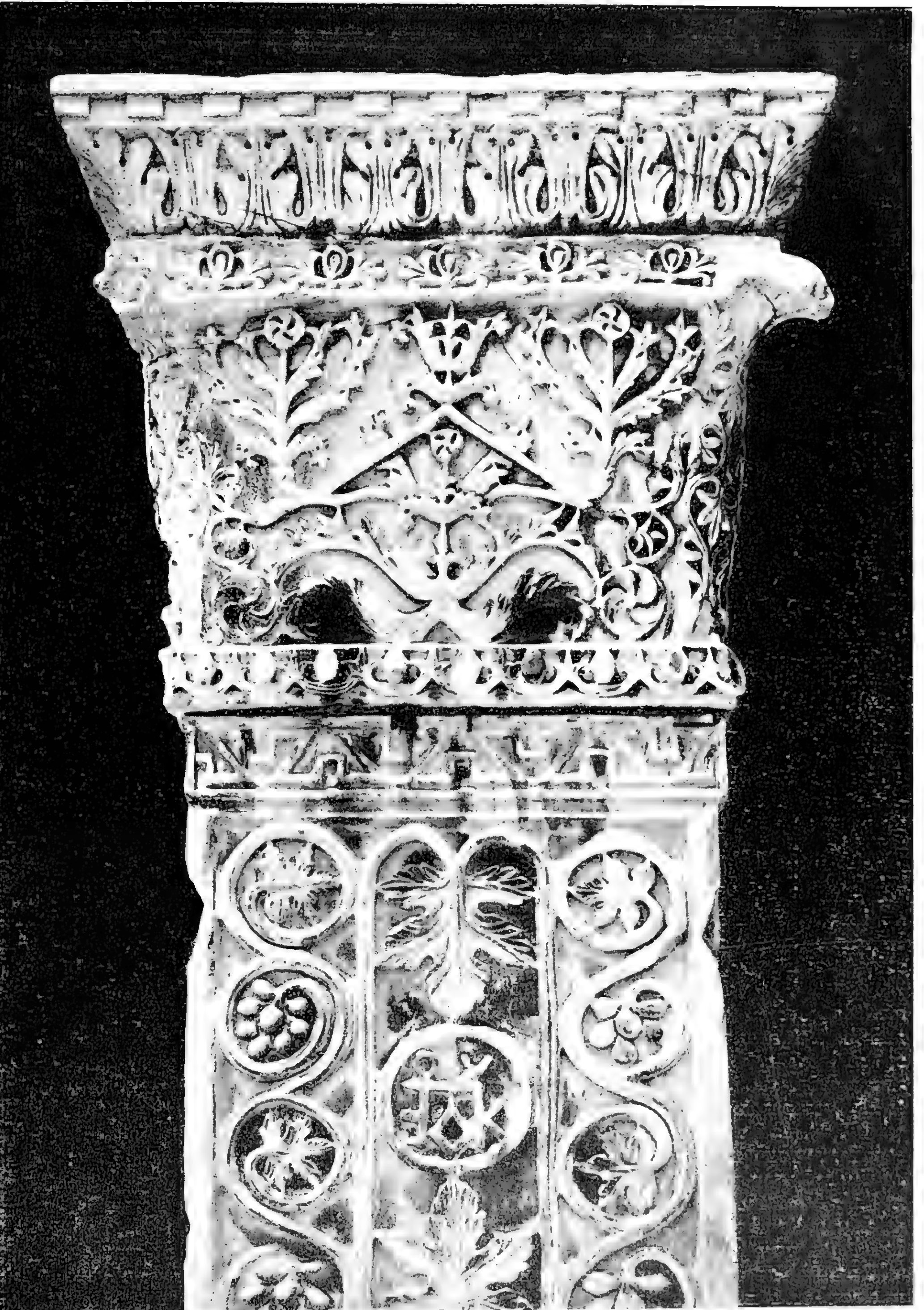
A TWO-MILE BRIDGE

And so we hasten onward between the long rows of palaces to the end of the Grand Canal, to the island of Santa Chiara, where the lagoon opens out and the sea begins. Great red buoys, which serve to mark the way for navigators, balance themselves on the waves, and the arches of the huge railway bridge reach across to where *terra firma* shows dimly in the distance. It is one of the longest bridges in the world, for it measures nearly 12,000 feet in length and has more than 200 arches. Xerxes' idea of bridging over the Hellespont has been, as it were, realized by modern Venice, for we roll on iron rails over the waters right into the interior of the town.

A very different aspect of Venice reveals itself to us when on leaving the Piazza of St. Mark—always the point of departure—we plunge into the commercial parts of the town. We pass through an archway in the clock-tower that forms so characteristic a feature of the north side of the piazza, with its great bronze figures that strike the hours, and get into the *merceria* leading to the Ponte di Rialto.

THE OLDEST BANK IN EUROPE

Here we are in the midst of the present, with its manifold requirements and feverish haste. The watchword here is not "to be," but "to have;" not the dignity, but rather the keenness, of the old Venetians predominates here. It is well known that the first idea of great financial transactions originated in Italy, but in this field of commerce also Venice ranked foremost: she had the oldest bank in Europe, which dates back to the days of Barbarossa and the development of which is a considerable factor in the



STRIKING FORM OF CAPITAL IN ST. MARK'S

It was in a measure the Germans who brought about the founding of Venice. For a long time the Venetians dwelt at Malamocco, but when King Pepin, the son of Charlemagne, forced them from their stronghold, they went to the lagoons at the mouth of the River Po, where they succeeded in driving off Pepin and establishing the new city of Venice.

A GLIMPSE OF THE MURAL DECORATIONS OF ST. MARK'S

After the Venetians found themselves able to repel the forces of Pepin, they began their career of conquest by taking the coasts of Istria and Dalmatia, later acquiring territory in the Levant and the Greek archipelago, and finally conquering Constantinople. The Crusades, which impoverished the rest of Europe, doubly enriched Venice. She had the carrying and transport trade in her own hands, and her conquests gave her the spoil of many Eastern States.

A CURIOUS RELIEF IN PORPHYRY ABOUT WHICH MANY IDLE TALES ARE TOLD: ST. MARK'S, VENICE

These figures are illustrative of the wide sources from which the embellishments of St. Mark's were brought. They are Greek in workmanship and probably came from Ptolemais.

THE SPIRAL STAIRCASE IN ONE OF THE FAMOUS PALACES OF VENICE

From the time that the "City of the Sea" shared in the triumph of the fall of Constantinople, in 1206, and received as its portion an amount estimated by Gibbon as equal to ten times the annual revenue of the England of that day, the great traders of Venice became among the richest in the world. Villehardouin declared that it was his belief that the plunder of the city exceeded all that had been witnessed since the creation of the world. The plunder of the Venetian wars added to the profits and Venetian trade gave the city a greater proportion of Napoleons of finance than any other city state of its time enjoyed.

THE CATHEDRAL AT FARRARA: NORTHERN ITALY

With its imposing façade of three series of arches placed one above the other and its projecting portal, the cathedral at Ferrara is one of Italy's best examples of Lombard architecture. It was begun in the twelfth century.

city laws. All enactments having reference to this bank were proclaimed from the steps of the Rialto; here was the Exchange; here the great commerce in the treasures of the East was carried on; here Venice bartered the wealth of her industry for the wealth of natural products before England and Holland became the mistresses of the trade of the world.

NATURE WANTING

Rich as Venice is in beauty, however, one thing is wanting to her — Nature. Whosoever wishes to enjoy nature must take refuge in the Giardini Pubblici, on the Lido, or on the little islands of Chioggia and Torcello, where the fishermen's huts stand, built out of the beams of wrecked ships (see map, page 630).

The public gardens of Venice are the creation of Napoleon, who pulled down hundreds of buildings, even consecrated buildings, in order to give this space for recreation to the Venetians; making them thus the most rare and singular of presents—a solid piece of dry land, a promenade among trees! You go along the Riva de' Schiavoni, which leads from the piazzetta in the direction of the Lido.

This Riva is a noble quay paved with broad flagstones, over which throngs of people move and in front of which are anchored rows of ships. Some have their flags flying; others are having their sides newly pitched, while the idle sailors lie sleeping on the decks. Every now and then we come upon a bridge with shallow, broad steps crossing a canal.

COSTUMES OF THE THIRTEENTH CENTURY: FLORENCE

During the thirteenth century the judicial functions of Florence were intrusted to the Podesta, a foreign nobleman of legal erudition, elected for a period of six months at first, which term was afterward increased to a year. In 1215 Florence became divided into two factions, the Guelphs and the Ghibellines, and their rivalries became so bitter that the people themselves, in 1250, organized a kind of national guard and first coined the golden florin, which soon was to become the world's standard of value.

A HISTORIC ARSENAL

To the left lies the arsenal, with its huge docks and magazines, watched over by the stone lions which were brought from Athens by Morosini. Centuries long this arsenal enjoyed a great European reputation, and no other in the world was considered comparable to it. The superintendence of it was intrusted to three "Patroni," who were chosen from the ranks of the nobles, and were changed every night at the same time with the sentinels on guard.

The *Ammiraglio dell Arsenale* had to watch over and protect the Ducal Palace during the election of the Doge; he commanded the *Bucentaur*, on which the newly elected Doge put out to sea to drop his ring into the Adriatic; a swarm of workmen was under his orders.

During the time when the Republic was at the height of its power 10,000 noble oak stems lay constantly steeping in the water, to serve for the construction of new ships. Every rope and every pulley had its private mark, and the theft of even a nail was punished with five years of the galleys.

Here, too, lay the world-renown *Bucentaur* at anchor—the pompous vessel of the Doge all overhung with gold and red velvet, and with a depth inlaid of ebony and mother-of-pearl. Eighty-four golden oars propelled the bark over the blue waters, and the shouts of an exultant multitude accompanied her course!

The collection of arms in the arsenal

THE PALACE OF VECCHIO: FLORENCE

This castle-like structure, with its huge projecting battlements, dates from 1298. Until 1532 it was the seat of government of the Florentine Republic and is now used as a town hall. From 1504 to 1873 Michael Angelo's famous statue of David stood to the left of it. On the right is a group of Hercules and Cacus by Baccio Bandinelli, Michael Angelo's rival, who hoped to excel the great master in this work.

Photo by Emil P. Albrecht

IN THE SQUARE BY THE CHURCH OF SANTA MARIA DEL CARMINE: NAPLES

Outside the church all sorts of venders are ready to supply the physical wants of those who have visited the church because of the "fiesta;" the melon man, selling his fruit whole, halved, or in slices, solicits our custom, as do the man with lemons and the one with huge tarts

Photo by Emil P Albrecht

THE MILK WAGON OF NAPLES

Early in the morning the goats click-clack their hard little hoofs up and down the narrow lanes and flights of steps that in parts of Naples serve for streets, bringing Naples, fresh and unadulterated, the milk for its morning meal.

had formerly a great reputation and offered a rich fund for historical observations; but the hand of the foreigner has in all times been busy among its treasures, and every victor helped himself from these trophies.

A WONDROUS SEA CITY

But in a short time we step out of this iron circle into the fresh green of the gardens, which chiefly charm us by the exquisite view to be seen thence. One should gaze from this spot at the roofs and towers of the wondrous sea city when they are gilded by the evening light or when the twilight throws its veil around Santa Maria della Salute. The lagoons open out widely before us, often crested with foaming waves; and the figures we meet slowly pacing the broad alley have frequently something of the stateliness of the old "Nobili"

The Gardini Pubblici are situated at the extreme point of Venice, on that sharp promontory which stretches out into the lagoons. If you proceed beyond this point in a boat, you reach the Lido, a long stretch of sandy shore which divides the lagoons from the open sea; and beyond that again are the "Murazzi," the tremendous sea-walls which protect the town against the Adriatic.

From hence is obtained the best idea of the extraordinary position of Venice; how that shallow flood which goes by the name of *Laguna morta* and *Laguna viva* stretches between the sea and the dry land, and how from its surface arose the most marvelous city in the world. The lagoon is divided from the moving sea,

A STREET SCENE OUTSIDE OF A MACARONI SHOP: NAPLES

The hungry eyes of the envious bystanders tell a story of Italy's fondness for macaroni. It is only genuine macaroni, rich in gluten, that can be hung up to dry. That made of cheaper flour will not bear its own weight, and therefore must be laid out flat to dry

TWO CALABRIAN BEAUTIES

In the extreme south of Italy, especially in Calabria, many exceedingly beautiful women are found among the peasants, and this beauty is enhanced by the striking costume they wear. It will be recalled that this part of Italy was originally settled by colonies from Greece and was prosperous and civilized while Rome was yet in its infancy. In many Calabrian villages the pure Greek type has persisted all through the centuries and in some the Greek tongue is still spoken.

Photo by Lewis S. Rosenbaum

A CONTROVERSY BETWEEN RIVAL SALESWOMEN AT THE RAG FAIR IN ROME

The Rag Fair, a Roman institution held every Wednesday in the Piazza della Cancelleria ... adjoining streets, is not as bad as it sounds. Old textile fabrics and antiques of various ... often of much value, which have somehow managed to escape the world's many mu-... are often offered here on the open market. At the same time more that is spurious is ...d than there is of the genuine.

Photo by [illegible]

WAITING FOR CUSTOMERS AT THE RAG MARKET: ROME

The strength of character that has made Rome famous from the dawn of civilization is written in the lines of the faces of even her humblest subjects

MANY HUNDREDS OF THOUSANDS OF AMERICAN VISITORS TO ITALY HAVE FOUND DELIGHT FOR THEIR EYES AND JOY FOR THEIR HEARTS IN THIS GLORIOUS VIEW OF THE ITALIAN COAST

THE ITALIAN COAST, NEAR NAPLES AND AMALFI

The highroad along the coast from Naples to Amalfi is cut out of the mountain-side for much of the way, especially the Amalfi end. There are many watch-towers guarding it which date from the sixteenth century

MEDIEVAL TOWER WITH MODERN PINNACLES: BRESCIA

Brescia, beautifully situated among the foothills of the Alps, a complex of narrow street-canyons and old buildings, must be now one of the busiest cities in all northern Italy; for its staple products are weapons, and here are made many of the firearms used by the Italian army.

Photo by Emil P. Albrecht

THE PASS OF TRE CROCI (THREE CROSSES) AT SUNSET

This pass leads up to Falzarego Pass, which is one of eight breaks in the mountains between Italy and Austria through which highroads and railroads have been built. Wagon roads cross the Stelbio Pass, Tonale Pass, Lodrone Pass, Brenta Pass, Falzarego Pass, and the pass leading from Udine to the Isonzo River. A railroad crosses the border following the Adige River and another at a point between Pontafel and Pontebba. All these passes were extensively fortified in recent years.

as well as from the solid land, by sand-dunes, like gigantic dams; but there are great portals opened seaward by which ships can reach the free Adriatic. *Porto di Lido, Malamocco, Porto dei tre Porti* are the names of these three outlets.

The lagoons cover a superficies of more than 170 square miles; the sea-walls alone, which are erected to ward off the sea close to Palestrina, are over 18,000 feet long and more than 40 feet thick and 30 feet high.

At Porto di Lido the soft sands are covered with stunted shrubs, and little trembling grasses grow close to the edge of the sea that washes over them with its encroaching waves. The waters are dark as blue steel; the great steamer disappears on the misty horizon and the light bark returns homeward with its sail fluttering in the wind. We gaze out into the boundless expanse. Far away a white-winged seagull is circling, but at length it, too, is lost to sight in the infinite distance.

In front of the little *osteria* (tavern) which stands on the Lido, and under the green acacias bedecked with colored lanterns, revelry goes on deep into the night. There the merry boatmen drink and laugh until the last bark pushes off from the Lido and returns homeward across the flowing lagoon, which at flood tide rises nearly 6 feet. A distant music enchants our ears as we land at the piazzetta. It is the gondoliers upon the Canal Grande singing their old songs—songs which have never yet been written down by a stranger's hand, but which live in the memories of the people.

Photo by Emil P. Albrecht

A HIGH, STONY PASTURE NEAR FALZAREGO PASS, ON THE DOLOMITEN STRASSE

The Dolomiten Strasse is a very modern military road leading from Tyrol to the Italian frontier. It crawls up with constant twistings and turnings until it gets so high that snow falls often to a depth of many inches in midsummer

Photo by Emil P. Albrecht

A VIEW OF THE AMPEZZO VALLEY FROM CORTINA, NORTHWARD

It is up this valley that the famous Dolomiten Strasse leads to Falzarego Pass, across which one of the earliest movements of Italian troops invading Austria was made

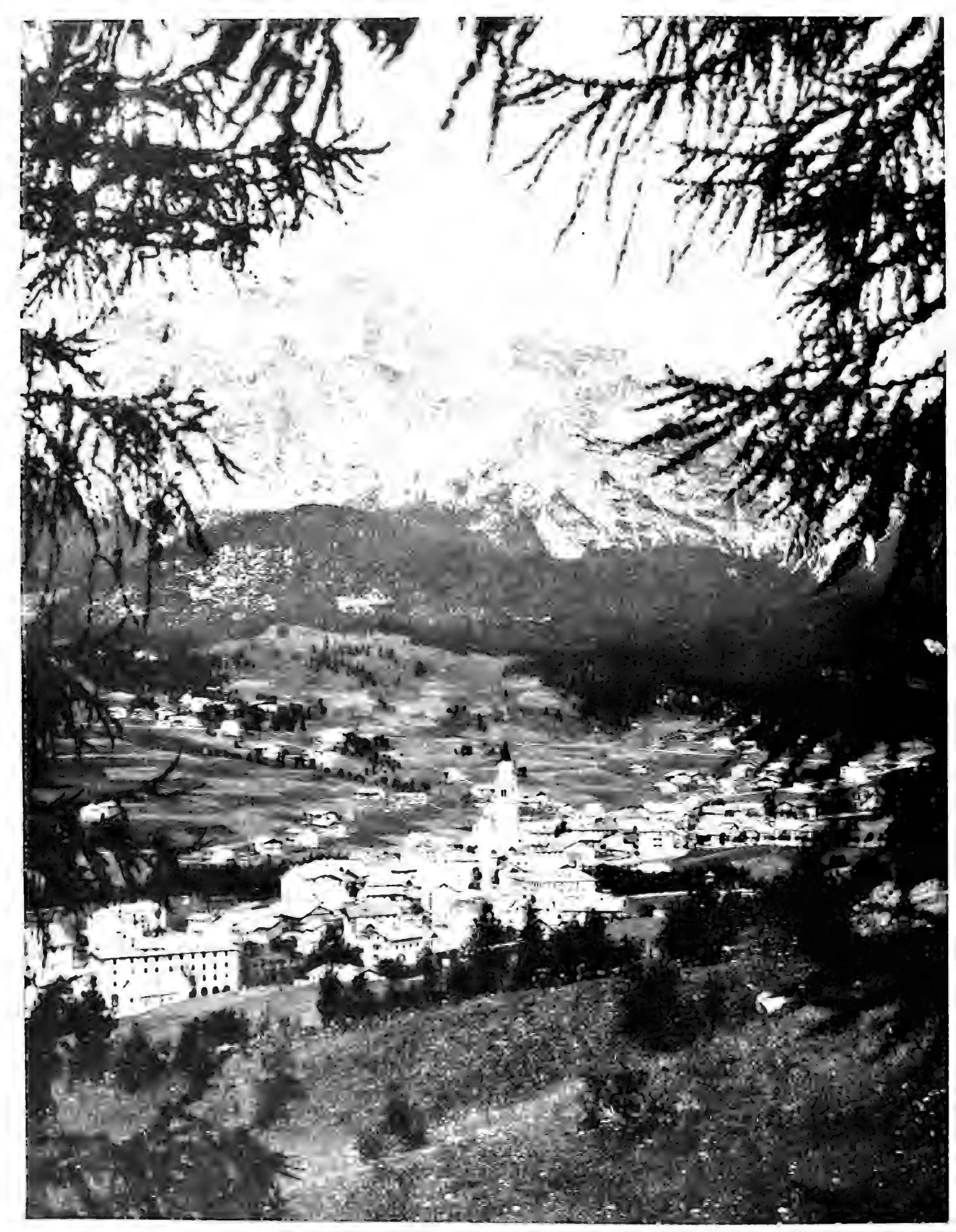


Photo by Emil P. Albrecht

THE VILLAGE OF CORTINA, IN AUSTRIAN TYROL, JUST ACROSS THE ITALIAN FRONTIER, WHICH WAS OCCUPIED BY ITALIAN TROOPS IN MAY

The population is but a little over 1,000, but augmented by as many visitors and tourists during the summer. In the background are the snow-covered slopes of the Tofana group (10,635 feet). Cortina lies in the Ampezzo Valley, through which runs the fine highroad from Toblach to Belluno and Venice, surrounded by the high mountains of the so-called dolomite formation which has given the name to this region.

Photo by Emil P. Albrecht

ON THE ROAD TO TRE CROCI, IN AUSTRIAN TYROL, A FEW MILES FROM THE ITALIAN FRONTIER

This little mountain stream, the Bigontina, is sometimes turned aside in a primitive way and made to turn a sawmill to pay for its otherwise careless way of getting through the world

STARTING ON A SHORT CUT DOWNHILL OVER THE FIELDS AT THE END OF A DAY'S HAYMAKING

Photos by Emil P. Albrecht

ONE OF THE PASSES FROM AUSTRIA TO VENICE

Tondi di Faloria (6,910 feet) and Sorapis (10,595 feet) across the valley

Photo by Emil P. Albrecht

A SCENE IN AUSTRIAN TYROL NEAR THE ITALIAN FRONTIER

On the Dolomiten Strasse: From Falzarego Pass (6,945 feet), Sorapis (10,595 feet) in the distance. On the right the curious Cinque-Torri (7,750 feet) and the Nuvolau (8,400 feet). The road crawls up with constant twistings and turnings, the sun shines hotly on its unsheltered whiteness, and a cold wind sweeps continually over the pass. Even in summer snow may fall here not in playful flurries only, but to a depth of many inches. The beautiful forests of the lower valley here dwindle to scrubby pines; the close turf is thickly strewn with sharp-edged stones; the peaks rise rugged and bare.

A SCENE IN SALZBURG

The steps end at the gate of the Capuziner Convent, on the hill of the same name

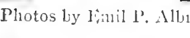
Photos by Emil P. Albrecht

SCHLOSS RUNKELSTEIN, OVERLOOKING THE TALFER RIVER: BOZEN

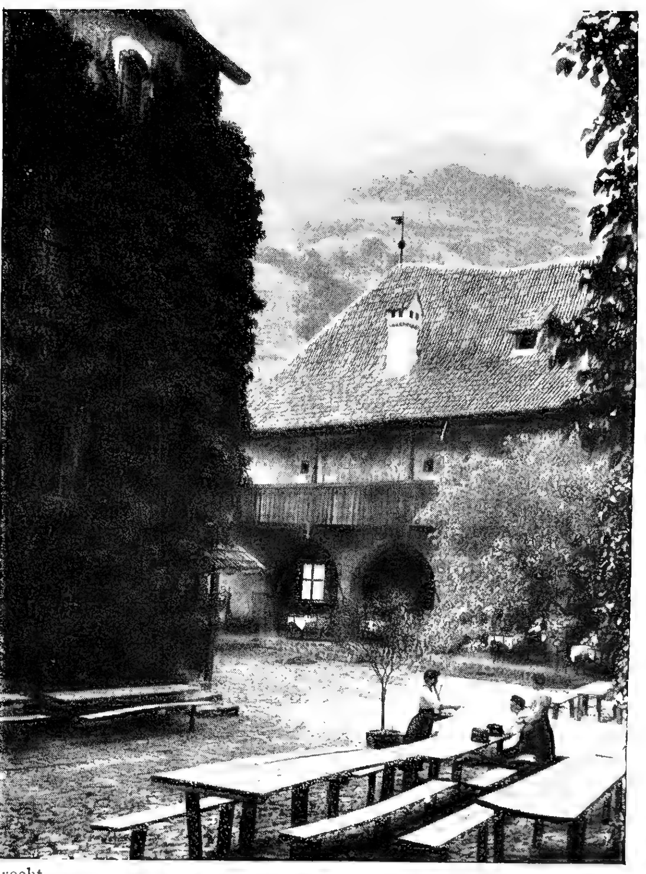
Throughout the Tyrol, and particularly in the neighborhood of Bozen and Meran, these old castles are to be found, dating back to the thirteenth and fourteenth centuries.

SCHLOSS RUNKELSTEIN: BOZEN

The old drawbridge has been replaced by a permanent wooden structure, but this is the one and only entrance

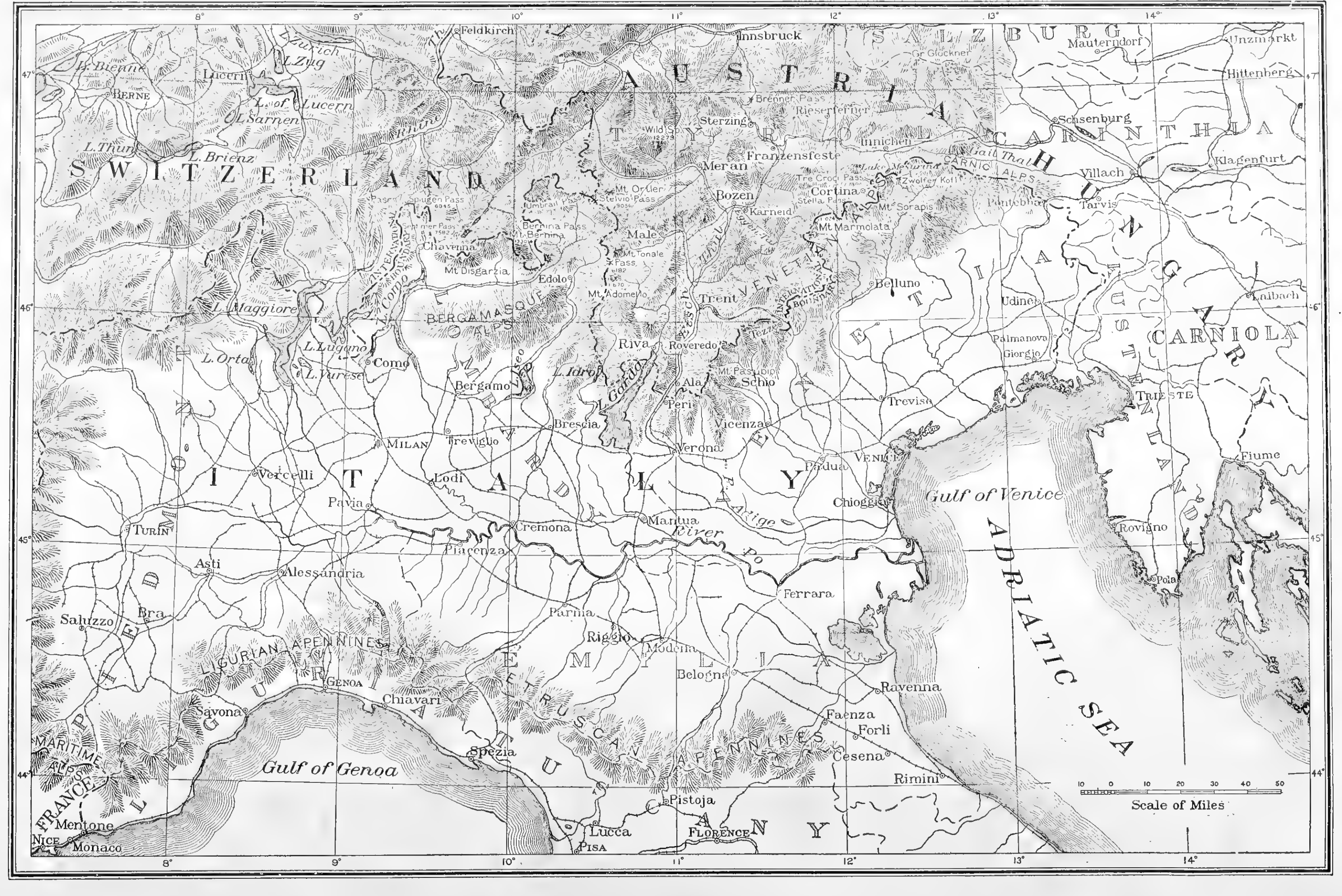


Photos by Emil P. Albrecht



SCHLOSS RUNKELSTEIN: BOZEN

Given by the Emperor Franz Joseph to the city of Bozen in 1893, the old castle is a favorite attraction to the people of the town as well as to visitors. Inside as well as on the balcony in the background are some of the earliest frescoes, dating from the fourteenth century, still in a good state of preservation.



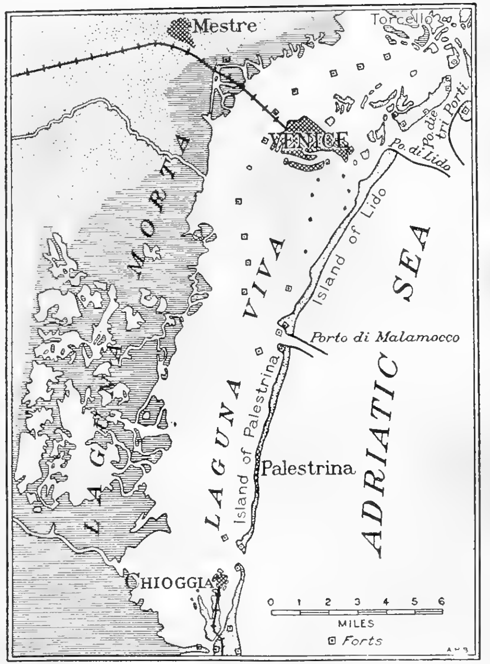
MAP SHOWING FRONTIER CITIES OF ITALY AND AUSTRIA-HUNGARY (SEE TEXT, PAGES 533-537, 553-554, ETC.)

Venice was founded on some mud banks by refugees from the mainland cities, who sought a location that would be safe from the Huns

Photo by Emil P. Albrecht

HALL, IN THE TYROL

The old Münz-Turm, a tower remaining from the ancient mint established here in the fifteenth century. The "Kreuzers" and "Zwanzigers" that were issued in 1809 by Andreas Hofer were coined here.



MAP SHOWING POSITION OF VENICE ON A GROUP OF MUD BANKS (PP. 607, 619)

These mud banks and, in fact, all the low, flat plain between the Alps and the Apennines (see map, page 628) have been built up by the silt brought down from the mountains by the rivers Po, Adige, etc. Ravenna, for instance, 2,000 years ago was the Portsmouth of Emperor Augustus, and 250 large galleys could ride at anchor in its harbor, which is now a marshy plain six miles from the sea-coast.

SPECIAL NOTICE

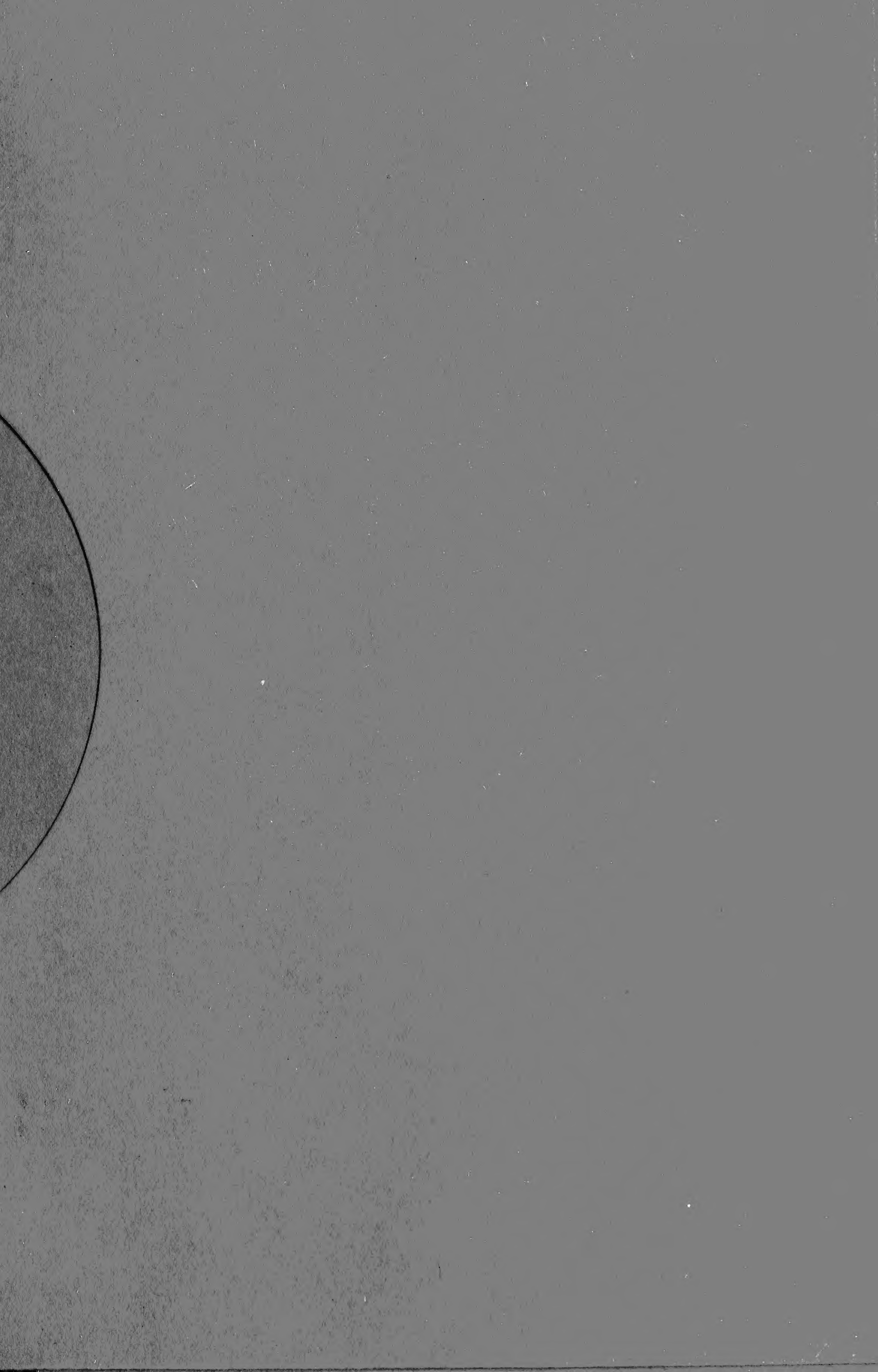
The July number will contain a very comprehensive map of Europe, 28 x 30 inches, and in four colors, which will prove invaluable for following the trend of military events in the war zones, while the August number will print a series of 90 pictures in colors, showing the game birds of North America. These numbers will prove of such great permanent value that it is hoped every member of the National Geographic Society who wishes the address of the Magazine changed for summer months will notify the office immediately. The post-office does not forward magazines. Advise the Society now of any change of address, so that these valuable numbers will not be lost.

CAPUCHIN MONKS, OF WHOM THERE ARE MANY IN TYROL: INNSBRUCK

Though "the poorest of all orders," the brown-habited Capuchins have attracted to their ranks an extraordinary number of nobles and even some princes.

Photos by Emil P. Albrecht

A YOUNG OFFICER NEAR THE HOFKIRCHE: INNSBRUCK



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