

THE ADVANCE OF SAHARA.

Program of the Arid Region Southward Has Been Ascertained by Explorers.

Scientists have long disagreed over the question of the aridity of the Sahara desert, and over the manner in which it was formed. They agree however, that the dryness has much increased in the centuries since Rome was a mighty empire.

The country which extends from the Niger to Lake Tchad, he says, between 15 and 16 degrees north latitude, is completely barren of permanent water bodies. For more than 300 miles, it is a tropical region without a water course. Only yesterday, as geologists count time, all this was different.

The Niger received from the left immense affluents, veritable floods, rising even in the lofty mountains about the plateau of Hogar, the highest region of central Sahara. Then giraffes, and elephants, the colonel believes, wandered even to the borders of the Mediterranean Numidia, seeking the abundant vegetation.

Then came the Mohammedan conquest, with its tribes of nomadic Arabs, and the invasion of the Tuareg from the west, accelerating the Saharan devastation.

These invaders burned over great tracts of land, destroying vegetation, and leaving nothing to hold the fallen water in check. The hygrometric state of the atmosphere was impoverished. The vapor no longer was condensed. The rain failed, vegetation disappeared and the soil and rocks were left exposed to the direct action of heat and cold, and of the winds. The decomposition of the granite filled the dry river-beds with sand for great distances.

The advance of this phenomenon has not stopped at the edge of the tropics. The Sahara, he believes, has gained toward the south the regions, recently verdant, of Air and of Azawad. It touches now Adar, Gober, Tessawa, and even the sultanate of Zinder, an island city which was given to France in the last settlement of Anglo-French boundaries in Africa. It is established on all the northern parts of Lake Tchad. Although it appears slow, its march is extremely rapid, compared with other geologic phenomena.

Barth, the German explorer, found water in abundance, 50 years ago where Col. Peroz's expedition suffered from thirst. The old man of North Adar showed the Frenchman rivers which in their youth flowed full many months of the year, but are now dry. Lakes yesterday permanent, which Peroz expected to find full, were dry, and did not replenish except during the two months of winter.

As proof that part, at least, of the damage has been wrought by man, Col. Peroz says that in 1850, in a corner of a valley indicated by a Tuareg, he was able to uncover the stumps of a forest which the Tuareg said they had destroyed 25 years ago in order to devote the fertile soil covered by it to raising millet.

"Even now our line of communication from the Niger to Lake Tchad," he says, "is actually semi-desert. It is cut by spaces of many hundreds of kilometers where the desert is absolute. If we do not take care the places still free will be dried up successively, just as those have been dried up which mark the route that Barth followed from Air to Damergu 40 years ago."

HE WAS PHILANTHROPIC.

Wasn't Going to Let Anybody Go Without Parents for Want of a Little Change.

As he stepped out of the theater he stopped to light a cigarette, and at the same moment, relates the New York Times, heard himself addressed. "If ye please, sir, gimme something fer me little brother an' sister; they're home, cold an' hungry, an' we ain't got no parents."

He turned and saw a diminutive girl, about 12 years old. He had seen the girl before, and had watched her play the same game, and had heard her tell the same story to people outside the theater several times, and knew it all for a "fake."

"Best think, no parents—ain't it awful, sir? Them little children!" She was keeping pace with him. "Go home," he said, not unkindly. "Do you want to be arrested for begging?" "Go home."

HYGIENIC EXERCISE HELPS.

Often Acts as a Restorative Both to Worn Muscles and Exhausted Nerves.

Muscular action is indispensable to robust health, but the amount of it that is required varies with age, sex, habits and constitution. Most persons who are free from organic disease are benefited by properly directed gymnastic training. Even those employed at manual labor are often improved by it, for only certain groups of muscles are exercised in the routine of daily work, and others remain comparatively idle.

Light exercise for a few minutes in the evening often acts as a restorative both to the worn muscles and to the exhausted nervous system of one fatigued in his employment during the day, particularly if it be followed by a cold sponge bath; but as a rule the morning is a better time for both exercise and cold bath. Invalids may profit under the supervision of a physician and remarkable cures are sometimes attributable in great measure to it, says Youth's Companion.

No other method is quite so effective as systematic training under an intelligent instructor, when this is available, but a great deal can be accomplished by home gymnastics, if persistently practiced. In these days of deficient breathing and excessive lung disease special attention should be directed to the strengthening of the muscles of the chest and abdomen. The exercise should be taken daily and in the open air when the weather will permit; it should never be undertaken in a closed room. Whether dumb-bells and wall-pulleys or some other method be employed, the movements should be carried to the point of inducing deep respiration. Moderate running and bicycling increases the breathing power, and rowing is regarded as the best of all exercises.

A few precautions should be observed. Nothing more cumbersome than the regulation costume of the gymnasium should be worn, unless reduction of weight is desired. The time limit at the beginning should be 10 or 15 minutes; it may be increased gradually to an hour, the rapidity of the increase corresponding to the physical condition of the individual. The weight of each dumb-bell for a sound young man should rarely exceed two pounds, and that of each wall-pulley should be limited to three pounds. Nothing is gained by attempting too much, and the improvement of months may be checked by the overwork of an hour. The slight soreness of the muscles during the first few days must not, however, be looked upon as an indication of overwork.

HANDBAG MATCHES GOWN.

Pretty Adjunct to the Autumn Costume That Is Just Now in Evidence.

One of the necessities of the up-to-date girl is her wrist bag with a natty little purse to match, says a fashion authority. The autumn styles in handbags give faint promise of the return of the chateaux, although there is no decided movement in that direction so far as the season. A tendency to fitness is the most marked feature of the modish purses and bags, introduced first in the flannel bag and a little later in the envelope bag and purse. The former has two handles, which are like the adjustable handles of a flat-iron, and hold the bag together at the top. The envelope bag is a large-leather envelope, with little envelope purses tucked inside.

Replacing the gaudy scarlets, greens, purples and royal blues of the summer are bags in the more subdued tints and in dull back, rather than in conspicuous patent leather. A new and effective fad in wrist bags is to have them made to match the color of the vest worn with the all-fashionable diaphanous coat. In putty-colored suede, in soft kids and leathers in chamous color, and in an odd shade of old rose, there is a bewildering array of self-sewn bags and purses. Very little mounting is shown on the tailor-made bag so that the severe effect may be carried out throughout.

Contrasting with the large bag is the pretty little jeweled purse some girls carry on their middle finger. It is of gold or silver, dependent on a chain on a gold ring, and is only large enough for change. The jewellers are showing these little purses in exquisite designs and studded with precious gems.

Rice and Apple Pudding. But two tablespoonfuls of rice in a pint of milk, add three tablespoonfuls of sugar and the beaten yolks of two eggs, and have ready some apples stewed in sugar syrup until clear like preserves. The cores should be removed and sound and whole apples selected. Take an earthenware dish and line it around the sides with rice. In the center of this put the apples, fill the holes made by the removal of the cores with raisins or with a tart jelly, and the space in between the apples should be filled with rice. Now cover the whole with the whites of two eggs beaten to a stiff froth with four tablespoonfuls of powdered sugar, and bake into the meringue turns a golden brown. Serve hot or cold with sweet cream. Boston Globe.

Apple Soup. Put four cupsful of peeled and quartered apples over to cook, with water to keep them from scorching, when mushy rub through a sieve, add a pint and a half of water, three tablespoonfuls of sugar, a pinch of salt and a little cinnamon, thicken very slightly with cornstarch. Dried plums, prunes or cherries may be soaked over night, then cooked in the same way. People's Home Journal.

REMINDED HIM OF HOME.

Kansas Encounter Storm at Sea and the Experience Is Somewhat Familiar.

American enterprise is proverbial, and the Kansas man who was making a voyage to Kuron possessed it in an unusual degree, relates an exchange. "During a severe storm he appeared on deck, contrary to orders. 'Go below there!' the captain shouted. The passenger looked round. 'You mean me?' he inquired, when he saw there was no one else in sight. 'Of course I do, go below.' And the captain came alongside. 'Will I guess not?' protested the Kansas. 'I'm up here to see how one of your 'mountain-high' waves and 'terric gales' compare with what we have in Kansas in the way of cyclones. This isn't a patch to what I've seen out our way.'"

Before the captain could offer further objection a big green wave came curling over the place where the passenger stood, and the next thing he knew he was swept off his feet and carried off over ropes and boats and all the paraphernalia of a ship's deck, and landed in a heap in one corner, where he was barely saved from being washed overboard. When they got him out he had a broken leg, a twisted shoulder, a sprained wrist, his face looked as if it had been dragged backward through a briar-bush, and he was unconscious. They carried him to the captain's room, and after much effort restored him to consciousness. He gazed around a minute in bewilderment, and his eyes fell on the captain. "By Jove!" he said, feebly. "That reminded me of home, only it was a plaguesight worse!"

LIGHTS THAT ADD BEAUTY.

Prettily Shaded Lamps Are More Effective Than the High Chandeliers.

A lamp has undeniably a much pleasanter and cozier glow than the irrespressible gas or electric light. It is also, as a rule, much more becoming to the average person—that is, provided it is correctly managed, says the Philadelphia Press. A soft glow from a well-placed lamp imparts a certain beauty to every woman, however homely, and it gives to the average man a sense of home that is most pleasing to his senses. Rose pink is a most flattering color for a lamp shade, and is warranted to take ten years from a woman's real age, much more readily than will a full course in hair dye and rouge. Heliotrope and the violet shades are more trying to the average complexion, and green is positively dreadful, as it is apt to impart a most unhealthy hue to the face.

A high central chandelier is always trying to the eyes, and gives a stiff effect to even the coolest rooms. Side brackets are always more desirable, even when the central lights must be turned on a little to give a sufficient amount of light. Never have a glaring light arranged directly opposite to the most comfortable chairs in the drawing-room or the guests will feel awkward and the light will feel awkward and at a disadvantage. Instead of that place a pretty lamp on a table at one side of the chair, or else have a fancy shade of some kind adjusted to protect the victim's eyes.

OUTRAGEOUSLY PERFDIOUS.

No Wonder He Grabbed at a Bunch of Cat-Tails for Momentary Support.

She was tall, with wavy brown hair, and rich deep brown eyes, just like all brunettes in the novels. He was under-sized and impudiculous, but impressive and audacious. They lived at the same boarding house for a time, relates the Brooklyn Eagle. With her he was sentimental, tender, earnest, also inclined to be rash and extravagant with his small earnings in bringing gifts of candy and the like. It is whispered that in a moment of recklessness he bought her two ice-cream sodas in succession. But this could never be verified. Circumstances over which she had control caused her to leave the boarding house without bidding him good-by. Carelessly, too, she neglected to leave her address. He applied to the boarding house mistress in grave distress of soul. "Do you know," he asked, "where Miss Jones has gone?" "Now, look here, Mr. Blank," said the kindly woman, "let me advise you not to worry too much about Miss Jones. She's engaged. Didn't you see that ring?"

"Engaged!" he gasped, backing toward the mantel and blindly grabbing at a bunch of cat-tails for support. "Engaged, did you say? And great heavens, she let me buy her peanut brittle!"

Various Custards.

Cooks with a little experience can produce a variety of custards by varying the flavors used, leaving the body of the custard the same. Oranges cut fine (often being peeled and seeded) can be used, simply adding them to a good custard; so can canned or fresh fruits, chopped almonds, grated coconuts, chocolate and macaroons. Boston Budget.

Tomato Conserve. Five pounds of small yellow tomatoes, five pounds of sugar, three oranges and three lemons. Boil the tomatoes and sugar ten minutes, take out the fruit and boil the syrup 15 minutes, then return the tomatoes to the syrup and boil 15 minutes longer, then add the oranges and lemons and boil five minutes. Boston Globe.

VOLUMES OF JOHNNYCAKES.

Rhode-Island Housewife of the Busy Time Made Ready for Expected Company.

As an illustration of the thrift and foresight of some of the housekeepers of the early period, Halsey P. Clarke, the veteran town clerk of Richmond, tells this story. His father, David Clarke, was in Providence at one time, and being obliged to stay over night, for in those days the means of travel was by horse and wagon, or horse-foot, which was necessarily very slow, he put up at a tavern, and in the room he occupied were four beds, for there was not much space wasted in the bedroom of the old-time taverns. Before retiring for the night, Mr. Clarke and a friend who was with him struck up an acquaintance with another occupant of the same room. The friend of Mr. Clarke whispered to him not to tell the stranger where they came from, and to try to find out whence he had come, so they inquired of him where he had come from, and he told them that he had just been down in South county, in the town of Richmond. He said that when he arrived in the town it was nearly dusk so he drew up at a tavern and inquired of the landlord for lodging for the night. The landlord replied in the affirmative, and sent a boy to take his horse as he was on horseback. The gentleman went with the boy and removed the saddle-bags and brought them into the house, and, throwing them down in the kitchen, stepped up to the fireplace to warm himself. Over the fireplace was a mantel shelf, which was nearly half as long as the room itself, and upon looking up he saw on this shelf what he supposed to be a row of books.

While he was wondering why there was such a number of books in this tavern, more books, he thought, than were in the entire town, the woman of the house came in and stirred up the fire preparatory to cooking the evening meal. He inquired of her: "Why is it you have so many books here in the kitchen? Is the town's library here or what is it?" "Books!" exclaimed the astonished woman. "I don't see any books. Where are they?" Show me them. "Right on that shelf," replied the man, "over your head." "Books!" said she, "Oh, I'll show you books; that's Johnnycakes. We expect the town council here to dinner next week and we've baked them Johnnycakes to be ready when they come." Whether he mistook the Johnnycakes, packed neatly on end upon the shelf, for books or not, it is hard to say, though there is no doubt that the story did not lose anything in the telling, but by actual count there were 79 Johnnycakes on the shelf.

LIVELY BALLOON VOYAGE.

Perilous Trip of European Aeronaut Who Sailed into the Focus of a Storm.

For the first mile, while slowly rising, the balloon straggled between the lower currents, until at approximately 3,000 feet it encountered a main sweep of air, which at that height was following the course of the valley below, says a writer in Longman's Magazine. The horizon had been clear at starting and the impression was as we sailed a long in the current that we should have a fair passage, unless some cloud, not yet apparent, in our wake could overtake us at a higher level where wind velocity is generally greater. Perhaps, therefore, we paid insufficient heed to a murky veil ahead of us, which began gathering and deepening and blotted out the view. We were soon enveloped in the Gray Trail curtain and thus its true appearance was lost to us; but at Newbury our starting ground, a large crowd was watching us entering a vast and most menacing thunder-park, and was wondering why we did not come down.

The first real warning which we had of our predicament was a flash of lightning close on our quarter, answered by another on our side and almost before we could realize it we found we were in the very focus of a furious storm which was being borne on an upper wind, and a wild conflict was already raging round us. There was our own fast current carrying us westward; there was the storm cloud slightly above us hurrying to the east; and added to these there now descended a pitiless down-draught of ice cold air and hail. We were doubtless in a cloud which was discharging lightning over a wide area, each flash, however, leaving from the immediate vicinity of the balloon, and the idea formed on the writer's mind was that many flashes were level—that is, as if from one part of the cloud to another. Any that reached the ground must from our known position have been at least a mile long.

There was another idea forced upon the party, which was that they would be more comfortable and far safer elsewhere, and when suitable opportunity occurred a descent was made to earth.

Natural Impression. A city automobile on a rampage skipped the sidewalk and took a head-on into a basement, turning a few somersaults and finally stopping with its wheels in the air, revolving and spluttering. The old cobbler was found jammed into a corner of the shop unharmed, but dazed. "What did you think it was?" his rescuers asked. "I thought," he gasped, "it was a customer vat was mad about bees shoes!"—Chicago Record-Herald.

Crushed by Its Weight. "He seems to be just weighted down with genius—poor man!" "Why, I never saw anything from him that resembled it!" "Of course not! Genius is so heavy on him that he just can't get out from under it!"—Atlanta Constitution.

POINTS ABOUT AIR BRAKES.

Steam Car Appliances Concerning Which But Little Is Generally Known.

Every one has heard of the air brake, and references to it are sure to be made when the subject of protection against railroad accidents is under discussion, but like many inventions in common use, it is more or less of a mystery, says the Chicago Record-Herald, for which an explanation is demanded from time to time. The modern air brake consists of 12 parts, among which are the air pump, which compresses the air; a main reservoir, in which the air is stored; the engineer's brake valve, regulating the flow of air; the train pipe, which connects the brake valve with the triple valves under each car, the quick-action triple valve, controlling the flow of air and from the auxiliary reservoir, which is supplied to and from the main reservoir, and the brake cylinder rod, which is forced outward, thereby applying the brake.

The theory of the air-brake is the equalization of pressures. When the brakes are not in action the pressure on the train pipe is made such as to prevent an escape of air from the auxiliary reservoir. When the engineer desires to make an application of brakes he turns his brake valve so that there is a moderate reduction of the pressure in the train pipe. This causes the greater pressure in the auxiliary reservoir to force air into the brake cylinder forcing the piston out and applying the brakes.

When it is desired to release the brakes, the engineer turns his valve in the opposite direction, permitting the air to flow from the main reservoir, located on the engine into the train pipe. When the pressure, thus restored in the train pipe is increased above the pressure in the auxiliary reservoir certain valves are moved, communication is thereby restored between train pipe and auxiliary reservoir, the piston is forced to its normal position, the air escapes from the brake cylinder, and the auxiliary reservoir is recharged through the train pipe.

When the train breaks in two or a hose-pipe connection is broken, it has the effect of a sudden and material reduction of the pressure in the train pipe, the same as though the engineer had made an emergency application. The sudden reduction of pressure also opens supplementary valves, which increase the pressure upon the brake cylinders about 20 per cent. The brake shoes are attached to rods which are in turn attached to the piston in such manner that when the air from the auxiliary reservoir forces the latter out a pull force is exerted upon the brakes.

STAMPS NOT LEGAL TENDER.

Intending Purchasers of Government Literature Persist in Thinking They Are.

Those government bureaus that are authorized by law to sell certain of their publications frequently have trouble in regard to the form in which remittances are made to pay for books, pamphlets or maps. Among these bureaus is the United States geological survey, whose reports and maps have a wide circulation. The survey has persistently endeavored to make generally known the fact that checks, foreign coin (including Canadian coin) and postage stamps cannot under the law be received in exchange for its publications, yet almost every mail brings remittances of postage stamps. In some instances the clerks who are required to send out the books and maps have simply bought the stamps and themselves turned the cash into the official coffers, so that the offending purchasers have received without payment the publications ordered. But these clerks have naturally become averse to investing the entire amount of their salaries in postage stamps which they cannot use and for which they must therefore find buyers, and this practice will now be discontinued. The offense of sending stamps has been in many cases aggravated by the remittance of amounts in excess of the price of the book or map. It has often happened that six cents in stamps has been offered in payment for a five-cent map. In these cases it has been necessary to return one cent to the purchaser at a rate greater than its value. In most instances, perhaps no change has been expected, but the rules of government bookkeeping have made it necessary to return the surplus amount.

Only postal money orders or cash can be received for these publications. The maps of the survey have now a wide sale, and the failure on the part of intending purchasers to observe the requirements of law has become a source of so great inconvenience that a rigid conformity to these requirements will hereafter be exacted.

Needed Another Barrel. When Van Blumer came up from the cellar he told his wife he wanted her to do him a favor. "I want you to give the cook a message for me," he added. "What?" inquired Mrs. Van Blumer, a trifle anxiously. "Tell her—ask her I mean," said Van Blumer, "not to put the broken china into the ash-barrel. I really must have some place to put the ashes." Harper's Bazar.

Domestic Scrapper. GILES—Old man Greening has a great war record. Miles—Indeed! I wasn't aware that he had ever been a soldier. "But he has been married six times!"—Chicago Daily News.

Plenty of Room There. The maid—I can't find your costume for the last act. The acrobat—Look in my purse.—Philadelphia Bulletin.

BORAX IN UNITED STATES.

Immense Quantities of the Commodity Obtained in the Fields of the Southwest.

The borax fields of the United States are mainly in the desert "dry lake" region of southern California, though deposits are found also in Nevada and Oregon. BORAX was first discovered in the United States in 1864, at Horax Lake, California. The borax was contained in the water of the lake and was obtained by evaporation. The saline crusts of the so-called dry lakes or borax marshes of the Mohave valley were next mined for borax, and afterward, about 1890 work was begun on the beds of colemanite, or borate of lime, in San Bernardino county, Cal., from which most of the borax mined in the United States has since been obtained.

The amount of crude borax produced in the United States in 1903 was 24,420 short tons, valued at \$66,100. The production in 1902 was 17,414 short tons of refined borax, valued at \$44,514, and 2,990 short tons of crude borax, valued at \$9,000, a total of 20,004 short tons, valued at \$53,514. Of the refined borax 952 short tons, valued at \$150,000, were borax acid. Had the valuation in 1903 been taken on the refined instead of the crude product the figures would have been \$2,735,000 instead of \$661,400.

The amount of borax borates and borax acid imported into the United States in 1902 was 1,634,251 pounds, valued at \$63,226. In 1903 the amount imported was 293,251 pounds, valued at \$41,918. References for borax are located at Bayonne, N. J., Brooklyn, N. Y., New Brighton, Pa., Chicago, Ill., and San Francisco, Cal., where various more or less secret processes are employed to convert the crude material into products designed for various uses.

Borax is used for many purposes. When melted at a high temperature it dissolves metallic oxides and forms transparent colored glasses. It is used as a flux in welding metals and in melting gold and silver. It is employed in the manufacture of granite and iron wire and of enamelled bathtub and other articles, as well as in making pottery and earthenware. Manufacturers of the hard, tough grades of glass and

brick, it is used by painters, tanners, hat makers and railroad makers, as well as by beef packers.

The domestic uses of borax are widely known, and a chemistry and metallurgy borates are employed in many ways. A clear account of the borax industry in the United States is given in a pamphlet entitled "The Production of Borax in 1903," by Charles G. Aikin, forming a chapter in "Mineral Resources of the United States 1903," from which the above facts have been taken. This pamphlet, which contains detailed statistics covering the production and importation of borax in 1902 and previous years is printed for gratuitous distribution and may be had by application to the director of the United States geological survey.

GAMBLING FOR A CHURCH.

Blacksmith of Albatian Village Had a Dream and Strange Things Resulted.

About the middle of the last century when the German first set at Frankfort, I was at a time to our location there, and at Hamburg, was close by I spent a good deal of my time in that cheerful spot, writes Henry Johnson here in London Truth. The most curious thing that I saw was this: A four-horned ox-drawn village was damaged by fire. If a village blacksmith dreamt that he made a machine which, when wound up, threw out a counter with a number on it every five minutes. He went in his dream to Hamburg with the machine played on the number and won enough to restore the church. When he awoke his dream it his fellow villagers money was subscribed, the machine was made and he was sent to Hamburg with a small capital.

Every day for a week the machine was played in the gambling room under his supervision, two peasants stood at the roulette table to play and the village great walked up and down the room praying. At the end of the week the requisite amount was won. The priest assured me that this was the result of a miracle. He may have been right or he may have been wrong. Anyhow, the money was won and the village church restored.

Considerate Host. Joseph Chamberlain's set of jokes includes this one on himself.

On one occasion he was invited to Liverpool to make a speech. It was to be a great celebration. The mayor who was to preside at the meeting had arranged a fine dinner for the guest of honor. A distinguished assembly surrounded the table, and at the right of the host sat Mr. Chamberlain. For a couple of hours the company chatted over their food, and finally the coffee was served. It was at this juncture that the mayor leaned over and whispered to Mr. Chamberlain: "Your excellency, shall we let the crowd enjoy itself a while longer or had we better have your speech?"—Chicago Inter Ocean.

Milk in Paris. Of all the large cities in the world Paris consumes the largest proportionate amount of milk. In every restaurant, tavern, cafe, and even in wine and beer rooms, milk is served in sealed bottles. Faith in these sealed bottles has, however, been rudely disturbed lately by the discovery that the inspectors were in collusion with the dairy men.