HOW

BLOOD CORPUSCLES ARE AFFECTED BY ALTITUDE.—Continued examinations of the blood of mountain climbers show that when a man by slow and gradual ascent attains an altitude of 8,000 feet, the red blood corpuscles have rapidly multiplied from about 5,000,000 to 6,000,000, and that when a height of 13,000 feet has been reached the number of these corpuscles has risen further to 7,500,000.

The facts observed by Capt. R. W. G. Hingston confirm the observation, well known in lesser degree in the European Alps, that an ascent from a low to a high altitude is associated with a definite and continuous change in the constitution of the blood, the result of the stimulus which rarefied air exerts on the blood-forming mechanism of the human body. By this means the individual can adapt himself to the higher levels if the ascent be made slowly and gradually, thus allowing the production of a sufficient number of oxygen-carrying corpuscles. This manufacture of red corpuscles is by no means slow; for instance, in one observation a short stay of two days at an altitude of 18,000 feet showed an increase of about 725,000 in the number of these corpuscles per cubic millimeter of the blood. It is possible that there may be a limit to this power of the body to compensate for great altitudes, but it will be noted that the process was in active operation in Captain Hingston's case at a height of 18,200 feet above sea-level.

The blood of the natives of the Pamir Plateau, habitually living at an average height of 13,500 feet, was carefully examined, and it was found that the number of red corpuscles in the blood of the average adult native was 7,696,000 per cubic millimeter, as compared with 7,402,000 in Captain Hingston's own blood at that level.

It is further of interest to learn that during descent from high to low altitudes, when the stimulus of the rarefied air was withdrawn, there was a gradual reduction in the number of the red corpuscles, though the rate of decrease was not so rapid as the rate of increase had been during the ascent. After a short residence at sea level the number of red corpuscles had fallen to normal—namely a little under 5,000,000.

DETECTS ERROR IN SCREWS

How Specially Designed Machine Makes Certain That the Finished Product Is Perfect.

Everyone who owns a bicycle, sewing machine, motor car, or phonograph has come across that worst of all nuisances, the screw that won't go in or won't come out.

Although machines are able to cut screws with remarkable accuracy, occasionally they turn out odd ones, or even whole batches, perhaps a couple of thousandths of an inch too big, or with threads that are not quite regular.

It was thought impossible to test each screw until an inventor came along with a device which enables one man to examine 500 in an hour, and to detect errors as small as one ten-thousandth of an inch.

The screws are passed automatically through a specially designed magic lantern. Each stops for a moment before the lens, and while it does so its shadow, magnified a hundred times, is thrown on to a screen. On this screen is drawn an enlarged representation of a perfect thread, which the screw should fit exactly. The screw's shadow falls upon this drawing, and the tiniest imperfections can be detected instantly.

How Icebergs Are Avoided.

Of all the perils dreaded by those who sail across the Atlantic, icebergs are by far the most formidable.

A new device has been brought out by a French inventor, which detects icebergs when they are six miles away.

Melting ice sends out rays which are invisible to the eye, but which will affect a delicate instrument called the thermo-couple.

This apparatus can be made so finely that it will register the presence of a lighted candle at a distance of half a mile.

The thermo-couple is connected to a telephone receiver on the bridge of the ship. When conditions are normal it omits a continuous note of unchanging pitch. As soon as an iceberg is approached, however, the note changes, and the lookout man knows at once that there is danger.

How the Moon Causes Quakes.

There is reason to believe that the moon, which is almost certainly a chip off the earth's stalk, is an important factor in causing earthquakes in the unstable earthquake zone. Nearly all the serious seismic disturbances happen when the moon is so placed as to exert its maximum tidal pull on the earth, and acts as "the last straw" in that part of the earth where its increased gravitational attraction is most potent.

WHY

Nature Has Arranged for Sap to Rise in Trees.

The very interesting results obtained by Sir J. C. Bose, at the Bose Institute, Calcutta, in the investigation of the phenomenon of the ascent of sap are summarized in Nature Magazine. It is shown that the ascent of sap is a process of physiological activity dependent on the pulsation of living cells. This process is arrested by the action of poison, either in entire plants or in cut shoots. The active pulsating cells are not confined to the root, but are continued throughout the stem. It has been ascertained that in the stem of dicotyledons these cells constitute the cortical layer which abuts upon the endodermis.

The velocity of the ascent has been determined by three independent methods which give concordant results. The ascent takes place in plants even in the complete absence of transpiration. In "varnished" plants this velocity has been found sometimes to be as high as 70 meters per hour.

The cellular pulsations have been investigated and their characteristics determined from automatic records; they consist of alternate contractions and expansions. The direction of propulsion is determined by the phase difference of the adjacent cells. The velocity increases with the wave length of the propagated impulse. This wave length is determined experimentally from definite points of electric maxima and minima. Enhancement of velocity is associated with corresponding increase in the wave length. The enhanced rate of ascent is also attended by the increase of amplitude and frequency of cellular pulsations.

Ascent of sap depends upon cellular pulsation in tall trees as well as in herbaceous plants. There is, however, in the former the special adaptation of the woody tissue which serves as a reservoir to meet the excessive demand for water in the season of active transpiration. When this reservoir is more or less depleted, the phenomenon of "negative pressure" is manifest.

GASES ARE MOTIVE POWER

Why Rockets Rise When Light Is Applied Is a Simple Matter When Understood.

If you would see inside a rocket you would find the lower part of the case filled with powder, a chemical mixture that will burn at an enormous rate, and in doing so will produce a very large quantity of gas. The great heat generated by this burning mixture expands the gas and still further increases its volume, till it is bursting to get out of the rocket.

At the bottom end of the rocket is a hole through which the gas rushes into the air. Now the air at the mouth of the rocket strongly resents being kicked out of the way by this rushing stream of gas; it takes a moment to "get a move on," so to speak. But the gas in the case hasn't got a moment to spare; it simply must get out, so it kicks—hard.

If you had on a pair of roller skates, and held an open umbrella in front of you, you could push it away from you slowly without feeling any resistance; but if you thrust hard at the umbrella the air would resist the sudden movement so strongly that you would be rolled backward on your skates. Science shows that is just what happens to the rocket; the stream of gas spreads out at the mouth of the case and thrusts hard at the air below it and at the rocket above. As the air won't move quickly enough, the rocket must get out of the way. And it does—quickly.

Why Women Fail as Spies.

"Women do not make good spies," said Sir Basil Thompson, former head of the British secret service, speaking at the Brooklyn Academy of Music. "The real reason is that the woman spy gets compunction at just the wrong moment. She has obtained information from some one who should not have given it to her, and then when she should pass it along she feels it would be unfair to her informant and withholds it."

The speaker said that there is the greatest difference between the patriotic spy and the hireling spy. None of the former type was executed by the British during the war, he said, but 11 of the latter, all men, forfeited their lives.—New York Herald.

Why Do We Keep Pets?

Many pets are of direct use to us. A dog, for instance, protects our house, a cat catches mice, and so on.

There are, however, two far deeper motives.

A pet satisfies our instinct of ownership and mastery—one of the most profound desires at the back of our minds is to be absolute lord and master, arbiter of life and death. We gratify this wish most thoroughly by possessing a pet animal.

Why We Stop Growing.

We stop growing because certain body cells lose their power to increase in size and to produce other cells. It is one of the marvels of physiology that this is so and a wise provision of nature.

Why Snow Is White.

Snow is white because it is formed of an infinite number of very minute crystals and prisms, which reflect all the component rays of which white light consists.

ICE PATROL IS NEVER IDLE

Coast Guard Unit Constantly at Work Broadcasting Information as to Ocean Conditions.

Describing the work of the ice patrol which was organized and placed under United States management by international agreement in 1913, an authority says:

"A continuous patrol is maintained by two United States coast guard cutters capable of keeping the sea in all kinds of weather. Each one alternately takes a two weeks' tour of duty and is then relieved by the other. When one of these ice scouts approaches the ice region, it collects all information from nearby vessels and proceeds to search the area south of latitude forty-three for signs of ice, and broadcasts information as to the limits of the ice to all approaching vessels. In connection with this scouting duty, the ice patrol secures scientific observations relating to the ice area and forwards daily reports to the weather bureau."

One of the things brought out by the evidence gathered by these vessels, he stated, is that there is no truth in the old idea that the cold Labrador current flowing south dives under the warmer Gulf stream moving northeast and comes up again to the southward. When these two ocean currents meet, he claims, the Labrador current is arrested, then turned toward the Gulf stream and finally pulled along in an easterly flow parallel to it.

CHEATED OF JUST REWARD

Oldtime English Inventor Unable to Get Recognition and Died Broken-Hearted.

It seems always to have been true that a pioneer of any invention which is afterward to become indispensable must suffer misfortune, and perhaps even perish, before his creation can win the recognition it deserves.

This was the case with the steel loom for knitting stockings, invented in the Sixteenth century by William Lee.

Lee took his invention to Queen Elizabeth, but she withheld her patronage. Again he improved his machine, so that it would knit silk stockings—the queen's love of silk hosiery had been one of her chief reasons for disinterest—but again he was disappointed at not receiving a royal grant.

Things were no better under James I, so he went to France, and when success was almost within his grasp at the French court the assassination of the king balked him again. Broken-hearted, he died, but in the next century Oliver Cromwell granted a patent on his device to the Company of Framework Knitters.

Onions and Authority.

Next after hard-boiled eggs M. Clemenceau made the American public familiar with onion soup. But all that is purely material, only a question of restoring the tissues and keeping in health. Far above any such association with the onion is the dictum, of metaphor, of one of our high soaring and untrammeled poets. Writing of one whom he rather vaguely describes as an infallible authority on literature, art and all life, he says that this genius speaks "from the very center of the onion." This may mean that the man has pungent and penetrating views. It may mean to convey that his ideas carry far, in the spirit of what George Eliot wrote about "the waftings of that energetic bulb." In any event, the appearance of this simile is worth noting if only as a reminder of what all those who desire to be "in the movement" have to keep up with. Possibly we have here the dim beginnings and adumbrations, we may say odors, of a new and revolutionary onion philosophy.

Fortunes Made in Few Minutes.

If a song "catches on" it proves a gold mine to somebody, although not always to the author and composer.

"Alexander's Ragtime Band," and "Her Golden Hair is Hanging Down Her Back" were moneymakers, for the profits in each case fell little short of £20,000.

In the same class must be added such songs as "The Bogey Man," "In the Shade of the Old Apple Tree," and "After the Ball." It is said, too, that "My Pretty Jane," which Sims Reeves sang thousands of times, netted £2,000 a line.

Yet some of these best sellers have been the result of but a few minutes actual work. "Sing Me to Sleep" was composed in ten minutes. Tosti's "Dear Heart" was the work of two days, while Balfe wrote "Killarney" in a few minutes.—London Tit-Bits.

Old Car Didn't Matter.

The neighbors had bought a new car, but still used the old one, which was sitting at the curb one day when Mrs. H., across the street, was backing out of her driveway with Charles on the seat beside her. He was watching out from his side of the car.

"Am I going all right, sonny?" Mrs. H. asked.

"Yes, you're all right, mother," Charles answered.

"I want to be careful and not hit Jones' car."

"It won't make any difference if you do, mother; it's their old one," Charles replied.

New Stamp Machine.

A machine has been installed in the government printing plant at Berlin that can print, count and perforate 12,000 two-colored postage stamps a minute.

ONE HOUR

By MARY LEARY

(©, 1923, by McClure Newspaper Syndicate.)

ALL during the evening Conrad had been watching her, and sometimes he felt certain that those shining gray eyes had met his with understanding; she seemed a kindred soul.

Gradually Conrad maneuvered about the room, burying himself momentarily among the cigarette-smoking men—and a few women—who were in heated gesticulated discussion over the merit or lack of it in Lembrier's exhibition at Molyneaux's studio. Then he shifted to the non-smoking mixed group and contributed his store of information as to the causes and mistakes leading to the inevitable divorce of the Craig Henshaws—and eventually he was with the handsome woman of the shining gray eyes and the kindred spirit.

"You appear bored," smiled Conrad, slipping into a vacant chair.

"Am I so successful in concealing my thoughts?" she queried in mock horror.

"You were probably reflecting my feelings," he assured her, with a smile.

She shrugged her silken shoulders. "I wish there were some way one might escape."

"I believe there is quite an extensive garden to the place," informed Conrad, "and I am certain, although I have not yet investigated, that those palms to our right conceal French windows."

"Thank you, my Perseus."

Conrad smiled and bowed low. "It is an honor to release you, my Andromeda."

Together and unobserved, they slipped out into the garden. A gravel path vanished into a sylvan darkness, but farther on the cool moonlight slipped through the oleanders and bathed the pathway with silvery softness. In the pale glow of the mystic moonlight the girl seemed to Conrad as truly some dryad as elusive as her gray eyes, and incorporated in the astral fluffiness of evening attire. He felt wafted into some fairyland in which they two were alone.

Now she was dancing in and out among the shrubbery, a nymph that appeared ever so often in some unexpected patch of moonlight, and then the luna rays would be reflected in those intriguing gray eyes.

"Then, suddenly, from the house they had forgotten came the haunting strains of the violin, played by the sad-eyed Josef Schemack. How beautiful, entrancing and soul-filling it sounded out here, away from the house and that congested room. Here was only the wonderful music itself.

Then she who had called herself the prisoner liberated by Perseus, Andromeda, stepped forth into a large pool of silver moonlight. Gracefully her sylphic form interpreted the notes of that heavenly music as with sinuous movements her flashing bare arms and shoulders whirled in noiseless dancing. Her feet skimmed over the grass, and the nebulous tulle of her evening attire floated after, clothing her in astral splendor.

It seemed to Conrad that he had inadvertently stumbled upon the privacy of some fairy sprite, and yet he seemed to be with her, to be dancing with her. He felt his limbs to be imbued with the same extramundane quality that she possessed. The earth, the trees and the plants resolved themselves into one unfathomable darkness, leaving just that one spot of moonlight in which she flitted with graceful symmetry of movement.

Then, as suddenly as it had come upon them, the music ceased, and with its last plaintive note she vanished. Conrad rubbed his eyes; it seemed so much like a dream. Presently in a smaller pool of moonlight he saw her posing invitingly. He gave chase, but always she eluded him, appearing and disappearing with uncanny suddenness. But at last he caught her.

"Who are you?" he cried dispassionately.

"Andromeda."

"Andromeda, I—I am infatuated."

A laugh tinkled in her throat; a soft hand slipped through his blond locks—and suddenly she was away from him again.

Once more he gave chase, and once more she eluded him, and when he found her she was standing, not in the glow of the moonlight this time, but in the warmer light that came through the French windows that separated the real from the unreal.

Just as he reached her, from somewhere in the house came the soft and regular tones of a striking clock. They paused attentively, counting them.

Twelve o'clock. Just as at midnight the fairies vanish, so did the astral quality slip from her, and she became the woman again.

"Come," she said, and gave him her hand.

Another long-haired artist was at the square piano, and another long-haired female was preparing to sing.

"Who is that bald-headed oleaginous party looking at you so intently?" asked Conrad under his breath.

"My husband," she answered quietly.

"Which one do you mean?" demanded Conrad, startled.

"The one sitting beside that frowsy, hawk-nosed dame in Nile green. You don't happen to know her?"

"Oh, yes. She's my wife."

The Conceited Thing.

"Did you notice she gave me a smile?"

"That doesn't mean anything. First time I saw you I almost died laughing."

INDIANS TORE OFF UNIFORMS

Pawnee Scouts Preferred the Naked Hide to Soldier Garb That Had Been Provided.

In the sixties Major (then first lieutenant) Frank J. North of the Pawnee reservation was authorized to raise a company of the Pawnees for scouting services on the plains against the Sioux and Cheyennes. Eventually a battalion was formed, each company under a chief and all under the white commander.

An earnest effort was made to drill and discipline the scouts; and they really performed simple evolutions very well. As fighters of their hereditary foes they were whirlwinds. Further to impress upon them their role of soldiers, they were issued uniforms—obsolete Civil war black hats, blouses and the old sky-blue trousers.

Upon the first march thereafter a sight for gods and men was presented. The square felt hats had been transferred to the ponies' heads with the ponies' ears sticking up through holes. The blouses were worn like short mantles, with the arms tied about the braves' necks, or else had been discarded in favor of naked hide. And the entire seats of the pants had been cut out, so that the two sections were retained merely by the belt at the waist.

In the first charge away went the hats, away sailed the blouses, the seatless pants drifted behind and the plain was strewn with garments while the yelling Pawnees rode stripped for action—stripped to breech-clout and moccasins.

There were no flies on them, either.—Adventure Magazine.

DANGER IN REMOVING MOLE

No Matter What Process Is Employed, Operation Is Likely to Have Grave Results.

Birthmarks are due to an overgrowth of the blood vessels at one spot in the skin. There are two kinds, the raised and the flat. The raised is the easiest to handle. The "strawberry mark," as it is called, is a reddish raised spot, appearing in the forehead or between the eyes of a new baby. There are several treatments for this, of which the best is radium. It should be removed soon after the appearance, as it leaves practically no scar while the child is still young. Any adult, however, with a strawberry mark which was not removed in infancy may safely undergo the same treatment with success.

Moles are really a form of birthmark and are due to an overgrowth of the pigment-forming cells of the skin. A mole is a potentially dangerous blemish. Many dermatologists use the electric needle, radium and freezing on moles, but all of these are dangerous because they may remove only the upper part and stimulate the rest to further growth. This results in the most malignant form of cancer and invariably causes death.—The Delineator.

Moroccan Girls Marry Early.

In Morocco, as in most Mohammedan countries, the native girls are married at an extremely early age, often before they are fifteen, and it is not uncommon for them to have been divorced at twenty.

Divorce proceedings in Morocco merely consist of a friendly talk between the woman's husband and her father.

An arrangement is made by which she returns to her parents, the husband often paying compensation to the father. The same woman will probably soon be married again to another Moor, and will take it all as a matter of course.

Moorish weddings are very interesting affairs. The actual ceremony takes place at midnight, but the celebration lasts for some days, particularly in the case of the better class of Moors. The festivities take the form of much feasting, dancing, music and the firing of salutes from the long native rifles. Friends come from all the surrounding districts, rigged out in their brightest and best attire.

Candles Keep Time.

King Alfred or King Arthur or one of those kings devised the system of using a striped candle to mark the passing of the hours, and if it give his spirit any satisfaction let it be told that many New York hostesses are using just the same medium for noting the passing of time at dinner tables.

"One cannot be always referring to one's wrist watch," explained a hostess, "and yet the serving of the different courses must be timed as well as the hour for the close of a meal, especially when the theater or opera is to follow. Hence I have had specially made candles striped with colors. Each bar of color burns down in so many minutes. By glancing at the candles I can tell without appearing to be watching the time just what the hour is."—New York Sun.

Not "Only Man in the World."

I was visiting a girl whom I had not seen for some time, although we corresponded by mail. Her friend invited us to a show with him. When he arrived he had a friend with him for me. He seemed very nice, and by the time we said "good night," I thought he was the only man in the world. He asked me to telephone him next day at his office. I did. "This is Lizzie," I said. The flame of love was quenched when he answered: "What else do you want me to bring home, dear, besides the baby's shoes and bread?"—Chicago Journal.