



SCIENTIFIC & INDUSTRIAL

Cumulus clouds vary enormously in size, but so long as they remain of moderate dimensions in fine weather, they indicate a continuance of brightness. But, when, in hot weather, they grow exceptionally large, they give warning of storms, with a high temperature—and with great certainty when they assume a dome-like shape.

Bananas are, as a rule, planted out systematically in rows, the "suckers" being placed at an average of ten feet apart. The banana plant bears only one bunch at a time, but it is a quick grower, yielding its fruit in twelve to fourteen months. When the plant is about six months old a second "sucker" or shoot is allowed to spring from the root, a third after the ninth month, and so on, so that after the first year there is a continuous crop being reaped.

A healthy plant will not only add to the purity of the air but will restore life-giving properties to that which has become vitiated, for it will thrive, provided it has as much as seven to eight per cent. of carbonic acid gas. Too much carbonic acid gas, on the other hand, is injurious, even to plants. That which is called breathing, in a plant, is also a sort of digestion, the carbon being food that is built into vegetable tissue, and if too much is given the plant is gorged and suffers from a surfeit, while on the other hand it may be starved, and the whole plant shows the effect of the indigestion by looking sickly, for it has no stomach, but performs its digestion with its whole substance.

The epoch of the beginning of life on the earth cannot be carried back, according to the reasoning of F. J. Allen, further than the date of the appearance of water on the earth's surface. The powerful shocks of lightning which must have occurred continually in the damp, warm atmosphere then existing, led to the production of ammonia and the oxide of nitrogen, as happens to-day. These substances were carried down in solution by the rains, and on the surface of the earth met solutions of carbonic acid and the chlorides, sulphates, and phosphates of the alkalies and metals. This was then the first opportunity for the formation of varied nitrogenous combinations and for the coming into being of the first living substance.

Mr. Bovey has recently described in the transactions of the Royal Society of Canada, an extensometer for determining the longitudinal extension or compression of a horizontal beam loaded transversely. It consists, in essence, of two parallel overlapping steel bars, the opposite ends of which rest, by knife blades, against two points of the specimen to be examined. Between the faces of the two bars is a small roller carrying a mirror. Any extension or compression of the specimen causes the roller to rotate through an angle and deflects a beam of light thrown on the surface of the small mirror. The motion of the beam of light can be read by a telescope of considerable magnifying power, and thus extremely small deflections can be accurately measured.

The force of gravity over the land is determined by counting the number of swings of a pendulum of known length that occur in a known lapse of time. Dr. Hecker, of Potsdam, has recently made an attempt to determine the relative force of gravity over different parts of the Atlantic Ocean between Hamburg and Bahia by means of a barometer and a hypsometer (a boiling-point thermometer). The barometric formula contains a term depending on the intensity of gravity at the place of observation. The hypsometer is independent of this influence. A comparison of the results of simultaneous observations by the two methods affords a means of determining the force of gravity approximately. The preliminary results indicate that gravity of the deep ocean is nearly normal and they confirm Pratt's hypothesis in regard to the isotactic arrangement of the masses of the earth's crust.

Immunity of Window Glass.
It was the man with the red mustache who said: "One thing that I marvel at daily is the rarity with which window glass is broken in moving furniture and other heavy articles along the outside walls of big buildings. Only this morning I saw two men hoisting great slabs of wood to the roof of a Nassau street office building. At every twist of the rope the plank swung perilously near to the windows, but so nicely was each movement guarded that not once did the dangling ends touch the glass."

"I spoke to one of the workmen about the performance, and he assured me that not once in a hundred times is a window glass broken in the passage from the ground to the top floor. This freedom from accident is of course due to the exceeding carefulness of the movers. In most cases they are held responsible for whatever damage they may inflict, and as the windows that light modern office buildings are very expensive it would be a costly day's work to smash one of them."—New York Times.

Youngest British Monarch.
The youngest monarch who ever ascended the British throne was Henry VI. He was eight months and twenty-five days old at his accession.

HYDERABAD CITY.

No European Ever Sleeps Within Its Walls.
Hyderabad City, the home of the Nizam, was built many centuries ago in a valley surrounded by the most remarkable scenery in all the world. Countless ages past, volcanic convulsions hurled up gigantic masses of granite, known now in geological language as "Deccan Trap." Millions of monsoons have slowly washed away the soil and left these rounded rocks upstanding, poised on each other's shoulders and balanced by an imperceptible curve or cup. The stone is now largely quarried, and in the cold season does good service, but, once the summer sun asserts itself, the primeval heat of mother earth, from whose great central depths these boulders tore their way to freedom with earthquake force, become a mass of blazing heat, on which even natives cannot stand, and whose touch raises blisters in European skin, says a correspondent of the Pittsburgh Gazette.

The city is entered from nine gates port-cullised over deep moats and every vestige of western life is absolutely excluded. No European ever sleeps within its wall, and visitors, armed with a permit, curious to view this barbaric monument of Oriental life, enter with awe and misgivings. All words or gestures which might be construed as antagonistic must be suppressed, and should any motive inimical to the native safety be suspected, a head man utters the one word, "Attack!" The victim is surrounded and is never seen again.

The city is guarded by the Nizam's two armies, the regulars and irregulars, and to the latter, savage, blood-thirsty Asiatics, armed with swords, knives, bludgeons and huge revolvers, protruding from their bulky belts, this congenial task is assigned.

WISE WORDS.
Occupation is the scythe of Time.—Napoleon.
Paradise is open to all kind hearts.—Beranger.

Praise undeserved is scandal in disguise.—Pope.
The guard of virtue is labor, and ease her sleep.—Tasso.

Every one feels his own burden heavy.—French proverb.
Genius finds its own road and carries its own lamp.—Willmott.

He who laughs overmuch may have an aching heart.—Italian proverb.
A right judgment draws us a profit from all things we see.—Shakespeare.

To whom you tell your secret you surrender your freedom.—Italian proverb.
Wealth is the last thing to be considered in a successful life;—there are myriad other conditions.—Success.

He who comes up to his own idea of greatness must always have had a very low standard of it in his mind.—Ruskin.

What Credit is Based On.
Many young men, beginning a business career for themselves, make the mistake of supposing that financial credit is based wholly upon property or capital. They do not understand that character and reliability, combined with aptitude for one's business, and a disposition to work hard, are far more important assets to have than millions of dollars. The young fellow who begins by sweeping out the store and who finally becomes a clerk, manager or superintendent by his energy and reliability of character, does not usually find it difficult to secure credit to start in business for himself. On the other hand, jobbing houses are not inclined to advance credit to the man who, though he may have inherited a fortune, has shown no capacity for business, and is of doubtful character.

The young men who start for themselves, on a small scale, are more energetic, work harder, are more alert, are quicker to appreciate the chances of the market, and are more polite and willing than those with large capital. The credit men in jobbing houses are very quick, as a rule, to see the success-qualities in prospective buyers and seldom make a mistake in their estimate of what credit it is safe to extend.—O. S. Marden, in Success.

Prince Edward's Frog.
Prince Edward of York, the little grandson of Edward VII., was recently attacked with influenza and, being a sturdy lad, he complained bitterly because he was obliged to remain in bed. His nurse gave him all the good counsel suitable on such an occasion, but he paid little heed to her until she happened to say that there was a little girl living near the place who was also suffering from influenza, but who bore the affliction like an angel. "I'd like to know that girl," said the Prince, enthusiastically, "and at any rate I'm going to send her a present. But what shall I send? I have been taught that princes when they give presents should give those things which they prize the most. Now the things which I prize the most are my bust of Lord Roberts and my frog, my beautiful green frog, which jumps so well."

Over this problem he pondered for some minutes and then he said: "I like Lord Roberts very much, but I like my frog a good deal better, and therefore I'll send my frog to this sensible little girl."

Settled by Golf.
The Kettering School Board and Urban Council having been at cross purposes regarding the site of a proposed refuse destructor, it was resolved to settle the dispute by a game of golf. The Urban Councilors won, and the School Board have had to withdraw their opposition.

A CATERPILLAR DIET.

Scientists Who Devoured the Insects to Test a Theory.
A rather singular example of sacrifice in the cause of science was mentioned by Professor Poulton in his lecture at the Royal Institution, says the Daily Graphic of recent issue, on the protective colors of insects. When the reasons for the coloring of butterflies' wings was first examined, and put on a basis of agreement with theory of natural selection, it was pointed out that there were two kinds of coloring, the reasons for which appeared at first sight mutually contradictory. There was the coloring which insects appeared to assume so as to identify themselves as closely as possible with their surroundings, and so to escape observation; and this was easily understood, because insects which eluded the observation of their enemies survived longest.

But there were besides many butterflies and caterpillars which were extremely conspicuous in their coloring whose flaunting hues were a constant advertisement of their presence. Why had natural selection given them these characteristics? The reply was suggested by Darwin that possibly these colors were associated with insects which made distasteful food for their enemies. So it was found to be. The very bright caterpillar was usually found to be avoided by the insect eater; and this was especially the case with the caterpillar of the magpie moth—which has remained for many years the chief example of the theory. But lately the theory has been attacked by M. Plateau, a Belgian entomologist, and by Mr. Wear, of Texas. M. Plateau's objection was based on his own experience. He ate the caterpillars of the magpie moth—and found them not distasteful, rather insipid perhaps, but with something of the flavor of dry sweet almonds. So with Mr. Wear, who found the most conspicuous Texan caterpillar to have "a pleasant, nutty flavor." These opponents of established theory invited entomologists to pursue these lines of investigation. But, as Mr. Guy Marchall and Professor Poulton have pointed out, man is not an insect eater, and his palate is no criterion of the attraction which a grub may possess for animals who so like insects. Mr. Marshall has pursued the research along the proper lines, and has found that the "hinnal chryssippus," the most conspicuous colored African butterfly, is one upon which no insect eater will on any account make a meal—though the human palate finds nothing disagreeable about it.

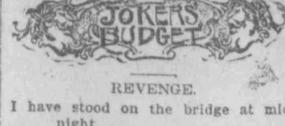
At School.
Sometimes the New York schoolboy shines with a brilliance undreamed of, and surprises both his teacher and classmates with his startling true announcements. When grammar school No. 46 used to be on East Twenty-third street, there was a boy of this nature there. One day during an etymology recitation the word "abnormal" fell to him to define. He had not the slightest idea of its meaning, but he "put up a bluff."

"A-b, ab, a Latin preface meaning back or away from." So far he was successful. But "normal" was too much, until suddenly he remembered the popular name of the girls' high school. "Abnormal, keep away from the girls," he said, satisfied that he had found the meaning of the word.
The same boy was once questioned in regard to personal pronouns, and was asked to illustrate his knowledge thereof by rewriting the sentence, "Columbus discovered America," using personal pronouns. The result was laconic—"I discovered it." And so our children learn English grammar.—New York Sun.

How Tillman Beat Warren.
There is a good-natured rivalry between Senators Tillman of South Carolina and Warren of Wyoming as to which is the real farmer. When they discuss the subject they compare the muscles of their hands and arms and swap experiences of their early days.
"Did you ever milk cows?" asked Warren.
"No," replied Tillman, "but I have plowed."
"So have I," said Warren, "and I have milked cows, too. Then for six days a week from early morn until sundown for an entire winter I chopped wood."
"That's how you got your big muscles in your arms," remarked Tillman, admiringly. "I have chopped wood, too, when I was clearing land. But Warren," said the South Carolinian, "I had to take charge of a farm when I was seventeen years old and I managed it until I was elected governor. You never ran a farm as long as that."
"No," said Senator Warren, "that beats me."—Washington Post.

The Wellington Elm.
Among the curios of Windsor Castle is a Royal chair made entirely out of the trunk of the famous elm by which the Duke of Wellington stood at the battle of Waterloo. The history of the tree (says the Military Mail) is curious. When Mr. Children, one of the curators of the British Museum, visited the Plain of Waterloo, not many years after the battle, he found the tree in question marked for destruction by the proprietor of the soil, who told him that so many people came to visit it that the produce of half an acre of land was annually lost in consequence. A bargain was soon struck, and Mr. Children became the owner of this precious piece of timber.

Fruit and Fowls.
Large quantities of fruit and fowls are being sent to the Transvaal from Natal. Nearly every morning a train leaves Durban loaded.



REVENGE.
I have stood on the bridge at midnight,
And the clock was striking the hour;
The hour rose up, indignant,
And struck back with all its power.
—Life.

READY FOR HIM.
"Is he a very reckless chauffeur?"
"Reckless? Why when the town authorities see him starting they order out the ambulance."—Chicago News.

ANOTHER UNIQUE FEATURE.
"There's one queer thing about Cecil Rhodes' will that the public doesn't seem to have noticed."
"What's that?"
"His heirs haven't decided to try to break it."—Chicago Record-Herald.

MET THEIR MATCH.
Clarence—Well, were your friends, Mrs. Hobbs and Mrs. Dobbs, congenial?
Clara—Oh, Clarence, each found an opportunity to tell me that the other was the biggest talker she had ever met.—Detroit Free Press.

A SUFFERER.
"Yes, Pilcher broke down and had to go away for his health."
"What was the matter with him?"
"Every complaint known to man."
"How could that be?"
"He was a rental agent."—Indianapolis News.

MAN'S SELFISHNESS.
He—Darling what do you suppose I have done today.
She—I couldn't guess in a hundred years.
He—I have had my life insured.
She—That's just like you John Mann. All you seem to think of is yourself.—Boston Transcript.

A PROFITABLE BUSINESS.
"Don't you find it very trying," she asked the great man, "to have to furnish your autograph to so many persistent people?"
"Oh, no," he answered, "Most of them send stamps, and I return the autograph on a post card."—Chicago Record-Herald.

COMMUNITY OF INTEREST.
Jenkins—I learn that through your agent you have bought the properties on either side of your house and got them cheap. How did you manage it?
Foxy—Easily enough. My wife is an elocutionist, my daughter plays the piano, George the cornet, I the violin, Bob the banjo, John rattles the bones, and little Johnnie has the drum.—Tit-Bits.

HER TRIBULATIONS.
"Charlie, dear," said young Mrs. Torkins, "is there anything on your mind?"
"Not a thing," he answered gaily.
"What did you think was on my mind?"
"Nothing. I knew it would be that way. It was only fifteen minutes ago that I told you to do a lot of errands down town, and you said you wouldn't let them go off your mind for a minute, and now you've broken your word again!"—Washington Star.

CLEVERNESS.
"You say he has an automobile?"
"Yes."
"And he has been using it for some time."
"He has."
"He must be very clever."
"I don't see why owning an automobile shows that one is clever."
"It isn't owning it, my dear that shows superior intelligence. It's being able to fit it when it breaks down six or eight miles from home."—Washington Star.

MOROSE.
"Of course," said the studious man, "the stage has not always been held in high esteem. And yet I feel safe in saying that when illiteracy was the rule in most walks of life, there never was a time when actors could not read and write."
"That's right," answered Mr. Stormington Barnes, with a touch of cynicism. "I suppose there never was a time when we did not feel compelled to fortify ourselves with the ability to read guide posts and write home for money."—Washington Star.

WRITING HIS LAST WORDS.
Albert Bigelow Paine, the poet who wrote "You Ought to Be in Kansas When the Sunflowers Blow," has been called the champion long-distance stammerer of the earth. One day when he had spent the greater part of a minute in asking a friend what time it was, the friend, after telling him, remarked:
"If you ever intended to become famous by your last words you would better write them out."
"W-w-w-w-h-h-h-h-y?" asked Paine.
"Because," replied his friend, "if you were to attempt to say them you'd never live long enough to finish the sentence."—New York Times.

Hot Crescent Buns.
An East Side baker, finding that certain of his Mohammedan customers objected to the cross on the customary bun, had recently a part of his stock stamped with the Prophet's crescent.—Westminster Gazette.

AMERICAN ELEPHANTS.

Slow Identification of Species From Fossil Remains.
Enough information is afforded from year to year by newly found fossils to enable the naturalists to improve their classification of the elephants that once roamed over North America. Frederick A. Lucas, one of the experts in the National Museum in Washington, writes to Science to say that at least three such species have now been identified. Elephas primigenius, which is the species whose frozen bodies have been exhumed in Siberia, lived in Alaska, British America, and as far south as Washington, D. C., and St. Louis. It had upward curling tusks, a shaggy hide, attained a height of from nine to thirteen feet, and is popularly known as the mammoth. Then there was a second species, Elephas columbi, which inhabited the southern part of the United States and was a little larger than the creature just described. The late Joseph Leidy, of Philadelphia, one of the greatest authorities in these matters, thought that he recognized a third species to which he gave the name Elephas imperator. Mr. Lucas says that teeth discovered in Indian Territory last fall confirm Leidy's belief on this point, and establish Imperator as a distinct species.

Remains of mastodons also have been found in abundance in this country, though in the majority of cases, the specimens are very incomplete. Indeed, it is unusual to find more than a few teeth or tusks of these animals. However, inasmuch as the distinction between mastodon and elephant is based mainly on dental characteristics, an important clue is furnished by a single tooth. Mr. Lucas declares that more confusion exists in regard to the proper classification of mastodons than of elephants. Only one species of the former is satisfactorily outlined. This is the widely distributed Americanus. He regards the Shepardi, of California, a fairly distinct species, and also the Obscurus, or Floridanus, of the South Atlantic coast. He inclines to think that Leidy was too cautious in his separation, while Cope appears to him to have gone to the other extreme. It is not unlikely that there were half dozen species of mastodons in America, but other light is needed to make them clear.

On Parrots.

There seems to be no limit to the capacity for acquiring the human language possessed by this intelligent bird, it often picks up not only words, but long sentences, which have been pronounced in its presence on a single occasion only. While as for domestic sounds of all kinds, from the whimpering of an infant to the crowing of cocks, and even the song of a canary bird, all these are readily acquired. The male is, however, given to screaming when angry or agitated. It sometimes associates words with things. One, owned by Mr. Greene, would yell "Potato," if it saw lettuce laid, so loudly that it could never be admitted to that meal, for it always dropped the potato and shouted for more. There is an idea that the brilliantly colored parrots do not talk. There is no reason why they should not, and many possess the imitative instinct. One of the most richly colored of all is the purple-capped lory, from the Moluccas. Its whole body is crimson and rose, its wings green, and its crest purple. It is a thick-set bird, like a big bullfinch, and can be highly educated. It is tame and gentle, an excellent "linguist" and mimic, never shrieks, and is very amiable. It is also a ventriloquist. It is worth noting that some of the lories, which are very fond of flowers, have been poisoned by being given luhurum blossom. There is a belief that parrots should not be allowed water to drink, but only sopped food. We believe that this is a mistake which causes them great misery. They are not great water drinkers, and some species can go without it for a considerable time. But in their native state most of those which have been observed come regularly to the water holes to drink.—The Spectator.

Why We Shake Hands.
To shake hands with a person is rightly regarded as a token of amity, but very few know how this custom arose.

According to a French ethnologist, whenever two men met in former times they were accustomed to hold up their right hands in front of them as a sign that they had no intention of attacking each other. This mark of confidence, however, did not prove sufficient in all cases, for a man may hold up his right hand and yet, if he keeps it closed, may have a weapon concealed in it, and therefore it became the custom for the two right hands to grasp each other, as only thus could full assurance be given that no weapon was concealed in either of them.

Formerly, therefore, this gesture, now the token of loyalty and friendship, was one of reciprocal distrust.

Why Tenniel Never Married.
A good story is told of Sir John Tenniel, the famous cartoonist. One day they asked him why he never married. "Well," he replied, "if I had married a girl she would always have wanted to be going about all over the place, and that would not have suited me; while on the other hand, if I had married an elderly lady she would have worn a shawl, and that I could not have stood!"

London has 690 acres of docks, Liverpool 543 acres.

LIVE NEWS OF THE OLD DOMINION.

Latest Happenings Gleaned From All Over the State.

CLASPED HANDS OVER OPEN GRAVE.

Governor Montague and Senator Martin Shake Hands at Lynchburg—Train Robber Searcy Has Disappeared—A Runaway Engine Causes a Death—Two Hundred Dollars for Two Plats—Other News.

Virginia pensions: Increase, restoration, reissue, &c.—Thomas Taylor, Col. 10; Samuel Hart, National Military Home, Elizabeth City, \$10; Jeff Porter, Trevilians, \$8; Joseph Hogg, National Military Home, Elizabeth City, \$12; William Tracy, National Military Home, Elizabeth City, \$12. Original—Joel H. Whitehead, Arlington, \$6; Robert Gleason, Norfolk, \$6. War with Spain—Louis B. Hill, Manchester, \$6. Increase, Restoration, Reissue, &c.—Calvin McClenney, Courtland, \$10; Robert Newton, National Soldiers' Home, Elizabeth City, \$10; Samuel Landenberger, National Soldiers' Home, Elizabeth City, \$12; Pattie Keeling, Driver, \$8. Original—War with Spain—Henry B. Start, Amelia C. H., \$6. Increase, Restoration, Reissue, &c.—Philip Schmidt, National Soldiers' Home, Elizabeth City, \$12; John B. Whiting, Williamsburg, \$8; George C. Kellam, Pungoteague, \$12; Washington Johnston, Winchester, \$8; Thomas Edlin, Spottsylvania C. H., \$12; James Cuffy, Berkley, \$6.

A fatal freight wreck occurred at 7 A. M. on the Southern Railway in the corporate limits of Lynchburg. Four miles from the city, on a grade, 15 loaded freight cars broke away and came at full speed to the city, where they collided on Jefferson street with an engine and caboose going south, wrecking eight cars of cotton and lumber. The engineer reversed his engine, and with the flagman and brakeman, jumped. The conductor stayed on the caboose, which, with the reversed engine, ran back at full speed through the Southern yards, where he jumped. The runaway engine and caboose ran into the engine of a freight, damaging it considerably and breaking the caboose into kindling wood, which then caught fire. The runaway engine was also badly damaged. Owen Fields, the flagman who jumped, was caught under a car of lumber and was so badly injured that he died soon after.

Members of the constitutional convention are now engaged in preparing lists of registers and electoral boards for the various sections of the State, which will be submitted and voted on soon after the convention reassembles, on May 22. The men selected to serve on these important bodies will be the best and most honest citizens of the State. It is thought that the adjourned session of the convention will not be very long, for there now seems no doubt that the new constitution will be proclaimed. The most interesting subject will be the terms of State officers. Many of them will be abridged after warm contests.

Ever since the gubernatorial campaign the relation between Governor Montague and United States Senator Thos. S. Martin have not been cordial. But Friday they clasped hands virtually across an open grave. Both went to Lynchburg to attend the funeral of Major Owen Oney, and there put aside whatever of bitterness existed between them. Senator Martin was in force of the nomination of Claude A. Swanson over Montague, and there were various reports of sayings and actions on his part calculated to arouse ill feeling between him and Mr. Montague. Now permanent friendly relations seem restored.

It is practically certain that the Governor will not order a special election to fill the vacancy in Congress caused by the death of Major Peter J. Oney, of the Sixth District of Virginia. The Governor, it is understood, feels that nothing would be gained by this action, as there is a strong probability that Congress will adjourn shortly. It will remain, therefore, for the regular primary in the Sixth District, and it now seems more than likely that State Senator Carter Glass, of Lynchburg, will be chosen. Mr. Glass is owner and editor of two papers in Lynchburg, the News and the Advance. The date of the primary is July 26.

James Brown was tried in the County Court of Rockbridge for selling whiskey in that, a local option district, without a license, and fined \$200 by the jury and sentenced to jail for three months by Judge Houston. Brown had taken an appeal from the recent finding of Mayor Pierson, who had fined him \$100 and given him a sentence of six months. The sale of two pints of whiskey was the quantity involved.

Charles J. Searcy, the Aquila train robber, who, on being released last week from the State penitentiary, went immediately to Brooke and Stafford Counties, the scene of his crime and conviction, and said he would remain there several days had departed. Though it is said that he bought a ticket for Washington, his whereabouts or future destination is unknown.

Joseph Bryan, owner of the Richmond Times and president of the Richmond Locomotive Works, will probably be selected for president of the Jamestown Exposition Company. It is known that he is the choice of most of the vice-presidents, and on their behalf, it is said, a tentative offer of the position has been made him. Mr. Bryan has given no definite answer, but it is understood that he is inclined to accept the tender.

Sheriff Angell, of Franklin, arrived in Roanoke from the Southwest with Garfield Young, who is charged with forging the name of his father-in-law to an application for a marriage license. Young was married several months ago.

Rev. W. H. Fields, a Bethany College 1901 graduate, now pastor of the Beaver House (Pa.) Christian Church, will be tried at Bethany next month on a charge of illegal voting at the recent Bethany municipal election. The charge is that he was without residence qualification, as he removed to Beaver in April.
A freight train on the Baltimore and Ohio railroad struck and probably fatally injured Mrs. Norval Wright in front of her home at Rodamer.
Ertel Brown, aged 16 years, son of Jas. Brown, of Middle Fork, accidentally shot himself in the left thigh, inflicting a dangerous and painful wound.