SCIENTIFIC SCRAPS.

When warm air is forced through a hot mixture of turpentine and water a disinfecting substance is produced.

In cases of arsenic poisoning the phosphorus which exists as phosphoric acid in the brain is replaced by arsenic.

A solution of smelling salts in water, with a slight proportion of other saline matters, contains all the elementary bodies which enter into the composition of protoplasm.

Thin disks of very different substances emit sounds when exposed to the action of a rapidly interrupted beam of sunlight, proving sonorousness to be a property of matter.

Dr. Hammond states that there are very few, if any, cosmetics which do not contain lead. He also says that death from lead poisoning by the use of cosmetics is by no means an uncommon case. The introduction of lead into the system produces various effects—colic, paralysis, prostration of the nervous system and insanity being the most common results.

M. Muntz, by means of a test so delicate as to detect the presence of alcohol in a million times its weight of water, has found that alcohol exists in all natural waters except very pure spring water. It is found in greater quantity in snow, and without doubt floats as vapor in the air. In soils, especially those rich in organic matter, there is a considerable quantity.

Railroad Men's Ears.

The necessary legislation is hardly secured for protection against the dangers of color blindness before a new trouble arises in the ear affections of those who must depend largely upon the organ of hearing in order to assure the safety of the many lives intrusted to their care and skill. The sharp crack of a broken crank, the dull thud of a shattered connecting rod, in short any of those often obscure noises which signalize the approaching disability of a great machine, and any of those accidents which interfere with smooth running, may often, if readily discovered, save largely both of life and property.

A veteran engineer says that two years ago a slight difference in the aggregate quality of the tones which came to his ear caused him to stop his train and look over the engine. "I found the trouble," said he, "to be due to the loosening nuts of two cylinder heads which had been put in place without the usual precautions to prevent their working off. Had they done so, I would have carried in a crippled train, and changed the whole business of the road for some hours."

"Then, you consider quick and reliable hearing of importance to the locomotive engineer?"

"No man," he replied, "has a right on an engine who has not all his senses in perfect running order. The very feel of an engine when she is going fast is of the highest importance. A moment of dullness on the part of an engineer might, in some instances, lose him his engine."

The driver of a Hudson River railroad locomotive said: "I was affected with deafness but once. There was some heavy artillery firing in Yonkers, which lasted about ten minutes; my ears were very sensitive—made so, I think, through the habit of careful listening—and the moment I started up I felt there was something wrong about my hearing. At the end of ten days I put myself under the care of a doctor. He found trouble a considerable distance inside, and told me the concussion of the air had affected me. I was all right again in ten days."

This deafness, being acquired, is more dangerous than color blindness, because its approach is often slow and insidious, and sometimes it is not known to the victim until a cold or some accident diminishes his hearing before he is aware of it. On the other hand, most ear affections—such, at least, as are brought about through a man's occupation—are susceptible of treatment, and with proper care do not result in permanent disability. Professor Moos, of Heidelberg, in calling attention to this subject, cites ten cases of marked disturbance of hearing in locomotive engineers and firemen, all of which came under his observation. The form most prevalent was cattarh of the middle ear. Investigation showed this disability was most prevalent on tunneled roads, and was generally accompanied by frequent colds, pains, roaring and ringing in both ears. Subjective noises, or these having apparently no exterior cause, and an obstinate partial deafness were commonly complained of. These troubles were invariably worse after a journey on the locomotive.

Dr. Burkner, of Gottingen, observed similar troubles in six locomotive engineers, two firemen, and sixteen other railway employes. Both writers agree that the condition of the sense of hearing should be made a matter of special care by all railway employes, and that they should be subjected to regular inspection by the company's physicians.

LADIES' DEPARTMENT.

Stylish Wool Suits.

Fine woolen costumes are now considered as choice as those of silk, and are in especial favor when made of French cashmere in combination with moire or plush, and sometimes all three materials are combined in one dress. The basque or the pointed waist and drapery of cashmere are in the dark lead shades, seal brown, golden brown, brick-dust red, porcelain blue, bronze or myrtle green, with a preference for brown and green very distinctly marked; the moire box-plaited skirt or that of plush is of the same shade as the corsage, and a single color prevails throughout the dress. The trimming preferred is the open embroidery done on the cashmere, and only a small quantity of this is needed, as it is confined to the front of the drapery, and to trimming the basque. A pretty design for cashmere and moire skirts has six plaits of the cashmere, three on each side, meeting in the middle of the front; beside this is a moire panel three fingers broad, with chenille fringe at the foot, and further along the sides is a side-plaited cashmere panel of five plaits, with two bands of moire at the foot, while behind is a draped cashmere breadth with the ends concealed. Some panier folds of cashmere bordered with moire are across the hips, and the basque has a moire vest front and two box plaits at the back. Other cashmeres have the pointed corset-fitted waist, very long and sharp, with two moire piping cords as its finish, and Saxon embroidery of cashmere on the edge. A directoire basque of myrtle green cashmere has the deep-notched collar of changeable green and red plush, with a plush plastron and vest, while the kilt skirt has no drapery except a single cluster of curved plaits of cashmere sewed in the side seams, and crossing the back breadth only. Laced girdles of moire with two points in front and behind are on the shirred and plaited waists of cashmere basques worn by girls and very young ladies.

New cheviot suits have silk braid bindings instead of stitching, and are made of small checks or blocks of two contrasting colors, or else of striped patterns. The waists are double-breasted basques, round like gentlemen's morning coats, or else they are close French sacks with box plaits set on to represent the popular hunting jackets. The plaits and belts are narrower on French jackets than on the English styles in vogue here. The skirts are mock kilts, that is, with deep kilt-plaiting set on a foundation skirt of silk, and the drapery has wrinkled apron front and bouffant back.

A Craze for Diamonds.

"Are there more diamonds worn now than ever before in this country," a New York reporter asked a jeweler.

"I should say so, most decidedly," was the reply. "I have been in the business over thirty years, and I never knew such a rage for the stone as exists to-day. I attended a garden party at the Grand Union hotel at Saratoga, and I saw bushels of them. This is the only way to describe the number of valuable diamonds worn there, and most of them were fine stones. Nearly every woman there had big solitaires in rings or earrings. You see the finest diamonds are worn solitaire in studs, rings and earrings, while for bracelets and hairpins an inferior stone may be used, as they are not so conspicuous. I noticed one thing, however, at the Grand Union—nine-tenths of the diamonds were not clean. Dust settles on everything, and it is astonishing how little care a woman will give to her diamonds. They carefully inspect their gloves and shoes before completing their toilets, but their diamonds, often worth thousands of dollars, receive no attention, become dirty, and sometimes are lost.

"A lady customer of mine lost a very valuable diamond after possessing it eight years. If she had been in the habit of giving the gem any attention, she would have noticed that a setting of eighteen-carat gold will wear out in time and lose its grip on the stone. The large solitaire diamond is now preferred to the cluster. Few diamonds are now worn by gentlemen, except in the case of young men anxious for display. Here and there a gentleman will wear solitaires on his shirt bosom, but if he has good taste he will be careful that they are small or he may be taken for a gambler. It is astonishing how much money is sometimes represented in the diamonds worn by ladies on a 'swell' occasion. It is a common thing in New York society to see $10,000 or $20,000 in diamonds on a lady's person. Mrs. John Jacob Astor has been known to wear $50,000 worth of diamonds at an evening reception, and I should say that the diamonds worn by Mrs. W. H. Vanderbilt at the garden party I spoke of were worth fully that amount of money. Mrs. Mackay, wife of the 'Bonanza King,' once offered to buy the famous 'Regent' diamond, the most valuable in the world. It is valued at a mere million, but the French government wouldn't sell it."

Fashion Notes.

The English shoe, with low heels and half high and large metal or paste buckles on the instep, is the favorite house or garden shoe.

Lace hats are worn again.

Fancy jewelry is still the rage.

Fans this season are works of high art.

The rage for Spanish lace has not in the least abated.

Standing high collars and low rolling collars are equally fashionable.

Quantities of bangle bracelets are worn over mousquetaire gloves.

Even elderly women look well in white or cream-colored all-wool dresses.

Velvet and plush will be the high novelty dress trimming materials of 1881.

Large collars are worn by children, grown girls, matrons and elderly women.

Capes of silk mull laid in surplice folds about the neck are bordered with full frills of lace.

Little owls in black metal, with diamond, ruby or emerald eyes, are favorite ornaments.

Eight or more bridemaids, one-half being little girls under twelve, is the latest style in England.

Cream-colored cashmere is the favorite material for married women's piazza dresses at Saratoga.

A growing fashion is that of independent jackets made of stuff that can be worn with any kind of a skirt.

The morning wedding is no longer fashionable in England. Three in the afternoon is now the hour for tying the knot in the best society circles.

The loose-wristed, buttonless Sarah Bernhardt glove of yellow, undressed kid, or of chamois leather, is an almost universal favorite, worn with all sorts of toilets.

Velvet and silk corselets finished with piping around the edge and having two loops set at the back so as to form a postilion basque are much worn.

Spanish jewelry, showing large leaves and flowers tinted in colors of pale pink and emerald green, and studded with fine sparkling gems, is just now in great demand.

The wide belts worn by young girls are no longer fastened by bows, but have one long end of ribbon allowed to fall almost to the bottom of the skirt and caught in two or three loops.

Large buckles of Irish diamonds are much used on white and tinted silk evening dresses. They fasten the bows of satin on the shoulders, and hold the scarf drapery in place on the sides of the dress.

A new kind of cheviot has raised threads scattered over it in such a way as to simulate buttons. It is called button-cloth, and is made up in combination with a stuff striped by rows of colored knobs.

The agrafe, highly-polished hooks and eyes, in steel, gilt, or jet, are used to fasten the front or corsage; small hooks and eyes underneath, or concealed buttons, are necessary to hold the waist in perfect shape.

Plaited flounces are still in vogue—gathered flounces will be worn in the make-up of soft materials. Watered silks and shaded moires will figure largely in the trimming line. Wide girdles of moire are fashionable; they are worn with both plain and plaited basques.

Other Worlds than Ours.

The recent appearance of several comets in our skies has been taken advantage of by astronomers to make experiments so as to test certain theories brought forward by able and ingenious speculative philosophers. Mr. Richard Proctor, who recently lectured in this country, was of opinion that all the planets and stars visible in our heavens were, during some period of their existence, capable of sustaining some of the higher forms of life. At first they were fiery fluid masses, in which, of course, life was impossible. This is supposed to be the condition of Jupiter and Saturn to-day. As the planet cooled, water and dry land appeared, and finally life, first in its lower and afterward in its higher forms. Then the time came when life died out. The earth is in the second stage of its evolution, the moon in the last; so that the existence of even an insect or a weed is impossible on the satellite that attends the earth. But the comets lately seen have discredited, in a measure, this theory. Carbon is essential to organized existence, and wherever it shows itself some form of life has been manifested. By means of the spectrum Professor Draper has proved the existence of carbon in the nucleus of the comet. But scientists have been unable to find any carbon in the sun and in many of the fixed stars. It follows, then, that some comets have developed life during some period of their history. Some of the most magnificent of all the bodies that float in the azure blue are utterly devoid of intelligence. Astronomy is a noble study, and every parent should see to it that the children in the house are taught some of its inspiring lessons.

Three of the leading bank robbers of this country have decided to quit the business this fall.

Dead Men's Shoes.

A few years ago a decrepit old man crept around the shabby precincts of a Southern town, of whom a singular story was told.

He was the last male descendant of a family to whom belonged large estates. His uncle was the last possessor. He died without children. The property was bequeathed by him to his wife during her life, and at her death to this nephew, then a lad of fifteen.

The wealthy widow was at this time fifty years old, and by no means healthy; but she heartily disliked the heir, and refused to recognize him, or give him any immediate assistance.

But the boy congratulated himself with the assurance that she could not keep his inheritance from him at her death, and that probably her death was not far off.

Fifty appears old age to fifteen. Hence, although the lad's mother was poor, he studied no profession and learned no trade. Indeed, he troubled himself very little about education of any sort. Why should he drudge over books or in any kind of business? His fortune waited ready made for him.

Years passed. The lad became a young, middle-aged man; a husband and father. He had married a mercenary girl, whose eyes were dazzled with this vast prospective fortune. The two plunged into extravagances of every sort. Creditors at first were lenient. The aunt was now a gray, toothless old woman. The fortune was surely near at hand. But the patience of creditors is not as enduring as the lives of even the aged, and at last even hopeful creditors refused to extend their accounts.

Then the crash came. The heir fell into hopeless poverty. His children died. His wife left him. He went about the town, gambling a little, drinking a good deal, "cursing his luck" always, but never working.

The aunt lived on. The heir grew old, became a paralytic, and finally was sent to the almshouse, where, after waiting for years for the woman's shoes who would not die, he dropped hopelessly out of an empty life into the grave. The woman lived to be one hundred and three years old, and at her death the estate went to the State of Tennessee.

We do not often find a case of waiting for "dead men's shoes" so extreme as this. But in degree, the same effect is produced whenever the heirs of wealthy parents are brought up without any profession or practical work.

Their youth passes in idleness, waiting for death to make rich men of them; and out of the idleness too frequently grow dissipation and corrupt character. If, as is often the case, the fortune takes wings before they gain possession of it, they are left stranded and helpless wrecks in life.—*Youth's Companion.*

A Paradise of Fish Stories.

If any one wants real choice, reasonable fish stories, he should go to Minnesota. Folks have no fancy for the incredible up there; the facts are so plenty that exaggeration is simple folly. A party of anglers were seated around in a Minnesota depot, with a fine string of fish, a few days ago, waiting for a train, and killed time by relating their experiences. Several pretty stout yarns were narrated, when a long-armed Minnesotian, who appeared to be a resident of the town, and had apparently taken a great interest in the stories, interrupted the meeting by saying that he was possessed of facts that would discount any that had been cited. What he was about to tell was true, because it had been his own experience. Alluding to some remarks that had been made about the rapid growth of fish in Minnesota waters, he said that four years ago he caught a three pound bass. As he did not want small fish he threw the body back into the water, but before doing so tied a little toy tin whistle to its tail. Three years later he caught the same fish, which weighed ten pounds, and the tin whistle had grown to be an enormous fog horn. The statement was not disputed.—*Chicago Inter-Ocean.*

Playing With Fire.

They have discovered a kind of illuminator in France which gives light but which does not consume. It is a mineral essence, which when put in a lamp gives light when ignited through a wick. M. Cordig, the inventor, after filling and igniting a lamp, dashed it against the ceiling of the laboratory. The blazing fluid was scattered over the floor, and on the persons of the lookers on, but strange to say, no one was burned or scorched. A pocket handkerchief was soaked in the fluid and set on fire. A fierce flame resulted, but the pocket handkerchief was uninjured. The fluid was then set on fire in a pail, and the bystanders plunged their hands into the burning flame. A prickly sensation followed, but no scorching or burning. In short, the discovery has been made of light without heat, of an artificial fluid in which there is no danger of combustion. The occupation of insurance companies will be gone when this fluid is in general use.

TOPICS OF THE DAY.

Mr. Jenkins, of the British Agricultural commission, explains why the farmers of Holland are successful. One man works a farm of 200 acres, with the aid of his wife, his daughter, four sons and four hired laborers, and the sons work harder than the laborers. The old man is credited with possessing $125,000. One woman of eighty-three does her own house work, makes her own butter, and is worth $125,000.

Fancy sporting seems tame in comparison with the experience of a farmer at Dayton, Wis., who discovered and attacked several wolves while out looking for a flock of sheep. After a desperate fight, in which all his clothing was torn off, his hands and legs were badly bitten and the lower half of one ear was snapped off, he killed them. He received $77 in bounties from the State and sold the skins for a fair price.

The latest returns of live stock and fresh meat importations from the United States and Canada into England at the port of Liverpool shows large increases. For a single week in August the quantity of live stock was double the quantity for the week preceding it, and in fresh meat there was considerable advance, particularly in beef. The totals were: Cattle, 1,808; sheep, 2,860; quarters of beef, 4,748; carcases of mutton, 453. No hogs whatever were landed. More pigs, however, were raised in England last year than for some years previous. There are now in the country 2,048,000 of them, or an increase of 47,192 over 1880, and 43,525 over 1879.

Extended inquiries made by a Philadelphia paper show that the recent drought covered a wider area than any other since 1872. Two-thirds of the States were in great need of rain, and New England seemed to be the only really favored section. The middle tier of States, stretching from the Atlantic to the Rocky mountains, were most seriously affected. In New Jersey market gardeners suffered great losses. In Western Pennsylvania, New York, Ohio, Illinois and Southern Michigan the greatest damage fell on corn. Tobacco was injured fifty per cent. in Pennsylvania, Virginia, Kentucky and Tennessee. Indiana hadn't known such a drought since 1856.

There are lines of railroads on the five divisions of the earth which cost in the aggregate $16,000,000,000, although it has been but fifty-five years since the first railroad worked by steam was opened. These lines of railway, in length, would reach eight times around the earth. Baron Kolb, a statistician, has made a calculation in which he says that in France, previous to railways, one traveler in every 335,000 was killed, and one in every 30,000 wounded, whereas upon railways, from 1835 to 1857, there was but one in 5,178,800 killed, and one in 580,450 wounded. According to the baron, if a person was to spend his entire time in railway traveling, the chances in favor of his dying by railroad accident would not occur until he was 960 years old.

It is not only true that the English harvest this year is bad, but the amount of land sown to grain is in some respects considerably less than in former years. In wheat 2,806,057 acres are sown, which is less by 103,381 acres than the acreage for 1880, and less by 84,187 than that for 1879. Barley returns 2,442,405 acres, or a decline of 24,424 acres as against last year, and about 200,000 acres as compared with the year 1879. Oats, however, show an increase of 104,230 acres over 1880, and 244,507 over 1879. With regard to live stock there was a decline. With cattle it was only 522 in a total of 5,911,524, but with lambs and sheep it was much more. The total this year of sheep and lambs is 24,582,154, which is smaller than last year by 2,036,806, and smaller than the year before by 3,574,923.

In some localities in Italy and Spain, and in Eastern Europe, and in Western Asia, the chestnut crop is equal in importance to the wheat crop in Ohio. Chestnut bread constitutes the principal food of more than a hundred millions of people, the healthiest, handsomest and most sinewy people in the world. This fact leads the Columbus (Ohio) *Journal* to advocate chestnut culture for the United States. Ohio's annual chestnut crop is valued at $60,000, and the *Journal* thinks it ought to be $20,000,000. Chestnut trees one hundred feet in height and from three to seven feet in diameter can yet be found on the hill tops in Southern Ohio, growing in soil which cannot be made to produce five bushels of corn to the acre, and where oak, hickory and other trees are mere dwarfs. The chestnut is a valuable timber tree, and is of very rapid growth. Under favorable circumstances a bearing chestnut tree twenty feet in height can be grown from the seed in five years.

A New York paper recalls the following memorable cases of men who have been spared to the world after all hope seemed over. William of Orange-Nassau, the founder of the Dutch republic, when shot through the face and neck by a Spanish assassin, recovered contrary to the expectation of both friends and enemies; Richard I. of England survived the fever which prostrated him in Palestine, although his best physicians had pronounced his case hopeless; Sultan Baber, the Mogul conqueror of India, in the sixteenth century, was once so reduced by sickness as to be unable to swallow anything but a few drops of water; the English King William III., though sickly from his very birth, was thrice given up by his doctors before the end came, and even then owed his death chiefly to the effects of a fall. A still more singular instance was that of the famous Italian statesman, Cardinal Bentivoglio, whose life was despaired of from quinsy. The servants and physicians, thinking him already dead, had quitted the sick chamber, and the universal silence emboldened the cardinal's pet monkey to issue from the nook in which it had hidden itself. Putting on its master's red hat the animal began to admire itself in the mirror, grimacing and chattering so comically that the moribund cardinal burst into a violent fit of laughter which broke the quinsy and saved his life.

An industrious German, Baron G. F. Kolb, has lately compiled a book of universal statistics which furnishes much food for thought. His figures show that every advance made by a people in morality, in profitable and healthy employment and useful knowledge, brings it nearer to the ideal—the greatest natural tenure of life. Domestic virtue also tells favorably on the health and wealth of a population. Thus, in Bavaria, out of 1,000 children born alive, there died, of legitimate children, 248 boys and 212 girls; of illegitimate, 361 boys and 342 girls. Out of 100 children suckled by their mothers, only 18.2 died during the first year; of those nursed by wet nurses, 29.33 died; of those artificially fed, 60 died; of those brought up in institutions, 80 died in the 100. The influence of prosperity or poverty on mortality is also shown by Baron Kolb. Taking 1,000 well-to-do persons and another 1,000 of poor persons, after five years there remained alive of the prosperous 943; of the poor, only 655. After fifty years there remained of the prosperous 557; of the poor, 283; at seventy years of age there remained 235 of the prosperous, and of the poor, 65. The average length of life among the well-to-do was fifty years, and among the poor, thirty-two years. One of the most potent shorteners of life is the anxiety of providing for bare existence. The lack of sanitary conditions also shortens man's years. Idleness, as compared to intense industry, outweighs—prejudicially outweighs—all the advantages of ease and abundance.

Recent statistics of emigration show that the Mormons are growing and aggressive rather than feeble and defensive. According to the New York *Evening Post* one steamer which sailed from Liverpool had on board five hundred and fifty of these peculiar people, and the whole number from that port for the summer is said to be more than two thousand. Perhaps all of them do not intend to practice polygamy—though, as they are probably young converts, they are quite likely to be fired with the proverbial zeal of neophytes for their faith. But even if they should not addict themselves instantly and industriously to domestic plurality, accessions so large to the Mormon community must contribute to its strength and encourage its leaders to maintain their organization with all its offensive features. The contribution is something more than numerical. The fact that the community is able, in the face of public opinion, not only to hold its members together, but to attract to itself many emigrants from Europe, must have a powerful moral effect upon the saints of Salt Lake and upon their attitude toward the Gentiles of the United States. Evidently whatever is to be done about the remaining "twin relic of barbarism" must proceed upon some other theory than that polygamy is fast dying out and that the evil will presently cure itself. Another feature of the policy of Mormanism, and a very significant one, is that whenever they make agricultural settlements they endeavor, and almost uniformly with success, to drive away "Gentile" settlers by the process of "freezing out," that is, of having no intercourse with them, giving them no aid in case of need, refusing them all assistance and co-operation in their daily work, and opposing them, on the contrary, as much as possible. The result is that Gentile settlers give up their farms, and the Mormons remain exclusive masters of the field. This process is going on not only in the agricultural districts of Utah, but in Southern Idaho, Northern New Mexico and Arizona, and wherever the Mormons gain a foothold.

There are thirteen lines of railroad in contemplation or under construction in North Carolina.