

SCIENCE AND INVENTION

ENLARGE PICTURES BY HAND

Apparatus Invented by a German Does Work With Almost Same Accuracy as Photograph.

An apparatus by means of which pictures can be enlarged by hand with almost as much accuracy as a photograph can be mechanically enlarged has been invented by a German. A lamp has a series of reflecting mirrors hinged at the top and a lens set in a tube that points downward over the artist's drawing paper. A picture, suppose it is a portrait, is placed



For Enlarging Pictures.

on top of the apparatus and its reflected image, passing through the magnifying glass, appears on the paper several times enlarged, but naturally a perfect replica of the original. An artist of only small ability can then trace over the lines and make a faultless copy of the head. Such an apparatus should be of great value to those who make a specialty of large crayon portraits done from photographs, a trade seldom plied outside of rural districts.

NEW TYPES OF AIR SICKNESS

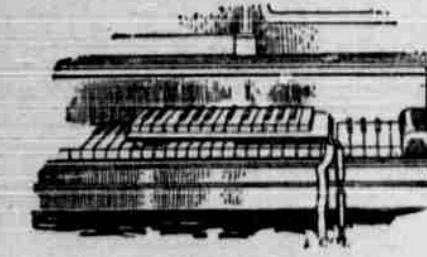
Most Remarkable Symptom is Overpowering Sleepiness, With Sluggish and Clumsy Movements.

Climbing into the air has developed three new types of disease: (1) mountain sickness, due to the muscular work of climbing in addition to the rarefaction of the air; (2) balloon sickness, produced only at great heights by the thinness of the air, and (3) aviators' sickness, in which more severe symptoms result from the rapidity of the change of atmospheric pressure, especially in descent. Berget notes that aeroplanes may rise to 10,000 feet in an hour. The humming or cracking produced in the ears is the same as in balloon disease, but there is also a peculiar uneasiness, and the aviator is quickly out of breath. The French aviator mentions further that the descent in a sailing flight may be at the rate of 1,000 feet or more a minute. Morane at Havre having dropped 8,000 feet in six minutes. The effects are heart beats of great force but no increase in rate, humming in the ears, and an exaggerated special uneasiness. There is burning of the face, with severe headache. But the most remarkable symptom is the overpowering sleepiness, with sluggish and clumsy body movements, and this may last for days.

MUSICAL BELLS FOR PIANOS

Attachment Designed Particularly for Moving Picture Theaters and Similar Places.

The piano attachment for musical electric bells, designed practically for motion-picture theaters and similar places where only a pianist is employed, is just being marketed by a Wisconsin manufacturer, says the Popular



Musical-Bell Attachment.

Mechanics. A small keyboard swings into position as shown in the drawing, and by means of it the pianist can operate the musical bells, playing loudly or softly as desired.

Heart Affects Hand.

An English scientist says there is an individuality in heart beats, affecting the handwriting to such a degree that it can be readily discerned when the handwriting is magnified.

Pontoon Method of Life Saving.

The pontoon method of saving life in the event of the foundering of a ship finds an illustrious advocate in Cuniberti, the chief naval architect of the Italian navy. He believes that the upper and after portion of a ship, containing the cabins, should be constructed of wood and form a structure independent of the rest of the ship. This should be bolted to the hull by fastenings which could be readily unlocked in the event of the loss of the ship.

Bicycle for Life Saving.

A bathing bicycle for life saving, which has attracted attention at New Brighton, England, lies flat in the water and is worked by pedals which operate the propellers. The apparatus, which attains a good speed, is unsinkable.

Historical Innovation.

For lodge initiations a Pennsylvania has invented what seems to be a strength testing machine but which, when the handles are pulled, paddles a man and sprays his head with water.

FEW ABUSES OF AUTUMOB.

Tax on the Eyes and Nervous System Imposed by High Speed—Also Numerous Minor Ills.

The twentieth century may fairly be called the age of speed. The trolley car, rushing through city streets and country roads, replaces the jogging horse car and rumbling stage; the fast steamers take you to England in five days; the thousand miles between New York and Chicago is covered in 18 hours; and mankind has almost forgotten the joys of a quiet saunter. Distances have been shortened by the bicycle, the automobile and the motor boat, and the aeroplane is to outspeed them all.

Although much is gained, perhaps, the physician knows that something is lost, remarks the Youth's Companion. The uses and benefits of the automobile, for example, are great if it is sensibly used; but when it is abused the danger to vision and to the eyes of the car is even greater. Driving a high power car at full speed is a pleasurable form of intoxication, but like all intoxication, it has its penalties, and they are heavy.

The driver's eyes and nervous system may suffer seriously, although there are numerous minor ills to which he is liable that may come first and teach him moderation.

The tax on the eyes is enormous, for they are kept at constant strain looking for obstacles and inequalities in the road. The wind and dust in spite of goggles often cause a troublesome inflammation that yields only to rest in a darkened room and appropriate medical treatment.

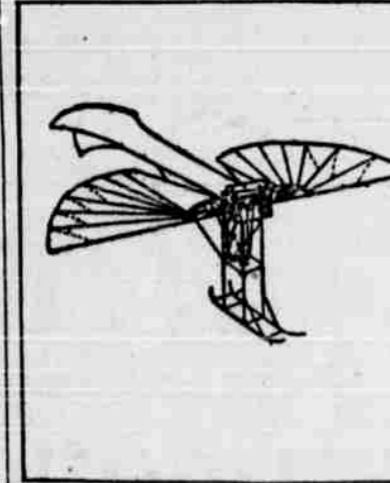
A not uncommon affection of the eyes is a failure to focus properly, the ciliary muscles become exhausted and suddenly cease to act—a temporary paralysis that causes a sudden blurring of the vision. If that comes while the car is going at full speed the driver is fortunate if he can stop it in time. The only course for the driver who has had this affection is to give up the wheel, for if it has occurred once it may occur again at any time.

Another ailment that may affect the passengers as well as the driver is a painful stiff neck caused by unconscious muscular tension. But the most serious penalty that follows abuse of the automobile is neurasthenia or nervous breakdown.

FLYING MACHINE LOOKS ODD

Resembles Huge Bird-Kite, With Two Wings and Long Tail—Invention of an Ohio Man.

One of the oddest looking flying machines yet has been devised by an Ohio man, who evidently belongs to that class of aerial inventors who stick to the theory that to fly you must have wings. This machine, as the cut shows, resembles a huge bird kite, with its two wings and long tail. The wings are pivoted to the body of the machine and are driven up and down by shafts operated by the en-



Odd Flying Machine.

gine, which sets in the framework of the body. The tail, of course, is to preserve a balance. The wings are provided with individual rotatable vanes that open as they go up, thus offering practically no resistance to the air, and close as the wings come down, thus forming the flat surface required to support the machine. The pair of sledge-like runners at the bottom act as feet and enable the aviator to alight safely on the ground.

NOTES OF SCIENCE AND INVENTION

Screen doors with fly traps attached are a recent invention.

The greatest depth of the sea yet discovered is 32,089 feet. The precise weight of an English ounce was fixed by Henry III.

Foreigners living in Siam will establish a Pasteur treatment hospital at Bangkok.

An Arizona scientist has discovered that dates can be ripened in an incubator to a perfection that rivals the fruit brought direct to Paris from Africa.

A mitten has been patented that adds to the surface of the hand and aids a swimmer.

Fresh milk may be used as "invisible ink." To make it visible scatter coal dust on the writing.

Two new British battleships will be fitted with anti-rolling tanks, the first war craft so equipped.

The list of known insects is increased annually by the addition of about eight thousand specimens. French astronomers blamed a large sun spot for the coldest August experienced in that country in years.

The pulse of the new born infant beats at the rate of 136 per minute and at the age of thirty, it is half that rate.

A camera which will enable motion pictures of the aurora borealis to be made has been perfected by a Swedish scientist.

Two separate pianos within a single case, the keyboards being at right angles to each other, is a musical instrument novelty.

The recent striking of an Italian army balloon by lightning was the first happening of the kind known to scientists.

LOTION EASILY MADE

CLEANSING CREAM SUITABLE FOR THE TOILET TABLE.

In Many Ways Better Than Can Be Purchased, Because Desired Quantity May Always Be Prepared as Desired.

Do you like to mix your own lotions and experiment with the attractive looking formulas for creams which you so often see printed? It is a very delightful occupation and when the lotion comes out beautifully blended and with the delicate fragrance of a high-priced article; when the cream is white and smooth and dainty, one feels well repaid for one's time and effort.

There is another side to this story, however, because sometimes the lotion comes out all curdled looking and queer and the cream disintegrates and will not blend, no matter what you do. Then you register a vow that you will never, never again attempt to prepare your own cosmetics, but will spend your dollars for the prepared articles gratefully.

One great difficulty with many of the published formulas is that they are too complicated for any one but a chemist to prepare and another is because the directions are seldom clear. It is not wise to use much guess-work when mixing creams and if the formula leaves you in doubt, lay it aside for a simpler one, or take it to your druggist and ask his advice about how to put the ingredients together.

I have had frequent requests for the following formulas and I am sure you will experience no difficulty in preparing them even though you are the veriest amateur, provided you follow the directions carefully.

For a cleansing cream, weigh two ounces of oil of sweet almonds and melt in it a lump of white wax as large as a walnut; when these two ingredients are well blended add a rounding tablespoon of white vasoline and a few drops of oil of rose geranium, and beat the mixture while it is cooling till it is light and creamy.

A good nourishing cream contains one-half ounce each spermaceti and white wax melted in a double boiler over a set in a pan of boiling water; add one ounce cocoa butter, one ounce imported lanolin, and three ounces sweet almond oil. When melted and thoroughly blended remove from the fire, add two ounces rose-water and one dram tincture of benzoin and beat steadily till cold.

An excellent lotion for the hands (the formula for which was sent me by one of my readers) is prepared from two ounces of glycerin, one ounce each tincture of benzoin, bay rum and alcohol, one-half ounce rose-water and five cents worth of quince seeds. Scald the quince seeds with about one quart of boiling water, cover the dish tightly and let steam. Do not remove the cover for twelve hours, then strain through a thin cloth and add the other ingredients. This is especially good to prevent the hands from chapping.

A simple lotion which is said to possess bleaching and refining properties is made from a half ounce of glycerin mixed with a half pint of orange flower water and a level tablespoonful of powdered borax dissolved in the mixture. Another lotion which is often recommended requires one ounce oil of sweet almonds, one ounce glycerin, two ounces strained lemon juice and ten drops of carbolic acid. A few drops of rose may be added for perfume if desired and the special benefit of the lotion is to cure the chapped and roughened condition of the hands caused from the cold weather.

ANSWERS TO QUERIES.

Harbors: Exercise will do more to harden your muscles and increase your appetite and digestive powers than anything else I can suggest. Go out every day and dig in that lovely garden and thank your lucky stars that you have the garden to enjoy. The pleasure of active work will do more to clear away the cobwebs from your sky than any other thing you can undertake and an hour a day out in the sunshine and fresh air will among the growing things will work marvels in your health and also your looks.

New Reader: You will never succeed in restoring your hair to its natural thickness and density by the methods you are following. Quite the contrary effect will result, as they are altogether too strenuous. The hair and scalp are never benefited by harsh treatment any more than the face would be. You can do more harm by such treatment than you can undo in years. Gentle brushing is advisable, but it should never be carried even near the point of irritating the scalp.

Nettie D: If you will keep a bowl of corn meal, moistened with vinegar, on the shelf near the kitchen sink and rub this mixture well over the hands immediately after taking them out of soapy water, it will counteract the harmful effect of the soap and will also remove ordinary stains. Rinse the hands in clear water and just before they are perfectly dried rub a soothing lotion well into the skin. If you will do this regularly you can keep your hands in very good condition.

Care of Velvet.

How often have you deplored the dusty, dingy appearance of a black velvet hat or gown which all the brushing and care you know how to expend failed to change? Here is the secret and you should clip it out and keep it where you will find it when needed. Brush the gown or hat either with a special brush which comes for velvet or with a piece of velvet; then take a piece of camels, not a new one, and after wringing out of cool or tepid water very dry, wipe the velvet carefully with this. The effect is surprising, as it restores the velvet to its pristine freshness with every trace of dust and soil removed.

Social Forms and Entertainments



From a Perplexed Girl.
Your columns have been so helpful to others I would like to have your advice. I have been going with a boy for about two or three months and like him very much, and he has told other people he liked me better than any girl he ever knew. When at a "leap year" dance how many dances should I give him? Do you think it considered unladylike to wear small pearl earrings or would they make me look coarse? What should a girl do when asked to have a dance? Is it really wrong to let a boy kiss you if he is in earnest?—Perplexed B.

I hope from henceforth these columns will prove helpful to you and that you will come just as often as questions bother you. It depends upon how many dances there are. I should think you could give him every other one. Girls are wearing earrings now, and if small I see no harm, for the ears are not pierced these days and it is only a harmless pecking tad to wear them. I think it is really wrong to let a boy kiss you if he is in earnest?—Perplexed B.

A Short Contest.

Please give me some little game to while away a few moments before refreshments are served after a card party.—Madame Grundy.

After a card party, while the hostess was busy putting the finishing touches to her refreshments, the guests had this interesting pastime. Printed on little paper bags were the following questions:

1. Bag—A city.
2. Bag—A trifle.
3. Bag—A musical wind instrument.
4. Bag—Luggage.
5. Bag—A kind of cloth.
6. Bag—Caught in a sack.
7. Bag—A fish.
8. Bag—Stretching or pouching.
9. Bag—A game.
10. Bag—Where packages, etc., are kept when traveling.

Answers:

1. Bagdad; 2. Bagatelle; 3. Bagpipe; 4. Baggage; 5. Bagging; 6. Bagged; 7. Bagre; 8. Bagging; 9. Bagatelle; 10. Baggage car.

To the one answering the most the hostess presented a dainty silk bag, and then she filled the little bags on which the contest was written with home-made candy.

Progressive Candy Jack Straws.

I wish to entertain twelve little boys and girls at an afternoon party. Will you suggest a novel scheme with which to begin the party?—Puzzled Mother.

Provide a quarter of a pound of twisted candy sticks known as "opera" sticks in most candy shops. They come in all colors and there must be a different color for each table, four at a table. A pair of candy tongs must be in readiness for each player and a box for containing the candy "straws." The game is to see how many sticks may be withdrawn from the pile without breaking or throwing the pile into confusion. Progressions are made and the score kept. Children enjoy this entertainment and eating the sticks is permissible after the game is over and the scores settled.

Entertainment for Bride-Elect.

I am to entertain a bride-elect and am puzzled as to what to do in the way of entertainment. What can you suggest?—A. L. T.

I wonder if you have had either a magazine, book or a "den" shower? At the first the guests decide before hand what subscriptions to magazines to give, each one contributing 50 cents. This assures pleasure for the whole year. The book idea is carried out in the same way.

For the "den" there are so many attractive things to get. A suggestion is for five or six to club together and give all the pieces for desk set, all to match. These of leather are especially attractive. Copper or dull brass are also much liked. Then there would be candlesticks, waste paper basket, etc.

A "Western Girl's" Answers.

You are rather stout for your height, but no doubt will grow much more slender as you grow older, so take all the exercise you can every day, especially walking. Never lead a man on; it is the most unkind thing when you just intend to turn him down. I think it is decidedly wrong to allow boys to kiss you. Perhaps your letters went astray and the boy may not have received the last one; there will be no harm in writing to find out.

MADAME MERRI.

New Sleeves for Sweaters.

My two boys wear woolen sweaters in the winter. I have found that the sleeves wear out very quickly, leaving the rest of the sweater perfectly good. Last winter I got knee length woolen leggings at 25 cents a pair, both in white and red, which matched the sweaters in color and weave. I cut off the shaped foot part, hemmed the lower edges by hand with loose stitch to allow for stretching. I cut the worn sleeves out of the sweater, fastened the new ones in, and they looked as well as the originals.—Harper's Bazar.

GREATEST 1912 FOOTBALL ATTRACTION



Jim Thorpe, Noted Carlisle Athlete.

Glen Warner, coach of the Carlisle Indian eleven, skilled above any of his rivals in the ability to pack stacks where his eleven appear, has this year in the presence of Jim Thorpe the greatest drawing card on the football field.

Thorpe, fresh from his triumphs in the Olympic games at Stockholm, is now the best-known athlete in the world. He would be famous were he a white man, but to be the most notable of all-around performers, and also an Indian, thus carrying all the romance that goes with aboriginal extraction, is going to mean a rush to see Thorpe perform on the gridiron.

This is a big consideration at Carlisle, where there is no athletic association to furnish funds to support the team, no rich graduates to come to the rescue. The government does not make any allowance for the training of the squad nor the support of football.

GREAT FINNISH RUNNER HERE

Hannes Kolehmainen Will Establish a Permanent Residence in the United States.

The best distance runner in the world, Hannes Kolehmainen, has recently come to this country and will make America his future home. Kolehmainen is accompanied by his brother, Willie, a professional Marathon runner. At the Olympic games in Stockholm the best of the American distance men and, in fact, those from all of the other countries, were outclassed by a marvelous Finnish runner, who won the races in which

will have to work hard if Kolehmainen is to be kept from cornering the market on distance races. Only three laps from home the Finn was ninth, three-quarters of a lap from the leader. In that short distance, however, after being informed by his brother Bill, the professional Marathoner, that he must catch Powers to win the race, Hannes cut loose with a sprint that cut down all of the contestants but Powers.

PRESIDENT MURPHY IS RIGHT

Milwaukee Sentinel in Commenting on Ruling of Chicago Cup Head Hits Hero Worshipers.

Commenting on the declared intention of President Murphy that he would insert a temperance clause in his players' contracts for next year, the Milwaukee Sentinel says: The sensation of the week, made so, possibly, by the long statement and unnecessary comments aroused by it, was President Murphy's declared intention to put into next year's contracts with his ballplayers a "temperance clause," similar to that which has been in the Pittsburgh contracts for the present season. Naturally enough, announcement of this policy created a riot of comment, most of which was an attempt to be facetious, but some of which was as serious as the condition warrants.

President Murphy has a perfect right to insert this clause in his contract and indeed it is one which ought to be there. It is just as much a matter of contractual right as anything else. When a manager or owner engages the services of a ballplayer for a liberal salary, he has a perfect right to expect the best services that player can give, and to that end he has a right to impose such conditions as tend to insure or guarantee it. If the player does not care to reduce to writing such conditions as he is bound to give, then that player ought to have the privilege of playing somewhere else. He certainly has the right to refuse to sign a contract with this stipulation as a part of it.

There will be some unthinking players who will make a fuss about this particular provision, but those who are thoughtful and honest will say to themselves that Murphy's position is entirely right and there are those who are willing to predict that the time is coming when every manager will incorporate this or a similar provision in all contracts.

The trouble with ballplayers lies not in themselves so much as in the public. There are a lot of fool hero worshippers who get a wonderful amount of delight out of hanging around hotels and fraternizing with ballplayers. They seem to think there is something unusual about the society of a ballplayer and it flatters them in some way to be seen with them and to be permitted to buy them drinks and other refreshments. These idiots make it hard for ballplayers not to accept their hospitality and the consequences are perfectly natural. If a ballplayer knew that his job depended on his leaving these people alone, they would have small chance of puffing themselves up at the expense of ballplayers.

The Cleveland Naps are the only team in the American league to get an even split with the Red Sox.

PUZZLES IN FOOTBALL

Line Must Be in Two Places at Same Time.

Present Revival of Regulations Promises to Give Many Coaches More Worries—Situation Not Clear to "Rooter."

Wizards of football, the men who devise the plays and direct the big college elevens, are facing a proposition this fall that has never been presented before in the history of the sport, that of carrying out a defense that will be in two places at the same time and that can cover a territory which may extend over almost the field. While the radical departure from the old smashing game that came with the change in the rules in 1905, gave trouble to the coaches for a season or two, the present revival of the regulations promises to give them even more worries.

During the career of the forward pass, the twenty-yard zone placed a limitation upon the hurling proclivities of the offensive team that could be governed by the secondary defense of the opponents' backfield. It was comparatively easy for the backs, stationed as they were behind the line of scrimmage and near the ends, to block the forward passes. But with abolishment of the twenty-yard zone, the secondary defense is left without a base to work from. Now it will be possible to pass the ball as far forward as the team pleases, which means practically as far as a swift end can travel while opposing team is being blocked. To the secondary defense, or to some new arrangement of defense, will be left the task of stopping such plays, and judging by the speed of the ends that was displayed last season it will not be an easy one.

On the other hand, the game as predicted from the new rules, offers exceptional opportunities for a modified form of the old line smashes. With four trials to make the required ten yards instead of the three downs, this year's game promises the use of the plunging play. Plunging under the three-down rule and with assistance prohibited gave little opportunity for long gains where the defense was fairly strong. Now with an additional trial, just that much more chance is brought in play. And besides the secondary defense bids fairly not to have its strong position immediately back of the line and ready to stop any back who tackles. This defense will be watching for long forward passes and the work of playing thirty yards down the field and immediately back of center seems impossible.

So it is indeed a problem, and one that will be watched with interest by every lover of the gridiron game. That such geniuses as Fielding H. Yost and Walter Camp have already formed some plan goes without saying. They have always had plans way in advance. But for the average "rooter" and the coach of less ability, the situation is far from clear and probably will not be till the masters have shown the way.

Gossip Among Sports

Stagg believes in mud balls to condition athletes.

Princeton has won all five games played with Harvard since 1887.

Nobody seems to know what becomes of football coaches during the "off" season.

Wolgast and McFarland will fight. Wolgast and McFarland won't fight. Take your choice.

Griffith says if he can land one more .300 hitter for his outfield he will cop the rag next year.

Sam Crane calls Johnny Evers "the will-o-the-wisp unipractical visionary." It sounds good, anyway.

The veteran Bob Unglaub is said to have applied for a position as umpire in the American association.

A new peril has been added to football in the north of Ireland. They have injected politics into it.

Rube Waddell's winning figures are stated at .825 per cent. for the season. Not so bad for a down-and-outer.

Cornell has been able to win only one game from Pennsylvania in all the years they have met on the gridiron.

Plans are being made to send a squad of American athletes to Australia to take part in some exhibition meets.

Under Joe Birmingham's administration the Naps won eighteen out of twenty-four games, which is going some.

Greedy promoters have been blamed for many things, but they never were a circumstance to the greedy boxers of the present.

Christy Mathewson is willing to pitch any day but Friday. He says he can't remember when he has won a game on that day.

Claude Derrick, formerly of the Athletics, who has been playing with the Baltimore team, is to get another trial in the big show, this time with the New York Highlanders.

Among other things, our notion of a great baseball story is one written by a man who starts out by confessing he didn't take much interest in a game and didn't pay much attention to it.

Clark Griffith believes if he had had Chick Gandil at the start of this season instead of six weeks after he would have been able to cop the big honors.

"Too much is always expected of a champion," philosophizes a noted sporting writer, commending on the game pugilistic. But not nearly as much as the champion expects in percentages.