

The Wonders of Cellulose.

By Professor R. K. Duncan.

THE commonest thing in the every-day vegetable world is cellulose—the material of which are made the cell walls of every plant. Cellulose, which makes up one-third of the plant life on the globe, is capable, like gold and silver, of resisting the efforts of time. When pure, it neither rusts nor decays, but can endure through all generations. Yet, common as it is, it is one of the least understood of substances, and its greatest wonder is the fact that every tiny chip of knowledge we have been able to extract from it has led to the establishment of some new industry, and has added enormously to the resources of mankind.

Line is almost pure cellulose, and so is cotton, and so is silk; yet although the chemical substances are to some extent very different, and their qualities vary with the structure. The paper on which this Companion is printed is made from cellulose—and this would be true whether it were linen or cotton or wood-pulp paper. It can be extracted either mechanically or chemically from the wood. Wood cellulose is not as good or as lasting as cotton cellulose. The chemist cannot distinguish between the difference here, yet a fortune awaits the man who can discover how to make the one as good as the other.

The entire cotton industry is based upon cellulose, and it seems as if it were a mastered science; yet so little do we know about the basic material that even a simple discovery in connection with it can still open the doors to enormous changes. John Mercer discovered that if a piece of cotton, which is pure cellulose, be placed in a strong solution of caustic soda, the cellulose unites with water, the cotton shrinks twenty per cent, and becomes fifty per cent stronger, and it has greater dyeing capacity. But if it be kept under tension so it cannot shrink, the whole fabric assumes the sheen of silk. A great industry has sprung up in the manufacture of "mercerized" goods.

Cellulose will dissolve in a hot solution of zinc chloride, and makes a sticky sirup. When forced through a tiny orifice into alcohol, this sirup precipitates a fine thread, which, when carbonized makes a filament for incandescent lamps. Paper soaked in the solution and worked up forms "vulcanized fiber." Dissolved in another solution cellulose forms a material which renders goods dipped in it water-proof, and such goods pressed together form bullet-proof sheets, such as were used for barricades in South Africa. Dissolved in nitric acid, the cellulose forms gun cotton, a high explosive; by a slightly different treatment it becomes collodion, and by another, collodion.

One of the newest and most wonderful of its uses is in the manufacture of artificial silk from "viscose," or cellulose mercerized and dissolved in carbon disulphide. Forced through tiny holes by tremendous pressure, it issues in threads which solidify and are led to bobbins, eventually passing through the spinning and weaving processes to emerge lustrous silken goods.—Harper's Magazine.

A Women's Co-operative Store

By Velina Swanston Howard.

THE city of Stockholm, Sweden, can boast the only women's co-operative store in the world. Shareholders, management, buyers and sellers are all women. Only two men are employed; these drive the delivery wagons. Miss Anna Whitlock, leader of the woman suffragists in Sweden, was the promoter of this scheme. Her appeal was to the cultured women of small means. She outlined the possibilities of this movement in talks before the women's clubs of Stockholm. Her propaganda met with favor in the Fredrika Bremer association, Students and Workers, White Ribbon and the Woman's Club.

On April 5, 1905, Svenska Hem, as the women's co-operative society is called, was incorporated, with a membership of 291 women and a capital of about \$6,000. Quarters were found in Jacobsberg, Gatan, and the women went to work with a will attuned, and plenty of enthusiasm.

But they found themselves, as the Americans say "up against it!" They were boycotted on all sides. The retail dealers made up their minds to crush these women, who had dared to compete with them. The women soon learned that the markets of their own country were closed to them, for every wholesale dealer had been warned. To sell to these women would be nothing short of suicidal! It meant the loss of all other customers. Drivers, who deliver to retailers, were also warned, but they got around the thing by making night deliveries. They did not dare, however, to drive boldly up to the women's store, as detectives were always on the alert, but they stopped in a side street, some distance away, where the women sent their workmen to haul barrels, sacks, etc., to their own storerooms.—Good Housekeeping.

The Wife of a Brilliant Husband

By Mary Stewart Cutting.

IT is no doubt a most bewildering thing to a woman if she does see that her husband is distancing her. There are so many kinds of being clever that a man is expected to be that it isn't especially daunting to find him cleverer than she expected. But when his brains and his efforts raise him into a society where she has no foothold, where not only the men are on this different plane, but the women also, then she becomes conscious that there is a new condition of things.

She can let him move in this orbit entirely without her and drop down to the home level when he comes back there. She can try to take her place with him, defiantly, with the feeling, "I guess I'm as good as they are, anyway!" or humbly and sensitively, feeling every mistake, every lapse self-consciously. That is the trouble, that terrible self-consciousness that will not let her sit, or smile, or speak or hold her hands naturally, in the presence of people who know so well how to do these things. She can only answer questions, and that badly; she can't converse with them. If by chance she forgets herself and does talk naturally she suddenly feels as if she has said the wrong thing and that her husband is ashamed of her. She knows that he looks and talks like the other people, and she doesn't, and she knows that he knows it.

No one can be fitted either mentally or socially for another sphere of life by precept, but one's mind can learn a wider range even by reading novels and magazines of the day and talking about what is read. A very slight article may sometimes call out a real interchange of thought if one talks about it.—Harper's Bazar.

Japanese Morality.

By J. Ingram Bryan, M. A., M. Litt., Professor of English in the Imperial College of Commerce, Nagasaki.

JAPANESE observers assert that at present Buddhism has no influence in China, and the statement is still more true of Japan. The average Japanese who has any conception of the difference between one religion and another, feels that Buddhism has a scant message for the twentieth century. The real religion of Japan is Ancestor Worship—a reverence for, and service of, departed ones whose spirits are believed ever to pour their mighty forces into the life of today. To a large number of the more intelligent Japanese, this creed is no more satisfying to the spiritual nature than the anniversary of a funeral would be to us; and as for the masses, they are slaves to the most blood-curdling superstitions, amounting in many cases to a worship of demons. In a very able article in the "Shin Jin" (New Man), Mr. Ebina contends that notwithstanding its philosophical excellence, Buddhism is destined to be overcome by the practical efficiency of Christianity. Japanese Christians are now exerting a powerful influence at home, and that influence has conspicuously followed the flag into Formosa, Korea and Manchuria. When the main points of the ethics of old Japan, loyalty and filial piety, are consecrated by the social service of a pure and noble character, a great and lasting leadership will be assured to Japan, not only in statesmanship, but in religion and morality.

In this most vital point of all—morality, Japan is weakest, and so long as she continues so, she will lack one of the most essential requisites of assured success. In assisting her to feel rightly on this question, Christianity must prove a potent factor. But at present Japan's social morality is the greatest menace to her advance.

News Notes.
Church and State bill up in the French Senate.
Meetings of scientists at Brown University.
S. A. E. Fraternity elects officers in Atlanta.
Thirteen lives lost in railroad wreck in Scotland.
Dissatisfaction over woman's hotel at New York.

Current Events.
Negro appointed to postoffice position at Hattiesburg, Miss., warned not to accept.
C. W. Perkins and C. S. Fairchild indicted at New York in connection with New York Life Insurance affairs.
Evidence damaging to negro soldiers added in investigation held in Brownsville, Tex., at instance of President Roosevelt.

STEELWORKERS CREMATED IN MOLTEN METAL

Pittsburg Furnace Explodes and Victims Caught in Fiery Rain.

ONLY CHARRED BONES REMAIN

But One Man Escapes Uninjured—Officials Lock Gates—Police Drive Back Widows and Orphans Who Strive to Reach Their Dead.

Pittsburg.—The worst mill disaster in the Pittsburg district in years occurred at 6.30 p. m., when an explosion in the Pittsburg District in years occurred at 6.30 p. m., when an explosion in the Eliza blast furnace of the Jones & Laughlin Steel Company high into the air, raining white hot cinders and metal on the scores of workmen employed there.

Three bodies have been recovered, half a dozen men are believed to have been incinerated, and a dozen victims are in the Mercy Hospital. Several of these will die.

The entire plant took fire, adding to the horror, and two alarms called a dozen fire companies to the scene. Assistant Fire Chief Peter Snyder, in directing the work of his men, fell with a collapsing trestle and was probably fatally injured. Several firemen were overcome by the fumes, and a second explosion hurt many.

The night shift, composed of about sixty men, had hardly gone to work when the explosion occurred. Without warning the accumulation of gas was let go, blowing the top off the furnace and scattering the fiery contents over a radius of 300 yards. The workmen in the mill yard below were caught in the rain of molten iron.

The frame buildings about the furnace were ablaze in an instant, as were the miles of high trestle work from which the cars of ore, coke, etc., are unloaded.

In a moment the greatest excitement prevailed. Men with their faces burned to a crisp, and some with even their hands burned off, ran wildly about, their shrieks of agony sounding above the roar of flames.

To add to the confusion, hundreds of wives, mothers and friends of the workmen who lived in the neighborhood hurried to the scene, knowing full well the terrible results of a furnace explosion. While the shrieks of the injured filled the mill yard, the cries and wails of those battling at the gates could be heard for blocks. The managers refused admittance to any one and for a time bedlam reigned.

The injured were placed on board the cars and hurried to Mercy Hospital. One man died on the way, and after the injured had been taken from the scene, continued to the morgue with his body. This was the first intimation the morgue officials had that any accident had occurred.

Deputy Coroner Hugh Dempsey was at first refused admittance. At the base of the furnace he found the charred leg of a man protruding from the pile of still red-hot cinders. He at once ordered that a search be made for other victims. A gang of men was put to work, and within a few minutes two more bodies were unearthed.

All three of the bodies were burned beyond recognition, only stumps of the arms and legs remaining. One was not yet dead, though apparently only half of a man.

Dempsey believes that there are at least half a dozen other victims whose bodies will never be recovered. Caught under the thickest of the fiery shower, they were no doubt burned to ashes that mixed with the cinders thrown from the furnace. Several pieces of charred human bones were found, which indicates that this theory is correct.

TO CLOSE CARLISLE SCHOOL.

Senate Sub-Committee Strikes Out the Appropriation For It.

Washington, D. C.—Carlisle Institute, which was established at Carlisle, Pa., in 1879, for the higher education of the Indian, may be abolished. The sub-committee of the Senate Committee on Indian Affairs has agreed to report an amendment striking out the appropriation for this school. They say that a school so far away from Indian reservations is not so effective as the Western institutions, and that not many Indians have benefited by the higher education.

The appropriation bill, as it passed the House, carried \$169,000 for the support of the school for the year.

GRIP AFFLICTS BALTIMORE.

Mild Weather Responsible For the 100,000 Estimated Patients.

Baltimore, Md.—There are 100,000 sneezing, snuffling, feverish persons in Baltimore, according to the estimates of Health Commissioner Bosley. Grip in a mild form is epidemic, and physicians have their hands full. Pneumonia is also prevalent.

Kaleidoscopic weather changes are responsible. The mercury rose to seventy-four, the highest in any January of the records of the local Weather Bureau. A severe thunderstorm, a peculiar phenomenon for January, started the citizens.

Ten days ago the river and bay were full of ice. Freezing weather prevailed all over the State.

No Need For Coolies.

The Congressional committee which inspected the work on the Panama Canal arrived in Washington, D. C., and reported progress, with no need for coolie labor apparent.

Cortelyou Resigns Chairmanship.

Postmaster-General Cortelyou announced his retirement as chairman of the Republican National Committee. Harry S. New will be acting chairman.

THE SHAH OF PERSIA DEAD

Eldest Son Succeeds to the Throne at Teheran.

The New Shah Was Born in 1872 and is Liberally Educated in French and English.

Teheran, Persia.—Official announcement of the death of the Shah was made from the office of the grand vizier. The news was received quietly.

The heir apparent and the Ministers were summoned. The women of the palace also began preparations for mourning.

Soon after sunset the doors of the harem were closed. This was the sign that all was over.

Muzaffar-ed-Din, late Shah of Persia, was born at Teheran March 25, 1853, and succeeded his father, Nasr-ed-Din, on the death of the latter on May 1, 1893. Muzaffar-ed-Din was the second son of Nasr-ed-Din, but had been appointed heir to the throne. Previous to his accession he was Governor-General of the Province of Azorbaljan, his elder brother, Masud-Mirza, being Governor of Ispahan. Nasr-ed-Din was assassinated in the mosque of Abdul Azim, near Teheran. While Muzaffar-ed-Din ascended the throne the same day, it was not until June 8 following that he was formally invested with sovereign power.

The late Shah visited Europe in 1900, and while in Paris an unsuccessful attempt upon his life was made by an anarchist. He again went to Europe in 1902, visiting Germany, England, France and Russia. In 1905 he made another European trip, visiting the Czar at St. Petersburg.

Long before that reports were circulated that the Shah was suffering from melancholia. He had a fainting spell owing to the heat while in Paris July 6, 1905, and in February, 1906, it was reported that he had a stroke of apoplexy. Last May he was again reported seriously ill.

Last August, as the result of long continued agitation and many disturbances of a serious nature, the Shah granted a constitution to Persia, with a national Assembly and other reforms.

The late Shah leaves many children, and is succeeded on the throne by his eldest son, Mohammed Ali Mirza, until now Governor of the Province of Azorbaljan.

The new Shah was born in 1872. He has shown strong force of character and marked energy and ability. He is a devoted sportsman, being particularly attached to motoring and hunting, and he received an excellent education, both Persian and European.

Muzaffar-ed-Din's fortune is reported to amount to \$10,000,000, most of it represented by diamonds, the largest, the Derya-i-Nur, of 186 carats, and the Taj-i-Mah, of 146 carats, being among the crown jewels.

PAVLOFF SLAIN BY TERRORIST.

Czar's Procurator Long Marked For Death.

St. Petersburg, Russia.—General Pavloff, Chief Military Public Prosecutor, was shot and killed at 9 o'clock a. m. in the courtyard of the Military Tribunal, where he had his official residence. The assassin, who was disguised as a private in the Army Service Corps, fired three times with a revolver and then ran down an adjoining street. He killed a policeman and wounded another and injured several other persons before he was arrested.

The name of General Pavloff was among those of the twenty-seven functionaries condemned to death by the Terrorists, a list of whom was found by the police in the series of domiciliary visits they made in St. Petersburg and Moscow last month.

After the murder of General von der Lantini, the Prefect of St. Petersburg, on January 3, the revolutionaries succeeded in circulating a manifesto declaring that their dictates would be carried out and that the work of extermination would be prosecuted until the last remnants of the present regime had been destroyed.

SUITS AGAINST GOULD MERGERS.

Attorney-General of Missouri Moves Against Washab and Other Roads.

Jefferson City, Mo.—Suits to dissolve the alleged merger of the Washab, Missouri Pacific and Iron Mountain railway companies and the Pacific Express Company, and to revoke the licenses and charters of the Pacific Express Company, American Refrigerator Transit Company, Western Coal and Mining Company, Rich Hill Coal Mining Company and Kansas-Missouri Elevator Company were filed in the Supreme Court by Attorney-General Hadley.

TO INVESTIGATE BAILEY.

Resolution in the Texas Legislature Signed by Twenty-eight Members.

Austin, Texas.—A resolution providing for a sweeping investigation of the conduct of United States Senator J. W. Bailey was introduced in the House of Representatives of the State Legislature.

It is signed by twenty-eight members of the Legislature. Senator Bailey's term expires on March 4.

Pastor in Church is Made Governor.

The Rev. Dr. Henry A. Buchtel, Chancellor of Denver University, was inaugurated as Governor of Colorado in a church. He wished to take the oath in Trinity Methodist Episcopal Church, of which he had been pastor.

Chinese to Regain Manchuria.

Chinese commissioners sent to Manchuria have recommended an attempt to regain the railroad and mining privilege granted to the Russians and Japanese.

THE MARKETS

Wholesale Prices Quoted in New York

MILK.

The Milk Exchange price for standard quality is 3 1/2c. per quart.

BUTTER.

Creamery—Western, extra.	33	@	33
Firsts.	29	@	31
State dairy, firsts.	27	@	28
Seconds.	24	@	26
Factory, thirds to firsts.	18	@	21 1/2

CHEESE.

State, full cream, fancy.	13 1/2	@	14 1/2
Small.	13 1/2	@	14 1/2
Part skim, good to prime.	7 1/2	@	8 1/2
Full skims.	2	@	3

EGGS.

Jersey—Fancy.	—	@	30
State—Good to choice.	25	@	28
Western—Firsts.	25	@	28

BEANS AND PEAS.

Beans—Marrow, choice.	—	@	2 30
Medium, choice.	1 52 1/2	@	1 55
Red kidney, choice.	2 30	@	2 35
Peas.	1 47 1/2	@	1 50
Yellow eye.	2 05	@	2 10
Black turtle soup.	2 10	@	2 15
Lima, Cal.	2 85	@	3 00

FRUITS AND BERRIES—FRESH.

Apples—Greenging, per bbl.	1 50	@	3 00
King, per bbl.	2 00	@	3 25
Ben Davis, per bbl.	1 50	@	2 50
Cranberries, C. Cal., per bbl.	4 00	@	9 00
Jersey, per bbl.	6 00	@	7 00

LIVE POULTRY.

Spring chickens, per lb.	—	@	12 1/2
Fowls, per lb.	—	@	14
Roosters, per lb.	—	@	10
Turkeys, per lb.	—	@	14
Ducks, per lb.	—	@	13
Geese, per lb.	10	@	11
Pigeons, per pair.	—	@	25

DRESSED POULTRY.

Turkeys, per lb.	11	@	17
Chickens, Phila., per lb.	18	@	25
Fowls, per lb.	8	@	13 1/2
Geese, spring, per lb.	8	@	15
Ducks, spring, per lb.	8	@	15
Squabs, per dozen.	1 50	@	4 75

HOPS.

State, 1906, choice.	21	@	23
Medium, 1905.	9	@	11
Pacific Coast, 1906, choice.	16	@	17
Prime to choice, 1905.	12	@	14

HAY AND STRAW.

Hay, prime, per 100 lb.	1 10	@	1 15
No. 1, per 100 lb.	85	@	1 00
No. 2, per 100 lb.	85	@	1 00
Clover mixed, per 100 lb.	75	@	1 00
Straw, long rye.	60	@	65

VEGETABLES.

Potatoes, State, per bbl.	1 37	@	1 50
Jersey, per bbl.	1 25	@	1 45
Sweets, per bbl.	1 50	@	2 50
Tomatoes, per carrier.	2 00	@	2 00
Egg plant, per box.	1 00	@	4 00
Squash, per bbl.	7 00	@	1 25
Peas, per basket.	—	@	1 00
Peppers, per carrier.	1 50	@	4 00
Lettuce, per basket.	60	@	3 00
Cabbages, per top.	9	@	12 1/2
String beans, per basket.	2 00	@	8 00
Onions, Ct., white, per bbl.	2 00	@	5 00
Orange Co., per bag.	75	@	1 50
Carrots, per bbl.	1 25	@	1 75
Beets, per bbl.	1 00	@	1 50
Turnips, per bbl.	65	@	80
Celery, per doz. bunches.	15	@	50
Okra, per carrier.	2 50	@	2 50
Cauliflower, per bbl.	3 00	@	9 00
Brussels sprouts, per qt.	—	@	1 25
Parsley, per 100 bunches.	1 00	@	2 50
Pumpkins, per bbl.	50	@	1 00
Spinach, per bbl.	1 25	@	1 50
Watercress, per 100 bunches.	1 00	@	1 50
Kale, per bbl.	90	@	1 00
Shallots, per bbl.	—	@	1 50
Radishes, per basket.	1 25	@	2 00
Parsnips, per bbl.	1 25	@	1 75
Horseradish, per bbl.	5 50	@	6 50

GRAIN, ETC.

Flour—Winter patents.	3 00	@	3 75
Spring patents.	4 10	@	4 90
Wheat, No. 1, N. Duluth.	—	@	85 1/2
No. 2, per 100 lb.	79	@	80
Corn, No. 2 white.	—	@	50
No. 2 yellow.	—	@	49 1/2
Oats, mixed.	39	@	39 1/2
Clipped white.	40	@	44
Lard, city.	—	@	9

LIVE STOCK.

Beeves, city dressed.	7	@	9
Calves, city dressed.	8	@	14 1/2
Country dressed.	8	@	12 1/2
Sheep, per 100 lb.	4 50	@	6 50
Lambs, per 100 lb.	8 00	@	8 50
Hogs, live, per 100 lb.	6 85	@	7 10
Country dressed, per lb.	8 1/2	@	10

BUSINESS OUTLOOK IMPROVED.

Labor and Facilities Are in Demand For Trade Expansion.

New York City.—It is not difficult for even moderate optimists to see improvement in the market outlook. There is nothing new in the country's prosperity conditions—they simply stand pat. Men in every branch of business, everywhere, are making money. Ordinary limits are far surpassed. Actually the chief difficulty to-day is to obtain facilities whereby to meet the requirements of trade expansion. This is true upon the great railway systems only more conspicuously than elsewhere—relatively the proportion exists in virtual universality. In all important departments we outrun supply. Capital is short of labor, using all available, having need for vastly more than can be commanded, and labor is short of time—offers of employment, appeals for help, running stuporously beyond what all the men in all the hours can anywhere near supply. This is the cause, the gist, the meaning, of what is so much called "the embarrassment of prosperity." To folks unlighted by the superior wisdom of professional Wall Street this sort of thing might hardly be hooted at as calamitous for security values, but so it has been for a full year past. Wherefore, the hearty reception extended here at the New Year's opening to a few signs that some sentimental change appears.

No Dullness in West.

It is especially noticeable in dis-patches from the West that there was less than the customary lull in business during the holiday season, while bargain sales are rapidly disposing of the moderate supplies remaining on hand.

Few Railways Bankrupt.

During 1906, six railroad companies have gone into the hands of receivers. The mileage of these roads was 204 miles, the smallest total for any year since 1881, with the single exception of 1901.

Strength of Prices.

Prices of staples show remarkable strength, and iron and steel, leather, raw wool, cotton and cotton goods display notable firmness.

GENERAL NEWS CONDENSED

News of Interest Gathered From All Parts of the Country—Paragraphs of More or Less Importance—What the World's Doing.

Col. Patko Andrieff, Chief of Gendarmes in the Lodz district was assassinated.

The assassin of General Pavloff was sentenced by court-martial to be hanged.

Severe earthquake shocks are reported from Norway, Sweden and Russia.

Corporal Knowles, of the Twenty-fifth Infantry, will be tried by court-martial for attempting to kill Captain Mackinn.

The gold production of the United States