

MAN'S AIDED EYE EXERTING ITS MIGHT IN SEARCH OF OTHER UNIVERSES

One of the most impressive indications of modern scientific progress comes from the field of astronomy, says the Washington Post. The limits of the universe are now being reached by the strong eye of the photographing telescope. In the view of some star specialists. Enough observational basis for the belief has already been added to philosophical grounds for the conclusion that the extension of matter in void space is not infinite but finite, to create a sharp difference of opinion which is receiving the serious attention of the highest and most judiciously minded authorities.

This conclusion is counter to the conception more popular with the unknowable worshipping past. The view still held by the mass of people who



terung deals only with about half of the heavens visible from the earth, owing to the lack of enough observatories, so that the stars of first to ninth magnitude number about a million. Professor Skinner stated that the stars already seen with the aid of modern instruments number several million, of these only a small fraction being definitely located, catalogued, and counted.

The task to which astronomers set themselves twelve years ago was so divided among the prominent observatories that to the Washington Institution was assigned the zone lying between 14 and 18 degrees southward from the zenith, each observer slightly overlapping or duplicating the work of his neighbor to make the strips match positively. Another year of observation and computation will complete the part assigned to the Washington Naval Observatory. The work involved accurate observation at different times of every one catalogued, including 300 zero or base stars, from which the position of the others are reckoned, so that about 20,000 observations had to be made. Further, every hour spent in observation required at least three hours of mathematical computation.

In recent years the equipment of twelve-inch telescopes with photographing attachments has greatly extended the range of human view, for while the eye, tiring, sees less in protracted watching, the photographic plate, accumulating impression with time, sees more. Professor Skinner found it especially serviceable in distinguishing the minor asteroid planets from fixed stars, and remarked that its capacity for seeing what the eye could not see through the telescope was notable in the case of the discovery of a maze of nebulae in the field of the pleiades where with the eye hardly any nebulous trace was discernible. The photographic method of cataloguing stars has been quite successfully used in Europe.

"These plates," said Professor Skinner, "give very accurate results, but the method is yet too new for us to depend entirely upon it."

The work upon which he is engaged has been done entirely by telescopic eye observation, and the Naval Observatory has not so far been equipped with an instrument for doing the same thing photographically. It would cost \$50,000.

Speaking of the financial support given scientific work, Professor Skinner remarked:

"Many private and university observatories are handicapped because the donors do not understand the full requirements of the work. Such is true of the observatory in California to which Mr. Yerkes, the late street railway magnate, gave the big telescope. Wealthy men are inclined to give liberally enough for equipment that people can see and touch, but are apt to forget that it requires several times as much money to use an instrument than it costs, in order to bring the results for which it is supposed to be designed; results, of course, which only the learned can fully appreciate."

give thought to the subject at all is expressed by a German poet, who wrote in the earlier decades of the past century of a man "called into the vestibule of heaven, stripped of his robe of flesh," and guided by "a mighty angel through long reaches of planets circling on the right and left and vast Sahara of darkness" at such velocity that "the light with lesser speed came on to meet them." The dream poet voiced the conviction of his times by narrating that finally "the man sank down, crying: 'Angel, I can go no further, for end there is none!'"

"Some astronomers now state their belief that we can see through the expanse of nebulae and stars to outside vacancy," said Professor Aaron N. Skinner, who, in charge of the equatorial work at the United States Naval Observatory, is making a catalogue of 9,000 of the known stars. "But," he added, in the course of his talk with a Post reporter, "the question arises, Should it be true that we can in time penetrate even to the limits of the ether of our universe, what is there beyond, across space which light cannot traverse? Indeed, we might assume the existence of a plurality of universes, beyond any hope of cognizance by us, just as there are a plurality of suns that we can see. For myself, however, I am too busy with the more tangible work I have on hand here to indulge much in these speculative discussions."

Professor Skinner is now nearing the end of twelve years' work occupied in definitely cataloguing a strip or zone of the 500,000 stars approximately catalogued between 1850 and 1860, comprising a list known as the Bonn Durchmusterung. In later years, also under German initiative, the leading observatories of the world undertook the tremendous job of determining the exact position of these half-million stars, being those down to the ninth apparent magnitude. (Stars become invisible to the unaided eye at the sixth magnitude.) The Bonn Durchmusterung

MILITARY TACTICS IN CHINESE SCHOOLS.

An Eastern correspondent writes: "While visiting the native city I entered the courtyard of the yamen, or magistrates' official quarters, and saw a number of youngsters being drilled by an instructor in uniform. They went at it most energetically and carried out the simple movements in an

Our Billions of Ancestors.

Has anybody ever stopped to think how many male and female ancestors it took to bring us into the world? First, of course, it was necessary to have a father and mother, and our father and mother must have had a father and mother, and so on back through fifty-six generations to the time of Christ.

A careful calculation of all these ancestors shows that there must have

FALL OF SOOT IN BIG CITIES.

Soft Coal Smoke Sends Down Eighteen Tons Daily in Cincinnati.

A scientific investigator in Cincinnati has been trying to arrive at a definite idea of the amount of soot deposited in the city in the course of a year. One of his tests was to place buckets, three-fourths filled with water on eleven roofs in different parts of the city. At the end of three months a careful analysis was made of the contents of the buckets to ascertain the amount of carbonaceous matter.

The final computation is that in the downtown area the falling soot amounts to 541 tons a month, or eighteen tons daily. On a square mile of the city the soot deposit is 171 tons a month, or 343,728 pounds, an average of several pounds to each inhabitant. In one of the suburbs the soot in the bucket was 464 grains to the square foot for a period of thirty days. For the same time the deposit at a central point in the city was 22,550 grains to the square foot.

Other cities that burn soft coal need not flatter themselves that they fare much better. A glance out at the window tells the story. In many parts of a sooty city the trees and flowers are coated with grime and often refuse to grow. The smoke cloud injures health in several ways, one of which is the shutting out of the sunlight that destroys disease germs. That soot is deposited in human lungs is a fact well known to surgeons.

These figures were laid before a smoke abatement league meeting in Cincinnati, and it was resolved to ask the next legislature for more stringent anti-smoke laws. The present methods of smoke abatement are visibly unsatisfactory and the opinion is widely held that relief must come through some means not yet attained.—Pittsburg Dispatch.

Finishes It.

"When you have written a story do you not go over it and give it a finishing touch?"

"No; the first editor I send it to usually does that."—Houston Post.

Chinese Mourning Custom.

During thirty days after a death in China the nearest relatives of the deceased do not shave nor change their clothes.

A Lost Subscriber.

The Kedah postoffice authorities have a somewhat blunt way of putting things. Copies of a Penang paper posted to a subscriber were the other day returned marked "Addressee hanged for Murder."—Bangkok Times.



THE MAKING OF A NEW ARMY.

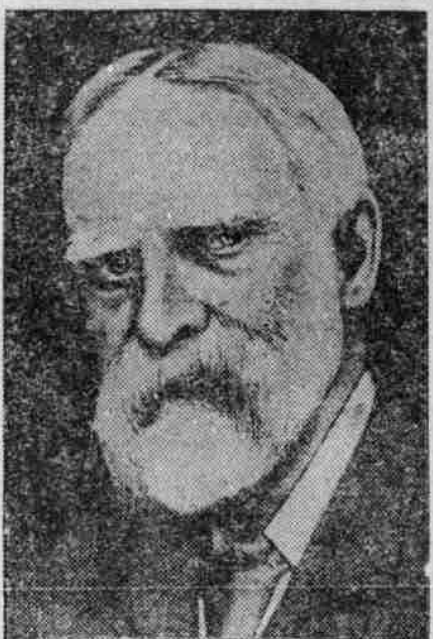
excellent manner. My guide—who, like many Chinese, can not negotiate a word beginning with the letter y—proudly drew my attention to the fact that these boys were 'lung soldin.' It is notorious that this sort of thing is going on throughout the empire. Whether any significance can be attached to it remains to be seen. The boys were all dressed in jumpers and pants of rusty black. Their drill was watched by a mandarin, who was dressed in silk robes down to his heels. He wore also a silk tunic of dark chocolate color decorated with many trinkets and he had an embroidered pouch hanging from a girdle underneath his jacket. The drill instructor wore a white uniform. These and other signs indicate military awakening.

If a man can afford a motor boat he doesn't have to paddle his own canoe.

HON. JAMES BRYCE.

New Ambassador of England to the United States.

The appointment of Hon. James Bryce to be ambassador of Great Britain at Washington seems to give genuine satisfaction in both countries. Mr. Bryce is one of the ablest men in the public service of England and the fact that he refused a title on being selected for the post shows the stamp of his democracy. Mr. Bryce at present is secretary for Ireland and has been engaged for some time upon important reform measures for that country. He is secretary for Ireland and has work and would have refused to abandon it for any other diplomatic mission. The attraction of the Washington post, however, was too strong to be resisted and he comes to the United States with a genuine admiration for the republic.



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Mr. Bryce has represented Aberdeen in Parliament since 1885. He has been under secretary for foreign affairs and president of the Board of Trade. He was born in 1838 and at one time was professor of civil law at Oxford University. He is the author of the American Commonwealth, one of the few works by foreigners which reflects a clear understanding of American affairs.

LEGAL INFORMATION.

A stepchild will not inherit property from its stepfather.

If hens go on the land of a person and do damage, suit can be brought against the owner of the hens for all damage caused.

Any person can free his land from surface water by digging a ditch, and will not be liable if the water is turned on to the land of another.

In Michigan a marriage license must be obtained from the County Clerk of the county in which either the man or the woman resides. If both parties are non-residents, the license must be obtained from the County Clerk of the county where the marriage is to be performed.

Adultery is a cause for divorce. If a man lives with his wife after learning she is guilty of adultery, it will be considered a condonation of the offense, and he cannot procure a divorce. This will not prevent him from procuring a divorce for a later offense of a similar nature, or for any other cause allowed by law.

The father and, in case of his death the mother, are the natural guardians of a minor. If the Probate Court deems the father or mother incompetent to care for the property of a minor, it may appoint a curator to do so. This will not be done in the case of a person of unsound mind. In such a case the court will appoint a guardian to care for the person and the property.

If stock yards are maintained in such a condition as to constitute a nuisance a suit in equity can be brought against the owners, damages asked for and a request made that an injunction be issued restraining the owners from longer continuing the nuisance. It is a question for the courts to decide as to whether or not, under all the circumstances, a nuisance is being maintained.

If a woman dies leaving a husband and children, the husband takes one-third of the property and the children the balance. If a man dies leaving a wife and children, she takes one-third and the children the balance. A valid mortgage on real estate binds the property, and the rights of other creditors and heirs are subject to such mortgage. The holder of a note not secured by mortgage will stand on an equal footing with other creditors.

Endless Trail.

Gomer Davies, of Concordia, tells a story about a wooden-legged man, although he denies being the one to which it refers. "This man," says Davies, "was going home after being at a latrine, along about 13 o'clock in the morning, when his leg peg went through an augur hole in the plan sidewalk and he kept circling about that hole all night, thinking he was going home."—Kansas City Star.

Definition Given by a Cynic.

"What is reform?" asked the argumentative man.

"Reform" answered the world-weary, "usually consists in merely convincing a man to stop doing things his way and making him do them yours."—Washington Star.

MONUMENT TO COMMODORE PELBY.



VICTORY MONUMENT AT PUT-IN-BAY.

Put-in-Bay, nature's beauty spot, will be made more beautiful and attractive than ever by a monument which is being erected in recognition of Commodore Perry's great victory near the island. The monument is being put up at an expense of more than \$2,000, most of which has already been raised by popular subscription.

The statue is of the Goddess of Victory and is a reproduction of Alphonse Teltzer's masterpiece. It will be made of copper bronze with the antique oxidized finish. The statue alone is ten feet high and is mounted on a twelve-foot pedestal of the beautiful and peculiar natural stone of the island. The pedestal will bear inscriptions telling of the victory. The wings of the goddess are two feet high and have a spread of seven feet from tip to tip.

The entire statue is mounted on a battlement wall foundation and parapet arrangement, the parapet being twenty-six and a half feet square. It is enclosed by a stone balustrade with stone abutments or posts at regular intervals. A grass line surrounds the pedestal in which will be planted flowers and green sod.

The approach to the monument is in peristyle effect. It is hedged with six pillars with tops surmounted by large glass globes with which to illuminate the spot at night. The columns are graduated in height, the tallest being nine feet and ranging from that down to the six-foot pedestals which will be surmounted with stone jardinières for flowers. These are all connected by the balustrades.

The approach is twenty feet deep and thirty feet across the front with concave sides and a convex front. A five-foot walk on the parapet encircles the statue so that it may be viewed from all sides.

BALLOONING ACROSS THE ALPS.



Two Italian aeronauts, Signori Uselli and Crespi, crossed the Alps in a balloon called "Milano." They started from Milan and descended at Aix-les-Bains, having passed across Mont Blanc. The photograph was reconstructed from materials supplied by the voyagers. Recently Mr. Leslie Bucknall left the Wandsworth gas works and in sixteen hours descended on the River Loop near the Lake of Geneva, a distance of over 420 miles. In the darkness the aeronaut located the proximity of the Alps by the echo. Had he had a reserve of gas he would have crossed the mountains.

FIRE IN THE SKYSCRAPER.

Chief Danger Is the Inflammable Office Furniture.

The construction of the new Singer building in New York, a lofty tower of forty-two stories, 612 feet high, leads the Journal of Fire to speculate on the consequences of a fire in this structure or in any very high steel frame building. It concludes that the average skyscraper is too high for adequate fire protection and that when such a building begins to burn the people in the upper stories will have to sit down with such calmness as they can muster and wait for it to be put out—or for the alternative.

"The danger is not so much to property as it is to life and for this reason matter deserves careful consideration," says the paper named above. "The modern office building contains a small army of occupants, both men and women, and the endangering of these is a great responsibility."

"The skyscraper as a fire risk has not been sufficiently tested to justify any conclusion as to its fire safety, but judging by present knowledge and experience it represents a serious fire possibility. The question of safety for the occupants may be passed by in the belief in the 'fireproof' capacity of the building, but this belief is a delusion and a dependence on it is likely to result disastrously. The results of the Baltimore and San Francisco conflagrations were not needed to demonstrate the falsity of the 'fireproof' idea, for New York's fire experience was amply sufficient for this."

"The so-called fireproof building is fire proof only as regards the structure itself and this only to a limited extent. The building, as such, does not assure the safety of the inmates nor the security of the contents and as regards fire danger to life it is the part of prudence to consider it from the standpoint of an ordinary building. It must be conceded that in an office building it is possible for fire to start and the smoke, heat and flames to spread throughout, making it impossible to use the stairways and elevator as exits. Under the circumstances it is to be expected that a number of persons will be imprisoned above the fire and their safety dependent upon circumstances."

"The possibility of a serious fire in an office building is generally discounted on the ground that office buildings do not contain enough fuel for a considerable fire, but whoever entertains this notion should look about and estimate the quantity of combustible materials contained in an office in the shape of desks, cabinets, rugs, papers, etc. It is true that the usual office occupancy is not such as results in frequent fires, but there are the hazards due to the heat, light and power and in many instances offices are used for comparatively hazardous purposes. At the same time among thousands of offices it is reasonable to expect a certain proportion of fires and among these some that will get headway and result in a considerable fire."—Translation in Literary Digest.

Poor Memory Somewhere.

Mother—Tommy, what did I say I'd do to you if you touched that jam again?

Tommy—Why, it's funny, ma, that you should forget it, too. I'm blamed if I can remember!—Philadelphia Telegraph.

Old Law for Hours of Work.

As early as 1847 a law was passed in New Hampshire making ten hours a legal day's work.