IMMENSITY OF THE UNIVERSE

BY EDGAR L. LARKIN, Lick Observatory.

The star No. 1830 Groombridge is 200 floor; but surely it is on display—its shimmer and sheen are splendid always on the clerest, darknest nights.

Whatever it may be it is the most amazing object within the range of the vision of man. Suppose that the star second. Now imagine that no matter second. Now imagine that no matter the quantity within. A mass must be found inside the orbit great enough to exert attraction sufficient to baiance attraction sufficient to baiance as speed of 200 miles per second at a disspeed of 2

the radius of the orbit, and 200 squared stellar hosts are appearing one by one. I must open the dome and be ready for lion equals 0.00000000002 of a mile actendency of the flying star. Next compute the gravitational acceleration expute the cariess garments of night even to the sea, and drag them along in its watery waste.—Chicago Tribune. erted by the mass of our sun at a distance of 200 trillion miles. Gravity LONDON OF DICKENS equals mass divided by the square of distance. The mass and radius of our sun each equals 1. The radius of the sun is 433,000 miles; but in this example, to avoid minute fractions, call it 400,000 miles. Then 200 trillion divid- LANDMARKS ARE DISAPPEARING last sleep in the companionship of our ed by 400,000 is equal to 500 million, which, squared, gives a product of 250

Take a stone to within a mile or two of the surface of the sun and let it that the face of it is constantly underfall. At the exact end of the first going a change. That the changes are, second of time the stone will be falling in the majority of cases, for the betwith a velocity of 0.17 of a mile per ter there is no doubt, but when the second. This is the acceleration caused hand of the "improver" falls it strikes Glad Christmas Day is here again, by the attraction of the sun upon the heavily, and there is hardly an im-200 trillion miles from the sun and drop does not rob London of a landmark of it. At the end of the first second it importance. will be descending with a speed of And so it is with the London which by dividing 0.17 by 250 quadrillion. But London left to us nowadays. it measures the power exerted by the The great illusion—threatened times And sister Zella got a hood she'll be mass of the sun at a distance of 200 without number—is there, however, trillion miles. The actual acceleration and we are wont to fondly gaze at it Because its color clashes with the colof 1830 Groombridge is enormous in and fancy that Little Nell really did comparison, 300 million! That is, there live there at the Old Curiosity Shop of And must be enough matter within the or- Lincoln's Inn Fields; but there is not

star to be now moving on a straight vanished bit of Old London. orbit, and consider it to be at the cenmuch matter must be added to the mass within the sphere to impart eight times the central velocity of the falling star? If we double the mass, we do quadruple mass to double velocity. That is, mass is proportional to the squared equals 64, which, multiplied by 500 million equals 32 billion. And this is the true number of suns like ours, dispersed in a sphere of 30,000 light ing, if it is now anywhere near the of "Pickwick" were written. center. But if it is not near the center Almost opposite, and "behind the

mass of each of the 32 billion suns, and looking for Old Bourne that has long by his own industry and sterling be increased by a minute fraction only. Inn." The planets of the universe and satellites are mere residuals, and could all come Dickens' London left us. Those that a serious illness by Dodd's Kidney Pills to an end without disturbance in the are still preserved are almost intact. wast machine. Multiply 32 billion by 8, and Staple Inn is no exception. Dickers "For a year or more I had Kidney the product, 256 billion, is the total nummust have had a great fondness for Trouble in all its worst symptoms," 'runaway star," our wondrous 1830 G., is several quadrillion miles from the center of the structure, the stellar cosmos-and t may as well be as not-then the sidereal mass is vastly larger than that in billion suns as massive as ou The diameter of a sphere of 30,000 light years is 176 quadrillion miles.

rom an observatory in Illinois, on a flat or separate suns. Or every object in the universe is immersed in nebula; the appearance of a background being had from dooking through its frightful depths. If not, then the inconceivably remote foundation, the floor of the universe, is made of suns sunk in such terrifice deeps that and one-man years I have not discovered an opening in the background, open corridors in the depths of infinitude, void of white over its ugly portals" the mys-And of the gentle Christ that died For sinners, once upon a time. from separate suns, our 32 billion is a vanishing quantity. It is no use to write sextillion, octillion, for they are idle, useless words. They make no impress on minds weak minds like ours. I do not Ceel that I am mistaken in regard to this which "might mean Perhaps John doundation. I am convinced that it is not due to our air, pure or impure, and Mr. Grewgious lived. There is a

The star No. 1830 Groombridge is 200 floor; but surely it is on display-its shim-

from cosmical computations. Perhaps Centrifugal tendency equals the lion and billion and put trillion. But night square of the linear velocity divided by is now coming on apace; sentinels of the this is the time to drop the world's miloming splendors. Sagittarius will celeration per second due to centrifugal the carless garments of night even to the

BEING TRANSFORMED

FROM THE THAMES.

London is so great, so boundless,

This decimal is the quotient obtained really there is very little of Dickens'

like ours, if no other matter exists as this was the home of that sweet child and her grandfather.

sensitive plate records only 100 million. passed away one of the great delu-And many are more than 200 trillion sions of Charles Dickens' London will miles away, and, therefore, outside of have passed away too, and if we are the orbit of the Groombridge star. This modifies the problem. Imagine the we shall certainly mourn its loss as a

ter of a finite universe of stars. And Lant street-or at least that part of Our parson, who is single, and is let these suns be 500 million in number, it where Dickens lived as a boy, and each with a mass equal to that of our where Bob Sawyer held his memorable Got sun; and imagine them to be within a party, has gone; so has the Marshalsphere having a diameter so vast that sea prison of Little Dorrit fame, but a light, moving with a speed of 186 thou- tablet is still there to record the fact. sand miles per second, requires the en- St. George's Church, where Little Dor- Received a splendid set of combs and ormous period of 30,000 years to tra- rit slept on the night of her. "party," verse it. then the velocity of a stone and where she was afterward married, or sun would be 25 miles per second, if still stands. London bridge steps, But while some gifts are not a fit, the it had been falling "forever"—that is, figuring in "Oliver Twist"—although had arrived at the center in from an altered by the recent widening—are stip infinite distance. A mere 25 miles per there. The "curious little nooks in a great place like London"-the Inns of distributed as here given. But 1830 true that Furnival's Inn has disap-Court-are mostly still with us. It is The Groombridge is actually moving with peared altogether, and a great loss to eight times the speed, or 200 miles per Dickens' London it is; for here the young novelist had chambers, and here "Pickwick" was written. Yet for all that Furnival's Inn is not mentioned in the novel. It was Gray's Inn that not double the speed. From the known that the Inns of Court were "curious little nooks in a great place like London," and it was here "up two pairs of He Found His Lost Health in square of imparted velocity. Eight steep and dirty stairs" that Mr. Perker, the little attorney, lived. Gray's Inn has not much changed since then in outward appearance, but, being somewhat distant now from the center Years diameter, required to give 1830 of legal London, it is not so favored Groombridge its known velocity of fall- by lawyers as it was when the pages

then the universe is of greater mass most ancient part of Holborn, London, no better known or more highly where certain gabled houses some cen- respected man in Welland than Mr. J. The mass of all our sister planets is only turies of age still stand looking upon J. Yokom. Born and brought up in 1-745th that of the sun. Add 1-745th to the looking for Old Rougne that has long the neighboring township of Crowland, So shall we learn to understand terminal velocity of fall of 1830 G. would run dry, is a little nook composed of honesty, he has grown to be one of

the Inns of Court, for almost without says Mr. Yokom. "My head was bad, be added to or subtracted from the side-real structure without detection. It mat-exception we find mention of them, for not whether any planets or inhabited more or less in every one of his books. I had no appetite and I lost weight foot. At times I was entirely incaters not whether any planets or inhabited more or less, in every one of his books. fact. At times I was entirely inca-Gray's Inn finds a place in his first pacitated. I doctored with a physician novel; Staple Inn in his last.

A PICTURESQUE NOOK.

spot in all London than Staple Inn. chanced to try Dodd's Kidney Pills. I have watched this marvelous foundabehind the handful of bulging old my case. Five boxes cured me comtion of the sidereal edifice during five houses I do not know. We are con- pletely." tinually hearing that the old houses prairie, I could scarcely trust my eyes. on Holborn are doomed, and when they I never knew that the universe had a fall Staple Inn will fall, too. The old shining floor until I saw it from this mountain summit. I explored it during Staple Inn. Why, I know not, but the every state of the air for more than one every state of the air for more than one year before I dared to publish anything. Staple Inn. Why, I know not, but the average Londoner is, perhaps, hardly be caused by diffusion of light by dust a ware there is such a place. "It is one of those nooks," continues Dickens, or other substances in the upper atmo- "the turning into which from the clash-I was not versed in mountain ing street imparts to the relieved sphere. I was not versed in mountain climatic condition, so gazed in mute wonder. The entire stellar universe is in-The entire stellar universe is indient in a winding sheet—a cloth of cotton in his ears and velvet soles on pearl! After a tremendous fall of rain his boots. It is one of those nooks the air. And then the cosmical floor burns and blazes and glows in the most amazing splender. Even faint traces can to one another, 'Let us play at counbe seen as an excessively thin veil in front or within those black and appalling deeps—the starless fields. Colossal win. deeps—the starless fields. Colossal winders the glorious stars that them to do that refreshing violence to down in the Galaxy are not jet black as them to do that refreshing violence to their tiny understandings. Moreover, seen from here; filmy curtains are actually before these mighty caverns in the it is one of those nooks which are legal This story of the hallowed years basic rocks of nature. This primordial nooks, and it contains a little hall, with cosmical layer is either made of nebula a little lantern in its roof; to what oh. or separate suns. Or every object in the a little lantern in its roof; to what ob-

of suns sunk in such terrifice deeps that passing the tree and the birds, we And now my darling at my side, they are smaller and finer than the finest reach the inner quadrangle, where, in And echoes of the distant chime, powders known to microscopists. In five and one-half years I have not discovered one-half years I have not discovered of chambers "presenting in black and one-half years in the background open cor-

1747

taken thousands of miles from the earth, mournful memory attaching itself to this wondrous and supernatural glow this house in Staple Inn. It was the largest sale of any similar preparation sold in Canada. It always riews concerning the primarilal content of the primarilal state of the primarilal s more cautious than I about publishing last of many London houses infinitely gives satisfaction riews concerning the primordial cosmic ized by Charles Dickens. It is the only the little folks.

Adjacent to Staple Inn is Barnard's Inn, which Pip described as "the dingiest collection of shabby buildings ever squeezed together in a rank corner as a club for tomeats." In those The gray squirrels of Central Park days "Barnard was . . . a disem-

unfurl sidereal sheets of pearl and let fall May 13, 1827, when Mr. Pickwick and a healthy squirrel's menu. his friends started on their memorable The Central Park squirrels live journey; the low archway through largely in colonies, and of these the which the coach passed calling forth the best-known are the ones on Squirrel warning of Mr. Jingle, "Heads, heads; Ridge, running along the West Drive, take care of your heads," has been put too. We are not far off the abbey new where Charles Dickens sleeps his mmortal dead .- London Chronicle.

CHRISTMAS GIFTS.

(Nixon Waterman, in Woman's Home Companion.)

stone. Take the stone to a distance of provement of some sort or other which When all get much they do not want, and little that they need, The baby's jacket, cousin sent,

and father's are too small.

brother Henry got some books bit of the star to make 300 million suns one shred of evidence to prove that And after he had told him, too, he hoped he'd send a sled.

or of her hair.

Received an Indian story book that's so chuck-full of fights tomahawks and scalping knives it makes your blood run cold-She wouldn't read a word of it for twice its weight in gold.

thought to be a prize. nineteen pairs of slippers, every Christmas feast. color, kind and size, And Deacon Gray, who isn't gray, be-

brushes for his hair.

'Twas kindly hearts and loving thoughts that prompted them, spirit that surrounds them all makes everyone seem dear, And Christmas Day shall still be held

ones who get them know

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two irregular quadrangles called Staple Welland's leading merchants. Conse-

of vast experience, but got no good I have presents by the dozen,

"I became despondent of ever being I can conceive no more picturesque well again, when by good luck I How long it will remain hidden away and from the first they seemed to suit

ONCE UPON A TIME.

(Eugene Field.)

My little child comes to my knee, And tugging, pleads that he may climb Into my lap and hear me tell The Christmas tale he loves so well-A tale my mother told to me,

Beginning, "Once upon a time." It is a tale of skies that rang With angel rhapsodies sublime; Of that great host serene and white, The shepherds saw one winter night-

And of the glorious stars that sang

Bring that sweet story back to me

The mighty deeds that men have told In ponderous tomes or fluent ryhme Like misty shadows fade away-But this sweet story bides for aye, And like the stars that sang of old,

satisfaction by restoring health to

Squir: 1s' Christmas

oblong cistern to hold the fog," and of the trees, within reach, and on the there are area railings galore for the bushes in many parts of the park he little Peepys of today to come to grief will see hung hundreds of little bags The "Golden Cross" at Charing Cross bulging with the same, for nuts are the

home came in for a generous share of Quickly landing where the hosiery

A CHRISTMAS CAROL.

[James Russell Lowell.]

The Magi mused, "more bright than Glad I brought a stock of rattles and & and voices chanted clear and sweet, "Today the Prince of Peace is born!"

herds said.

glen?" And angels, answering overhead, Sang, "Peace on earth, good will to men!"

We wait for him, like them of yore; Alas, "He seems so slow to come!

No time or sorrow e'er shall dim, That little children might be bold In perfect trust to come to Him.

A light like that the wise men saw, If we our loving wills incline To that sweet life which is the law.

The simple faith of shepherds then. And, clasping kindly hand in hand,

But keep at eve the faith of morn, Shall daily hear the angel-song, "Today the Prince of Peace is born!"

Meant to make my Christmas glad. From each uncle, aunt and cousin-Best a fellow ever had. There's a keepsake from my mother, Father sent a check-and yet I am thinking of another-Of the one I didn't get.

There are gifts from all the fellows, Pipes and things a chum will send; There's a tie, all reds and yellows, From a girl who calls me friend. You would think me far from slighted If you saw them all-and yet, confess, I'm most delighted. With the one I didn't get.

She told me it was ready, She'd prepared it long before; I'd been calling on her steady For at least a year or more. She told me all about it, And her eyes with tears were wet, And I'm happy, never doubt it, For that gift I didn't get.

Her attitude was altered When I called on her last night, But my tale of love I faltered, And I guess I did it right. And this little rhyme is written 'Cause I'm full of joy-you bet! For a frosty little mitten Was the gift I didn't get.

FOR INFLAMMATION OF THE EYES.—Among the many good qualities which Parmelee's Vegetable Pills possess, which Parmetee's vegetable Phis possess, besides regulating the digestive organs, is their efficacy in reducing inflammation of the eyes. It has called forth many let-ters of recommendation from those who were afflicted with this complaint, and found a cure in the pills. They affect the nerve centers and the blood in a surprismmediately seen.

\$20 for "casting a disdainful glance" parted with. at the judge of the supreme court of Darmstadt.

bodied spirit or a fiction," and even have become the universal pets of a

filled with nuts, and tiny stockings has undergone many changes since substantials as well as the dessert of

from One Hundred and Fourth street to more modern uses. Hungerford stairs to the Blockhouse, at One Hundred have gone, and the blacking factory, and Tenth street; the one at One Hundredth street, about 100 yards from Central Park west; along the Ramble from Seventy-sixth to Eighty-first SANTA IN SALT LAKE street, and the one just inside the en-

trance at East Seventy-second street. Hundreds of New York youngsters know all about the feeding grounds To a thrifty Morman household came established about a year ago by the late Commissioner Pallas on the summit of Squirrel Ridge, at One Hundred and Fourth street. The same young- For he knew a row of stockings such sters also know that Mrs. Rusell Sage, Mrs. General Dodge and other noted Would be yawning there before him in women go there almost daily to feed their bushy-tailed pets, and that the So he shoved his pack ahead of him most noted of this especial colony are Admiral Dewey, Elihu Root, Joe Folk While he muttered: "This is something and William Travers Jerome. The four occupy a cottage just above the feed- Then he followed with reluctance

Altogether over three hundred squirrel cottages now rest in the tree forks There were papa's socks and twenty of Central Park, and it is estimated that there are at least that many more There were socks for Eddie, Willie, natural nests. The females live by themselves, but the males, while at There were stockings of Matilda's, But we see with the telescope and the The house is doomed, and when it has Aunt Mary, who's so timid she's afraid the cold winter nights come on and to slumber nights abroad, forget their differences when There were Charley's hose and Molly's cuddle in a furry ball, sometimes as many as six in a cottage, for warmth and comfort. There are probably a thousand squirrels now in Central Park, and under the fostering care of Briggie, Reed, Lucile, Clorinda, Arerapidly multiplying. Probably not less Mattie, Lucifer, Elfrida—from his lips than fifty bushels of nuts were distributed by the children and the old folks in Central Park for the squirrels' But about the shelf there dangled

What means this glory round our

What means that star," the shep-"That brightness through the rocky

Tis eighteen hundred years and more Since those sweet oracles were dumb;

But it was said, in words of gold

All round about our feet shall shine

Sing, "Peace on earth, good will to

And they who do their souls no wrong,

which are better in every respect.-Pall Mall Gazette. Not One of the Tribe.

Two men approached the desk at the Savoy Hotel yesterday and asked for rooms. Sam Campbell, the clerk, turned the register around and handed the one nearest him a pen. The man registered: "Smith Brothers." Campbell looked at the name a moment and then said: "Hadn't you better register the two full names instead

the virtues of flannel, and nowadays one

the patron saint of Yule;

was hung in many a pair.

pairs of lengthy, wifely hose;

Cora Belle's and little Dan's;

Amaryllis, George, Alphonso, Peter,

Arthur, Lizzie, James, Amelia, Mary,

other hose whose owners' names

He could not recall to save him as he

watched the dying flames,

Seven pairs, all baby sizes, each in

'Gee' cried Nick, "Been something

Utah always gives a market for such

From 'race suicide' she ever has dis-

And there's not a home in Zion free

The "Gospel of Flannel."

from stork-tracks on the roof."

age not quite a year-

kindergarten things.

creetly held aloof.

Joseph, Maude, Eugene.

their titles fell.

He was puffing like an engine, he was

of this?" The man who had done the writing looked puzzled. "How's that?" he asked. "I just suggested," said Campbell,

"that you register your full name and that of your brother. It isn't customary to register firm names on hotel books."

There was another short pause and then the man with the pen said: "I don't exactly understand. My name is Smith Brothers. I don't know this other gentleman."-Kansas City Times.

Human Hair Stockings. They were black stockings, thick,

stiff, lustrous, and the price mark on them was \$15. "From China," the dealer said. "From Northern China." Every family has a few pairs of human hair stockings there. They are worn over the cotton stockings-they are too prickly to be worn next the skin-and, properly treated, they last a lifetime.

"The Chinese exporter who sold me these stockings said that when a child's hair is shaved in Northern and China the hair is preserved in a special hairbox of lacquer. As soon as the box way, and the result is almost is full enough the hair is taken from it and a pair of stockings woven. Such The public executioner of the stockings have a sentimental, almost a Grand Duchy of Hesse has been fined religious value, and they are rarely

"It would be safe to say that there are not six other pairs of hair stock-MINARD'S LINIMENT LUM. ings on sale in America."—Chicago BERMAN'S FRIEND. Chronicle.

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capable of absorbing moisture or of permitting ventilation as indiarubber. These facts are beginning to be recognized, and I could name quite a dozen firms which placed on each side of the ship, with now make a point of supplying linen, silk separate wires from each, and by the and cotton undergarments which are perand cotton undergarments which are perable than wool to sensitive skins. Crick-eters, too, are learning rightly to appraise eters, too, are learning rightly to appraise the Kaiser Wilhelm der Grosse state sees relatively few flannel shirts in the field, their place being taken by lightlythat on the last trip over, when the ship the signals conveyed from the lightship

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