

## Determine Sources of Night Sky Life

### Chicago and Texas College Professors Make Study.

Chicago.—Although the huge 82-inch telescope of the McDonald observatory, joint project of the University of Chicago and the University of Texas and the University of Chicago, on Mt. Locke, Texas, is not yet completed, an investigation is already under way near the new observatory to determine the sources of light in the night sky.

Using an old 12-inch refracting telescope which was presented some years ago to the Yerkes observatory of the University of Chicago by Dr. G. E. Hale, assistant professor of Chicago, and the Yerkes staff and Dr. F. E. Roach of the McDonald observatory have been recording the light of the night sky with a recording photo-electric photometer designed by Doctor Elvey.

The light of the night sky is made up of direct starlight; starlight which is scattered both by the earth's atmosphere and the matter in interstellar space; zodiacal light which is concentrated in the ecliptic but which may extend over the entire sky; and of the light originating within the atmosphere of the earth; the permanent aurora, or northern lights, although it is related to it.

**Many Study Problem.** Many investigators have studied the problem of the composition of light, and a general investigation by the Dutch astronomer, Van Rhijn has shown the following percentage composition: Direct starlight, 18 per cent; starlight scattered by the earth's atmosphere, 5 per cent; zodiacal light, 43 per cent; aurora, 15 per cent, and scattered earth-light, 19 per cent.

It is well known to astronomers that there are large fluctuations in some of the sources of light, particularly of the zodiacal light and the aurora. Lord Rayleigh found that the light of the night sky undergoes large variations, with a range of eight-fold between the smallest and largest.

The variations are sometimes fairly rapid, Doctor Elvey having found in his work at Yerkes as much as a 25 per cent change in brightness of the sky within a period of two hours. There also are daily variations in the intensity of the auroral light in the night sky, which in some parts of the world reaches a maximum about 2 a. m., and in other parts is at its maximum just after twilight has ended.

These large variations have made detailed analysis of the light difficult, because during the several hours required to cover the sky, there are many changes in the light.

To make possible observations in a brief space of time Doctor Elvey devised the recording photo-electric photometer. It consists of a very sensitive galvanometer, which measures the output of the amplifier. The recording is achieved by shining a lamp on the galvanometer mirror, which reflects the light to a slit behind which is a moving sheet of bromide paper.

**Deflections Recorded.** The deflections of the galvanometer are then recorded on the bromide paper, which is directly connected to the photometer so that it moves past the slit as the instrument is rotated around the vertical axis. With this instrument a complete record of the brightness of the sky on a circle parallel with the horizon can be made in approximately five minutes, and the entire sky can be observed in about an hour. A check of the variations in

light during this time can be made by observing a given region of the sky several times.

Doctor Roach already has obtained over a hundred tracings with the instrument, from which he and Professor Elvey have determined the axis of the zodiacal light, the cone of light that can be seen rising from the horizon after sunset and before sunrise.

Contrary to general belief, the axis does not coincide with the plane of the earth—the ecliptic. Observations show the morning zodiacal light is displaced to the north of the ecliptic by as much as five degrees. A series of evening observations indicate that in part of the ecliptic the zodiacal light was near the ecliptic, apparently crossing it.

The astronomers expect that a detailed analysis of the tracings will give the relative amount and the distribution of the light from various sources contributing to the total light from the night sky.

## Relatives of Otto Take Varied Jobs

### Hapsburgs Have a Hard Time Paying Their Bills.

Vienna, Austria.—The uncles, cousins and other kin of Otto of Hapsburg, exiled heir to the thrones of Austria and Hungary, are having a hard time meeting bills from the butcher and baker.

Many of them, all archdukes and archduchesses of royal blood, were left practically penniless when the republican government of Austria confiscated the Hapsburg properties in 1919.

One became an insurance agent, another went to Hollywood, another became a small farmer, another

### Deer With a Memory Chases Man Up Tree

Eastham, Mass.—Henry Howland was "treed" by a buck deer—one he believed didn't forget a past experience.

Howland, working in his backyard, saw several deer crossing a field, when suddenly one espied him, chased and forced him atop a henhouse.

During the half-hour imprisonment he noticed a scar on the animal's fore leg, the place where he wounded a deer three years ago. The buck apparently recognized him, he thought.

### Sees Trouble for Radio in Sun Spots Activity

Kansas City, Mo.—Sun spots are giving indication of activity, according to George C. Blaklee, photographer for the Yerkes observatory, and that, he believes, spells trouble for radio. The spots, any one many times larger than the earth, have been more or less dormant for several years, but past records, over a long period of years, show they are due for a period of exceptional activity.

The astronomers expect that a detailed analysis of the tracings will give the relative amount and the distribution of the light from various sources contributing to the total light from the night sky.

## SEEN and HEARD around the National Capital

By CARTER FIELD

Washington.—With nature moving in to help extinguish the cotton surplus, as she has already on hogs, cattle and to a lesser extent wheat, probabilities for trouble in the future for cotton growers in this country are not diminished, but increased.

The point is that the dust storms in the big cotton producing areas of Texas and Oklahoma—more than half of the cotton raised in the United States is grown west of the Mississippi, despite the prevailing opinion to the contrary—have already boosted the price of cotton. Pressure on AAA is expected to continue loans at around 12 cents, despite the desire to drop them gradually. All of which means that the price of cotton will be maintained at this high level next year.

So far, so good, but unfortunately it is impossible for the United States to keep such a situation a secret. If this country could only do what Russia did a few years back with wheat, it could make a killing on cotton—perhaps—next year.

The Russians, it may be recalled, circulated stories that their wheat crop had failed, back in the days of Secretary of Agriculture Hyde and the farm board. The farm board began buying wheat, and the Russians began selling. Hyde thought they were selling short, and actually denounced them in public speeches for such a nefarious practice. But the Russians delivered the wheat. Whereupon the price collapsed, the Russians having been the only wheat farmers to get a real price for their product, and the money for that coming out of the United States treasury.

But the whole world knows about crops in the United States. Down in Brazil they know about the dust storms that are wrecking cotton crop prospects west of the Mississippi. They know about the agitation to continue the 12-cent loans—which means an artificially maintained 12-cent price next year. And they know in Brazil they can produce cotton at a profit at 6 cents a pound!

### Big Brazilian Crop

So naturally Brazil will increase her cotton acreage next season by every square yard possible. This "possible" amount is far from trivial. Tremendous overnight expansion is impossible, of course, but Brazil's agricultural experts figure that only about one-tenth of the land capable of producing cotton—always with the 6 cents, including profit, in mind—is now under cultivation. So that the real problem is labor. But there is enough labor for much more expansion. So it can safely be assured that there will be a big increase in the Brazilian crop.

Over in England the cotton spinning people know about these dust storms, and about the prospect of the United States maintaining the 12-cent price. Some of their big mills have made the change in their looms so as to spin the Brazilian cotton. More of them now are expected to do so. They will naturally figure they can buy Brazilian cotton cheaper than United States cotton.

Over in the Japanese puppet state there are now 30,000,000 acres of cotton. Very small so far as world figures go, but there also the facts about the situation in the United States are known, and may be expected to have results. Similarly in Egypt and India.

All of which point unerringly to the probability that throughout the world there will be a mad rush to take advantage of the situation. This promises eventually to leave the United States treasury holding the bag, owning millions of bales of cotton for which it paid 12 cents a pound, when the world market will be around 7 or 8 cents at the most, and 6 cents in all probability.

But this is only part of the trouble. Johnson and Johnson have already announced their plans for setting up cotton mills in Brazil, the idea being not only to get cheaper cotton, but to get away from the processing tax. Products of this mill would be used in place of goods formerly exported from the American mills.

**Army Is Stirred** Army and navy officers are terribly concerned over the bill just passed by the house, and soon to be considered in the senate, for taking the profit out of war. They assure everyone who will listen to them, in private, that it will also take national defense out of war, which might be very serious indeed to the nation in the event of a conflict.

The pacifists hail the bill as: "A bill to keep the United States out of war by providing in advance that there will be (1) profits for none, and (2) confiscatory taxes for all, so that it will be to every American's interest to keep the United States at peace."

Army and navy experts say that it should be called: "A bill (1) to transfer the war munitions industry now in the United States, and which might be started here, to foreign soil, (2)

to provide for a murderous delay in preparation in case a war is forced on this country, (3) to conscript soldiers and employers but not workmen, and (4) to repeal the oldest law of military strategy: that the best defense is a vigorous offensive."

Goaded by a \$2,000,000 bonus to Eugene G. Grace, by screams of the pacifists, by complaints of soldier bonus lobbyists that "these boys fought and risked their lives while profiteers were making millions," the house voted down every qualifying amendment, passed the bill, and privately hopes the senate will write some sense into it.

### Tax on Profits

More serious, from a preparedness standpoint, is the tax provision on profits. Half of all profits up to 6 per cent and then 100 per cent is the house provision. Suppose, say army and navy officers, the du Ponts had been faced with such a situation at the entry of the United States in the World War. Would they have dared expand their plants? Suppose, instead of a preliminary period of nearly three years during which the allies were buying all the munitions they could get, and which naturally caused tremendous expansion of the du Pont, Bethlehem and other munitions plants, the United States had been involved from the first, with such restrictions on earnings as are now proposed.

The point made by the army and navy men is primarily that no manufacturer would dare expand his plant to take care of a war need. He would not be able to make enough to scrap the plant after the war, and he would have to take his chances with government auditors on depreciation charges. Altogether he would be much safer if his plant were located on foreign soil, where it would be welcomed as an element of military strength.

So that the natural development would be for foreign countries to benefit—even in time of peace—by the training of their workmen in the making of munitions, and in time of war by the possibility of big profits, which these foreign governments could tax to their heart's content and still leave something for the manufacturers.

Nearly every one agrees that the proposed law would be repealed as the first act of congress after the next declaration of war. Critics are not much worried about that. What really worries them is the prospect of American business enterprise moving abroad wholesale to escape such conditions, thus not only depriving the United States of this element of strength, but actually providing it for potential enemies.

### See Long Session

Congress is not going to be rushed to an early adjournment. It will be with us for a long time yet. Almost surely until August.

This is true despite all the flat predictions by leaders that the "must" items will be rushed through, and everything else will be abandoned. Many things may be "abandoned." But they will not be abandoned because of the time element. They will be abandoned, if at all, because actually they are not wanted. Careful examination of the left-overs at the time of adjournment will reveal the truth of this statement.

Utility heads got all pepped up a few days ago at this list of "must" measures. It did not include the public utility holding company bill. Now, despite all the statements, the probability of the moment is that a holding company bill affecting the utilities will be passed. It will not be passed in the form desired by President Roosevelt. It will be much more moderate. It will actually be what some of the utility chiefs favored as much as ten years ago.

### Soldier Bonus

Naturally, the soldier bonus was not on the "must" list. The President does not want that. But if anyone thinks that it is not going to take a lot of the senate's time, he just does not know very much about the senate. Especially, as the best predictions now are that the bonus legislation, after passing both houses, and being vetoed, will be passed over the veto by the house and then fall of passage in the senate.

This unofficial program calls for two separate considerations of the measure by the senate! That is not all. Very few administration leaders are optimistic enough to believe this congress will adjourn without giving the soldiers something. Which means that time must intervene—after a sufficient demonstration of strength to frighten the White House, and after a sufficient demonstration of weakness to frighten the American Legion—for a compromise to be worked out.

The President has let it be known to a few friends on Capitol Hill that he is willing to go to a compromise of about \$1,200,000,000. The bonus leaders know that, and will move heaven and earth to obtain it if they find that they are going to lose out on the main fight.

Incidentally, there is nothing on the "must" program about the AAA amendments, nor about the growing movement to rescind the cotton processing tax. Nor the corn and hog processing tax. Flat prediction is hereby made that there will be a lot of oratory in the senate on both before the final gavel taps.

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# Transportation



Blowing Up Skins Which Buoy a Yellow River Raft.

Prepared by National Geographic Society, Washington, D. C.—WNU Service.

**S**TEAMLINE trains and giant airliners recently have been in the spotlight in America; Italy is still applauding an air-minded son who sped through the air more than 400 miles an hour a short time ago; and Great Britain is just quieting down after celebrating the victory of her flyers who won the London-Melbourne air race. In Germany streamline trains are linking additional cities as quickly as the new type transportation equipment can be manufactured.

Modern transportation, this. But one can still find types of transportation facilities, even in the world's largest cities and their rural neighborhoods, that were in use decades and even centuries ago.

There is not a sizable town in the United States in which one cannot hail a taxi, and in many of them charter a plane; yet the top-hatted cabbie, whose pompous figure held sway over traffic on boulevards in the gay nineties, has not been entirely shelved. These "taximen" of another era have been jealously watched as new traffic lights have been installed, traffic lanes have been painted to keep modern motorists from crushing bumpers and fenders, and streets have been widened and trees sacrificed to make room for more of their rivals; yet they still constitute something of a traffic problem.

### Ox-Drawn Vehicles.

Within sight of concrete, 40-mile-an-hour highways, and less than a hundred miles from Washington, D. C., and Annapolis, Md., ox-drawn vehicles still lumber along; while in the isolated mountain regions of the West, sure-footed burros and pack mules continue to be the only companions of many rugged prospectors.

Millions of visitors arrive at Atlantic City by automobile, airplane and train, yet to see the "sights" along the Boardwalk, they hire three-wheeled rolling chairs. Others arrive at Bermuda aboard palatial steamships but take to bicycles and horse-drawn carriages to tour the island.

What traveler leaves Durban, Natal, without employing a Zulu rikshaman? The dark-hued tribesman in gay-feathered headdress and scant clothing, is one of the colorful features of the South African city. In remote Szechwan province, China, wheelbarrows, which are the local transports, have worn ruts in flagstone pavements; in Sumatra, if one goes native, he must travel in a buffalo-drawn cart whose hatched top is shaped like a sway-backed horse, and is pointed at each end. In Palermo, Sicily, the purely Sicilian way to get about is by native cart, a two-wheeled vehicle on whose side panels are gayly depicted Bible scenes and Sicilian panoramas; and in Ireland, the Irish jaunty car on which passengers sit back to back and face outward lends atmosphere to a tour of the Emerald Isle.

Llamas still carry loads in the Andes, and elephants still are favored among the tiger hunters of India. In spite of progress in Belgium, the morning milk is still delivered by dogcart at many a doorstep, and dog sleds are yet the most dependable transportation in the icy wastes of the Arctic and Antarctica. The tired explorer enjoys comfortable travel in a hammock-like chair borne by native porters in central Africa; the mountaineers of northern India and western China employ the yak as their beast of burden; the camel still plods the caravan routes of north Africa, Arabia and central Asia; and the carabao (water buffalo) is the dependable draft-animal of the East Indian islands.

### "Floating Population."

Land transportation is of no interest whatever to millions of Chinese. Children are born, grow up, marry, carry on their lives, and work aboard the sampans of China's floating cities.

Most of the great river cities of southern and central China have such a "floating population," but the boat dwellers of Shanghai and Canton form large communities themselves. A traveler of sufficient energy could laboriously progress for miles by jumping from the deck of one sampan to another.

Like the Dutch canal boat dwellers, these river folk are a race unto themselves, apart from the common run of their fellow men. In many cases their mode of life has been handed down from father to son for generations. When China's teeming acres became overcrowded and

expensive, and a growing commerce demanded river transportation in even larger volume, many ingenious Chinese combined business with economy and took to living aboard their tiny craft.

Although business might call far and wide along the numerous rivers and canals it was the large commercial centers at the mouths of mighty streams that offered the most lively carrying trade. Hence these cities early became headquarters for the water dwellers.

The riverman often made long voyages up country, but he always came home to roost. Hence the dirty, evil-smelling stretches of river and backwash surrounding such centers as Canton and Shanghai, and even around Hongkong and Singapore, became the native hearth of an army of sampan dwelling Chinese, who from childhood have known no other life.

The visible means of support of these communities is the carrying trade from wharf to wharf, and from bund to steamer or junk, across river and up canals.

### Barnyard Afloat.

Some sampans house petty merchants and peddlers who carry on a small trade in the necessities of life from boat to boat within the water colony itself. Occasionally a craft is filled to overflowing with huge white ducks which fatten in the daytime on the tidal mud flats or harvested fields, and at night walk a gangplank back to their floating barnyard. They proceed, one by one, in a quacking and pushing single file, each hurrying not to be the last duck aboard. The return home in the evenings is sometimes hastened, it is said, by giving the last duck a sharp crack with a switch. The awkward procession soon learns the trick and a comic tumult arises not to be the unfortunate tail of the procession.

Chinese sampans are marvelously easy to handle, being the product of generations of adaptation to environment. They dart like water spiders here and there amidst the harbor traffic, clustering like barnacles around the great steamers anchored offshore. With lightning swiftness, they flee in droves before an approaching storm, each knowing as if by instinct his own place in the quiet reaches.

In spite of the shifting needs of commerce, family life aboard proceeds about its daily routine as usual, albeit in rather more cramped quarters. Clothes, vegetables, and babies are washed side by side in the stream and the cooking is done above a diminutive brazierlike stove. Growing children help with the handling of the boat and cargo, and grandmothers in blue cotton ragged garments smoke long-stemmed pipes. At night all draw together and neighborly chatter from boat to boat sounds like that of a newly arrived flock of blackbirds. The river folk are poor but extremely cheerful, especially over the evening meal.

Lights from great modern liners shine across the harbor and music from an occasional gaily decked pleasure barge floats from the mid-stream channel. In few other places lurks so strongly the spell of the East.

### Raft Transports.

On the shallow, shifting Hwang Ho, or Yellow river of China rafts are the principal means of transport, especially for freight cargoes. There are two types of raft: one using as bnoys inflated sheepskins, and the other, large ox-hides which are stuffed with wool and then tied up to keep them water-tight. The sheepskin rafts vary in size, according to the use for which they are intended, ranging from as few as 12 to 15 skins on the small one-man rafts. For the large rafts some 120 ox-hides are used.

The ox-hides are carefully treated on the inside with salt and oil. This treatment not only preserves and waterproofs them but also keeps them flexible. There is no extraordinary technique required in the construction of a raft. Poles are lashed together, forming a framework to which the hides or sheepskins are fastened.

Moslem Chinese who form a considerable percentage of the population of Kansu province, are the raft men on the Yellow river. A sturdy people, they stand well the hardships of river life. It is far from an easy life with all the contrasts of heat and cold and the strenuous labor involved in handling the clumsy transports through the rapids; or freeing them, once they have stranded on a sand bar. The men, however, are happy and friendly.

### Without a Country; He Lives on Vessel

Haifa, Palestine.—Herman Zevi Nibam, carpenter, is a man without a country, living on a ship, the S. S. Dacia, in Haifa harbor. Nibam, a resident of Palestine since 1925, says that some months ago his wife left him and in his hurry to overtake her he boarded a ship for Rumania and forgot to take his passport. Now the Palestine authorities refuse to let him come ashore.

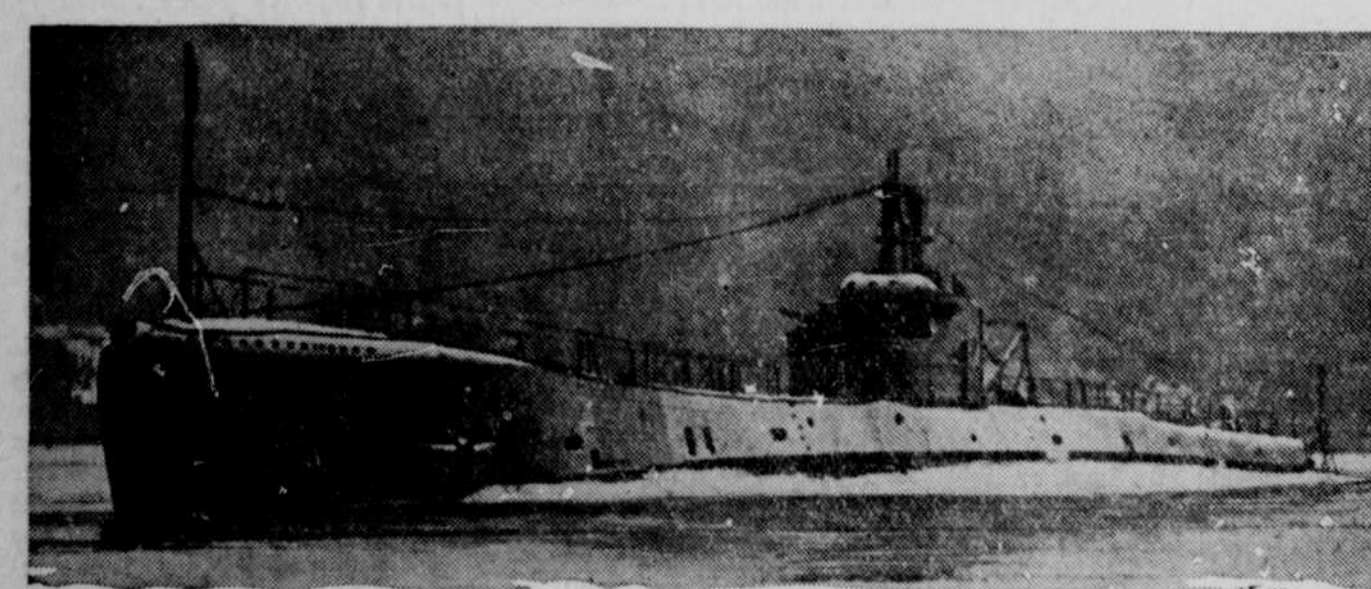
### LOVELY NEGLIGEE

By CHERIE NICHOLAS



More and more the trend is toward the prettily feminine and luxurious in fashion's realm. The reaction of lovely and exquisite apparel is especially stressed in boudoir and home environment in that negligees and hostess gowns are playing a sumptuous and beguiling role. A luxurious fur fabric, ermine crush, is the material of the negligee pictured. It is lined throughout with peach satin which shows in the revers.

## One of Latest Type of British Submarines



This monster British submarine is the Severn, recently launched at Barrow. It is shown against a background of Mount Arrochar, at Loch Long, Scotland.