SUN FOR POWER.

TO UTILIZE SOLAR HEAT AND RE- An attempt has been made to do this VOLUTIONIZE THE WORLD.

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A New Motive Power Discovered by a Washington Isventor-Wood, Coal and Gil No Longer Needed For Fuel-The Cost of Cooking Would Average a Cont a Day

A reorganization of society as radiest as that which followed the practcal introduction of steam as a motwo power seems involved in Dr. Wil-Mam Calver's apparatus for the conversion of the sun's rays into heat. This Washington inventor claims to have solved a problem upon which scientists have expended years of thought and toil.

As is well known to every schoolboy, the source of all power is the heat and light of the sun. To collect this heat and make it serve mankind by night and by day; to make it do man's drudgery at practically no cost: to make it hew his wood and draw his water, run his railroads, furnish light and heat to cities, propel yessels across the ocean-in short, to subuse of coal and wood and other fuels-Langley, of the Smithsonian Institu- teen degrees of heat from the sun." tion, has written in powerful words calling attention to the necessity for



Professor Calver Producing Light.

such an invention. He has declared that the human race must depend in the future upon the sun for heat and power. It is a method for the utilization of this heat of the sun in a practical way that Dr. William Calver claims to have discovered. In substantiation of his claim, he attains results which would seemingly convince the most sceptical.

I called on Dr. Calver at his home, in Washington. The Doctor is a man past middle age. His hair and heard are streaked plentifully with gray. Physically he is of medium stature. but his frame is almost massive in its proportions. In manner the Doctor is genial, kindly and gentle. He seems thoroughly wrapped up in the work

is almost superfuous to state that all IN DEADLY COMBAT agreed that if this could be accomplished the problem would be solved.

through concentrating the rays of the sun by means of a number of concave mirrors. This has proven to be impossible over any great extent of territory and impracticable from a commercial standpoint. Another experiment of my own, in which I had the sunlight from a number of mirrors thrown into the large end of a great funnel and concentrated at the small end, proved scarcely more successful. The building of great burning glasses was also out of the question.

"After this experiment I was forced to the conclusion that the true solution of the situation must lie in the fiat mirror. Working on this idea I which you see before you. To this more dangerous to bim. I have given the name of 'pan-helio-

I have given the name of 'pan-hello motor,' which means 'universal sun power.' "This motor consists, as will be seen of the simplest arrangement pos-sible. Each of the small flat mirrors is attached to a simple gearing device by which it can be moved at pleas-is attached to a simple gearing device by which it can be moved at pleas-in Florida we have two constrictors in Florida we have two constrictors in Florida we have two constrictors in Florida we have two constrictors is attached to a simple gearing device in proteic the value distance. In Florida we have two constrictors is attached in reservoir in the centre of the yard. I then shout the solut of concen-it tas and othe, small deer the farm-teen degrees of heat from the sun." Thus ahout the solut of concen-tube ahout the noint of c stitute it everywhere for the present small surface at any desired distance. has been the dream of De Cous, 'of the reservoir in the centre of the yard. Herschel and of Ericsson. Professor Each glass reflects from twelve to fif-

can be done." rainv days?" I asked.

copper and Russian iron. I have burn- or jumping object awaken such intense ed a brick half way through in less and painful emotion as the rattler althan an hour. I have concentrated the ways demands. combined heat from the mirrors on an 1 knew what must follow soon; that unburned brick and have burned it so the squirrel's ories would grow weak, hard that it scratched steel." Dr Calver described a number of tumble from the tree, hang a moment, experiments which demonstrated the by one claw, and then drop into the have also devised a method for the efficacy of his methods and the terrific jaws of the living death that lay in amount of heat-nearly 10,000 de wait. I had raised m rifle to save

METHODS OF SNAKES IN A DUEL TO DEATH.

of the Woods, He Has an Ensury of His Own Kind Which is Dangerous to Hun-A Description of a liatile.

If the rattlesnake is justly called the ki g of America's woods and rocks, yet his crown is not held without usager, since he is bunted diligently and successfully. His fange are, indeed, deadly, and the wears a fine sic

Snakes may be divided into three

"How about the pro-tration when the sun moves around?" was asked. "That is simple enough," said Dr. Calver. "The frame moves, too. It is geared and adjusted in such a simple manner that it can be moved along the circular track by even the most ig-norant of attendants. One man could i turned out of my way to see what i turned out of my way to see what i turned out of my way to see what could be the matter. could be the matte

"Now, as to the exact value of the vulsions. He would flourish his and frame before us, I have estimated wildly, scold a anger, thre den an asthat each mirror, four by six inches, sault, run back a little way up the reflects a heat equal in the course of a trunk, and return and scoid again. year to that generated by the combus- I looked carefully and eaw that his tion of a hundred pounds of the best anger was directed at a ratiesuuke anthracite coal. Therefore the frame that lay coiled at the foot of the tree. before us is about equal each year, in The stake was compresed into a bal. heat giving power, to forty tons of the from the middle of which its rattle best coal. This is more than the ac- sounded continuosiy; its blazing it le tual cost at which the frame could be even were txel unchangingly upon constructed. It must be remembered the e of the squirr 1.

that this frame is only an experimen- The buzz puzz droned on the sumtal one, having a reflecting surface of mer air with a sleepy effect but the only about one hundred and thirty squirrel scoided a an ever ascending feet. Upon this model structure im- key But for the hint of the squirrels mensely broader and taller can be eyes I could not have located the ritfashioned When I explained the tler His color and his varigated working of this reflector to Professor markings off red but little contrast to Alexander Mellville Bell some time his surroun ings. His monotone of since he exclaimed 'Why, by an ap- no se was inciolinite, and to sight as plication of this principle you can col- we as in sound, he seemed only a plur lect acres and acres of sunlight in a on the background of .dark sand on single spot.' This, as a matter of fact, which he lay.

Was the squirre: only curious to But how about the cloudy and satisfy himself as to the character of that strange object, or was he hypto-

"From the 1,600 mirrors in the lab- tized? I have often amused myself by oratory here I have generated on the eacting the violent cur osity of the coldest days sufficient heat to weld little animal, but never did a waving

WATER FROM TREES

Always Carry an Auger in their Mit.

In many sections of the forest lands of the South during the dry season a man may walk for miles without finding a stream of water or a spring by Though the Rattienake is Called the Mina which to queach his thirst. If, however, he is an experienced hunder and woodenan, he will not have to drink water from the stagmant pools in order to keep life in his body.

Queer as it may soom, an experienced man can hunt for days through such dry tracts and yet experience no incon. ventence on account of the fac kof water. Nature has provided a means which is only known to the initiated. of armer, but the deer and the wild Every old hunteman carries with him, hog never fail to stback him, and he when going on a long hunt, a small have constructed the form of reflector tas an enemy of his own kind still suger, by which he can secure a refreshing drink and water to cook with at any moment.

when the roots of the trees do not extend to any great depth into the

ground Owing to the fact that water can beob. tained by tapping cottonwood and willow trees. very peculiar testimony was recently heard in a case in the Federal court here. About twenty years ago, court here. About twenty years and, at a certain point on the Mississippi River, one of the islands which was formed by the channel forking and surrounding a large tract of land was descried by the stream on the Tennos. see side. Years afterward this land was claimed by the man who owned. property in Tennessee adjoining the former island. His clam was that the island had been washed away, and that the present land was formed by acore-

The former owner, to prove that the land had not been washed away, sawed off the top of a cotton wood stump that was on the island and showed that it contained fily-six circles, or rings, beginning at the heart. His statement was that a ring we formed in the tree every year, hence the tree was a sapling fifty-five years ago, and was consequently growing there thirty-six.

Why Woodenen in Some Parts of the South

NEW WOY OUT SING HE FOUR-TRACK TRUNK LINE.

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te New York. Tor Hessoys Palls and Mand Sim A. M., "Bills and P. M.

"For Honeys Falls only. TRAINS ARATY

Excent Sunt-Agent M Oorthandt at



accomplished and ne nas work that he has in view.

"I believe, in fact, I know," said be, in answer to a question, "that I have solved the problem of the direct conversion of the sun's rays into a heat which can be utilized on a far cheaper commercial basis than coal. I storage of this heat, so that it can be used at any desired time and place. I feel that beyond a doubt I have setmied forever the question of the actual commercial harnessing of the direct to the needs of man. "There is no limit to the intensity of

the heat which I can generate. With the concentrated rays of the sun collected against a mountain side I could melt the rocks and cause the earth to burn like a living volcano. I can produce in one spot a heat vaster and more flerce than that on the face of the sun itself and a greater heat than any now attainable through the combustion of known substances or through the agency of the electric arc. which now furnishes the flercest heat known to man.

"The cost of this heat for commerdal purposes would be a tithe of the ost of digging and raising coal and sutting down timber. With heat thus generated I shall be able to smelt easily the hardest and most rebellious of the ores. With it I shall make a quality of glass which cannot exist at present. With it an innocuous gas can be made at a far less cost than that of our present coal gas.

"I conceived the principles on which my invention is based in three days. I was a young man then. It is now thirty years that I have been laboring on it. You must come to my laboratory and let me show you my apparatus."

The sight which met my gaze as I entered the laboratory was both novel and interesting. At the centre of the enclosure stood a small, round house, about twelve feet in diameter, roughly constructed and resembling in general appearance a rude upright water tank. This tank seemed to form the centre of a system of circular wooden tracks. On these tracks were located a number of mirror frames. There were in all some seven or eight of these. One was in front of the tank, two were at the left and three were at the right. Back of the tank was a frame whose exposed surfaces would seem to equal the combined surfaces of all the othor mirrors.

The construction of the mirrors with which these frames were fitted was very novel. In the big frame, for example, to which Dr. Calver led the way, instead of a single solid mirror or reflector, which might naturally have been expected, there were many small mirrors set in a series of rows one above another. These mirrors (which were only four by six inches each) exposed a perfectly flat surface to the sun. The method of arrangement of the rows in the frame was slightly convex. It was found by a simple count that there were twenty-seven rows of thirty mirrors each in the entire frame, or \$10 mirrors in all.

"It will be funderstood," said Dr. Calver, by way of explanation, "that the great question which confronted any one working in my field was the arrangement of the reflectors of the suns rays so that any number of there throughout the entire day. It. Julia."

these experiments he performed.



A Scene in the Laboratory.

for a moment at the point of concentration. A dazzling brilliant white light was reflected, causing every spectator to close his eyes.

the frozen soil. He mounted the reservoir and focussed the heat of the mirrors upon a portion of the frozen wood. In a moment it cracked, smoked and burst into a fierce flame.

motor, whose reflecting surface was but ten square feet, he placed a tin her cruel dallying with a mouse. later the water was boiling merrily. "Why, that little trick could cook a dinner for a whole family in summer time." remarked a member of the party.

"And the cost of cooking for the whole year would average about a cent a day," said the Doctor. "I had fow better friends than the late Senator right and then revenue, and if the rat-Leland Stanford, who knew my invention well and sympathized with my purposes and ends. Conversing with me one day he said of my helio-motor: 'If perfected it will do more for humanity than all we have at present.

Birth-name of the Lobster.

ster is born with?" asked a fish-deal- king's head above that of his enemy, er the other day. "It is marked on his and a curve of his body acting as a body. No? Well, I'll show you one." buffer to keep up the motion which en-The dealer took a live lobster out of abled him to take another turn and a heap on the marble slab.

"Its name is Joe," the dealer said, And so the "Now. can you find it?"

gerly by the back of the neck, where it began to uncon himself slowly, and at could not reach his hand with its nip- every motion of his enemy the conpers. Turning it on its back so that strictor's folds contracted and crushed the brown legs at its side flopped back- with killing effect. Even when there ward, a smooth streak half an inch was only a quiver of the tail, the long and nearly as wide was seen on king still gripped the throat It was the inside of the thigh. In this plain he had a wholesome respect for streak, like a mosaic, were short lines, the fangs, that were still terrible. as though some one had printed on it As a last precaution the king applied. life of pleasure.

the characters JOE. "Some lobsters are named Jim," the as if to detect the faintest brenth,

that he would grow dizzy, and finally grees-which he can concentrate on a the little fellow, when the tragedy was single spot. Some of the simpler of interrupted from another quarter. Swift as "ght, a form raced on the

The rays from a couple of the small- stage. It was clothed in a gleaming rays of the sun and of their adaptation er helto-motors were concentrated on cost of beautiful whele and black spots a corner of the reserveir. Some ong 1 shifted and shone like a mechawalked near and held a hand serch of precious stones, and I knew the k ng snake claimed a victim.

The newcomer was smaller than the rattion, its ground color was a greenish gray, and the spots scintillated in the sumight which sifted down upon b'e scene from the tangled branches overtead.

At the first rustle of its approach the rattler lost all interest in the squirrel, which ran back into the tree.

The king snake held his head high and ra el round the rattler in a wide circle while the rattl r thed to slink an ay. Th king darted forward as if to atta k and the rattler threw himself into a coll. The king was again away and racing around, with a swiftness the rat lor seemed unable to follow with his eye. The rattler was cowed already; his crest was lowered, his buzz. buzz was jerky and uneven, and although he presented a very different Dr. Calver picked up a stick from appearance from the self-confident arbite: of the woods which he had seemed when I first saw him, I could thenk of nothing but some human bully surprised in the act of torturing his he pless victim, and suddenly com-Sixteen feet in front of a small helio- pelled to face an adversary worthy of his strength. The king snake seemed to enjoy the situation as a cad does

> Round and round went the sing snake, and the rattler followed the movement till its neck was twisted. Whenever it actempted to turn the k ng would spring forward, and it was evident that the first failure of the rattler in swiftness would be the tignal for muscle to clinch with venom. The king would race from left to tler failed to follow that would be the end of him. This happened, and I saw the k ng in the air, but could not catch the strike so instantaneous was it.

There was a confusion of flying pine needles in a cloud of white dust, and I saw ithat two inches of the king's con was about the throat of the rat-"Did you ever see the name a lob- tier. Over and over they went, the

And so the struggle continued, till after he had inspected one of its legs, the rottler could not writhe freely, and he was held as a vine wraps a tree. The customer took the lobster gin- When he lay sull the king snake.

with indelible brown ink in backhand his nostrils deficately to those of the rattler, and repeated that several times,

sequently growing there thirty-six Washington 4:06 A. M. Passenger and the sequence of the stand became a part of Tennessee. In order to prove that a 'ring wing formed every year he testified that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this growth would have covered up the plug and that the number of rings from this plug to the bark of the tree would be, in 1899. thirty-four, showing that a r ng had been formed for every one of the thirty-four years it had been imthe thirty-four years it had been imbedded in the wood.

The tree was found and sawed up. The plug was discovered, and was distant from the outside of the tree axactly thirty-four rings.

Although such testimony would not he doubted by z. woodsman. it was not received as evidence by the court.

Uncle Sam's Wonderful Fighting Shipe The most form deble fighting mip in" the world is Uncle Sam's new while

the world is Uncle Sam's new white stations. wonder, the Kearsarge. The Kearsarge is not only the most and Tieks Agent. owerful battle-ship in the world; in R. Bell, General Superintergent nany respects she is unique. She is wonder, the Kearsarge. powerful battle-ship in the world; in. many respects she is unique. She is 868 feet long, which eclipses the neight of all but a few office buildings. Her extreme beam is 72 feet 2 inches; freeboard forward, 14 feet 3 Inches: Tree, board aft, 12 feet 4 inches, and mean draught, 23 feet 6 inches. - 4

To a naval engineer these and other measurements mean that the new post. ha a d sp acoment of 11 500 tons, hich is seven times as great as that of the original Kearsarge, in memory of whose brave victory the present ship has been named. The old ship's norsepower, moreover, was less than a twelfth of that of the new Kearsarge, But with all her beauty, stability and

force, the most interesting feature of the new battle-ship consists in her two heavy gun turrois, one placed above the other and both operated by the same machinery in the lower turret are two 13-inch guns, while in the smaller turrets are two 8-inch rifles. Experts say that no ship that ever floated could withstand an assult ilrected from these two turrets working together. The idea is due to Admiral Sampson, but its practicability bas been hotly disputed by other officers. Its exact value can be determined only by experiment. Such trials of the Kearsarge as have

already been made have shown that she can probably make more than the sixteen knots an hour guaranteed by ber builders,

Things to Remember. Never forget that women are made

of boys: that to you are a worthless SEND ONE DIOL AR girl you will be a worthless woman, and if you are a worthless boy you will be a worthless man: and the best wills. cated men and women once did not know "A, B. C;" that all the things, which you are lear nz had to be learned by them that the efforts spent in making oner happy All a spent way add to your own happings. that a life of meetoiness and beipfulness is worth many times more than a Con Mar and

AP FINE TH How it Was Jack-I hear you lost a lot of money them could be concentrated on the dealer said, "some Jack, others John; Satisfied at last, & released its enemy, on Wall street while you were driver same point at the same time and kept, and I once clearly made out the name but still watched ready to resume its Tom-I want drunk, but the stocked Tom-I wan't drunk, but the stocks toold at the alightent sign of life. I bought Look & drop too much

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