

AMAZING STORIES

Science Fiction

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Our Cover

depicts a scene from the story entitled "Men Without Shadows,"
by Stanton A. Coblentz, drawn by Morey.

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The Tree Terror

By DAVID H. KELLER, M.D.

The deforestation of the forests of North America sometimes seems to have assumed almost a tragical aspect. It is a hopeful sign that in giving employment to those who, in the words of Thomas Hood, ask as a favor what was given as a curse, the work takes the shape of reforestation. It may be the entering wedge to develop a scheme to cover the whole country. In view of all this, Dr. Keller's story will be found very "à propos." It is a Kellersque flight of fancy.

Illustrated by MOREY

Foreword

ALL biological activities are governed by natural laws which are the end results of countless centuries of trial, success and failure, experimentation. Forms of life have developed in response to changed climate and environment, have reached an apparent perfection of adaptability and specialization, and, then, have died rapidly, because of an absolute inability to adapt their manner of living to new and unusual conditions.

But these changes have been slow in the time element and there have always been some life types that were able to survive, mainly due to their ability to change and to a sufficient number of generations for making the necessary alterations in structure.

Two possibilities confront humanity of the present age.

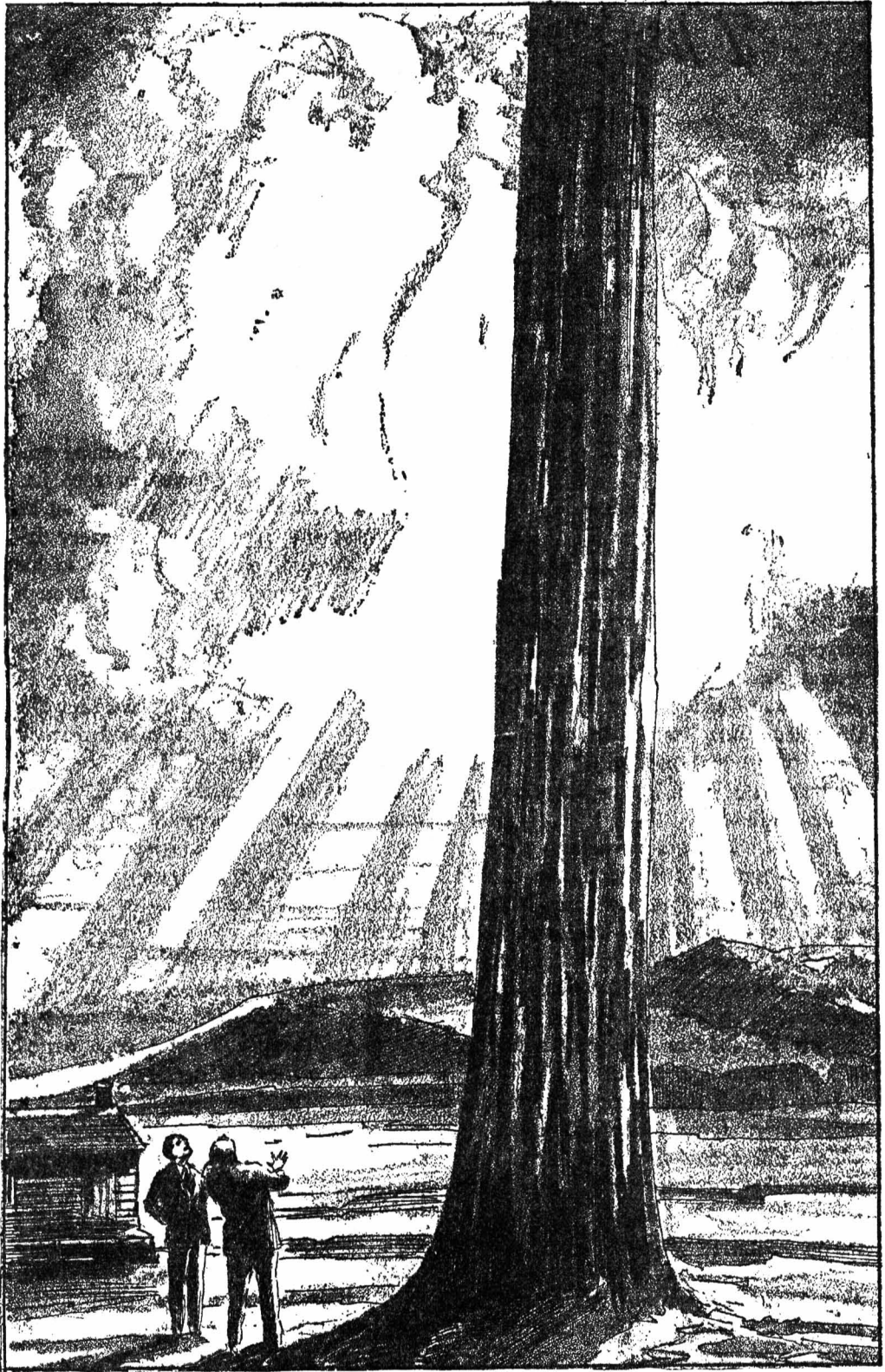
Is it possible that science will develop some new force, hitherto unknown, which will accomplish in a generation changes that heretofore might have taken a million years? Granted that such a power would be unintentionally discovered and liberated, would mankind be able to adjust himself with sufficient rapidity to maintain his place of supremacy on this planet?

So far, man has developed upward. In spite of every climatic change, in

spite of disease, in spite of famine and unnecessary wars, the human race has survived. He has lived on, because he has been adaptable. But in every instance the time element has been in his favor. Man was able to live through the rigors of the glacial period, but he had over nine hundred thousand years to become accustomed to the changes in temperature. What would have been the result if the glacial invasion had reached its height in ninety years?

The scientist, made grandiose by countless successes, is talking of harnessing the tides, of changing the Gulf Stream, and of completely changing types of life in one generation. What if he succeeds?

THE President of Cellulose Consolidated was worried. There had not been a period when the demand for cellulose had been as large as it was now. From a hundred different industries came orders of the greatest importance. The scientist of every nation was turning to plant life for the basic material necessary for the manufacturing of a thousand synthetic products. Pulp paper forests, corn stalks, sugar cane, cotton plants and even goldenrod and milkweed had been commercialized to the utmost, but, the demand for cellulose far exceeded the supply.



On the flat, treeless plain of the prairie the sixty-foot tree moss stood up like a flag pole. It was now over five feet in diameter, and daily observations showed that it was still growing rapidly.

"And it is not because there is not enough land!" thundered Timothy Tompkins to his Board of Specialists. "There are, in the United States, millions of acres of uncultivated land that could be bought for a song. Plants grow on land; all you have to do is to find the plant. Better get busy! If you men lack the necessary intelligence and imagination, I can easily replace you."

Simcox, one of the horticulturists, became indignant.

"You are wrong, Mr. Tompkins, and I am going to say so, even if you discharge me the next minute. The reason there are millions of uncultivated lands in the United States is simply the fact that nothing will grow there. The land is poor, and there is no water."

"No water?"

"Yes, lots of it, but it is thirty to a hundred feet below the surface. Any man can put down a pipe and pump it up, but it will evaporate before it spreads over five acres. You cannot put water on those deserts fast enough to do any good."

"How about the irrigation of the date palms in the Imperial Valley? Water does good there, does it not?"

"Yes; but there the water is piped to the roots of each individual tree. You cannot grow cellulose that way. It would be too slow, too expensive. I will tell you how to grow cellulose in the middle of the Sahara desert, but it will cost so much that you would not want a second ton produced."

"All you say is true, Simcox, and I am not going to argue with you. But I am going to tell you, and all of the rest of this high salaried Board, one thing. I must have more cellulose, lots more, and it has to be produced at a low price per ton and near enough to our factories so that the freight will not be an expensive item. Now, go ahead with the problem. If you fail, you're fired.

That statement goes better than a hundred arguments. I am not a scientist, just a business man. I hire intelligence. When I do not get my money's worth, it is just too bad for the experts. My advice to you is to get busy or get out!"

That ended the argument.

Simcox, doing all he could, could see no solution. He talked plants, thought plants, even dreamed of plants. One dream was especially terrible. He fancied a world of plants, growing rapidly, fighting each other for root room, stretching upward towards the sun through dismal dank forests, reaching an early maturity and rotting, only to furnish food for their children and grandchildren. He dreamed of a world so overgrown with vegetation that few other forms of life could exist, a world where every drop of moisture was sucked out of the ground, carried up the trunks of trees, dissipated into the air to be returned in a perpetual rain. He awoke in a shivering sweat.

"That dream is a memory!" he whispered to himself as he shaved. "Such a world existed at some time. I must find out more about it."

He told the dream to a friend who happened to be a palæo-botanist. The man laughed at the dream and inquiry.

"I AM surprised at your question, Simcox. Of course you are not as well acquainted with the past plant life as you are with the present. Your dream is a rather vivid description of the earth during the Carboniferous Age of the late Palæozoic Period. The earth was a swamp; the climate was hot, almost steamy, and rain fell most of the time. Tree ferns, club mosses, and trees that later became conifers grew in lush profusion. The scale tree, *Lepidodendrom*, the seal tree, *Sigillaria*, club mosses a hundred feet high and *Cordaites* fought each other for the right to live, for water

to drink, and for a place in the sun. There were a few insects, some amphibia and occasionally a primitive reptile. You read the description in a book, forgot it, and then recalled it in a dream. All very simple."

"But what became of them? What was the end of such giant vegetation? Ferns a hundred feet high? Moss as tall or taller?"

Again the specialist laughed.

"They fell to the ground and changed into coal. I can show you hundreds of their pictures in the rocks of the coal beds, fossils of their trunks, their leaves and even their spores. We have ferns and moss now, but all those giant forms are gone—forever."

"What a world that would have been for the Boss!" exclaimed Simcox. "It would have given him all the cellulose he could have used. Of course, we know about mosses and ferns to-day, but our plant would use a year's supply of such little things in one day. It would just be aggravating. If we cannot grow enough corn stalks in a season to satisfy his demands, why think of mosses and ferns?"

"Of course," reiterated the palaeobotanist, "those plants were very large. The club moss grew over six feet in diameter, and fully a hundred feet high. Their roots were driven into the earth to a distance of sixty feet. And it is supposed that their growth was rapid. A scale tree, a thirty meter fern, grew to maturity in a single season and died as quickly."

"ARE you sure of that?" asked Simcox.

"I think so. Of course, the only way we know about it is to compare the vegetation of that period with its descendants of our own period. That is what I used as a basis for my statement."

"There is help there for me. At least,

there is a line of investigation," sighed Simcox. "It may help me to hold my job and then again it may make the Boss think I am insane. At any rate, I am going to study the ferns and mosses. If a variety could be developed that would grow six feet in diameter and a hundred feet high in one season, it would give Cellulose Incorporated all the raw material it needed."

He started to study the lycopods. Nothing very startling there. Little flowerless herbs, with erect widely branched stems and small simple leaves, closely covering stems and branches. The fertile leaves were arranged in cones, holding spore cases in their axils. Rarely more than six inches high. The spores, falling to the ground, formed prothallium, and these, breaking up into male and female parts, caused the generation of new plants. All very simple. Nothing there he did not already know. But there was a difference between a club moss six inches high and one a hundred feet high. The difference was exactly ninety-nine and one-half feet.

No help in the club mosses to make his job a permanent one. He felt that the secret was there, but that was all. The very fact, that he felt the way he did, made him more determined than ever to learn what the secret was. He practically lived and slept with the mosses. He talked to everyone who knew anything about their mode of life and reproduction. After a few weeks of this, people began to talk about him and shook their heads in a significant manner. A good fellow gone wrong. But at last he found something. At one of the Eastern colleges a scientist was studying the effect of X-ray bombardment on the spores of ferns. Doses of 2,500 to 5,000 roentgens increased the rate and quality of growth. Doses of 7,000 to 30,000 stopped growth but did

not kill. Instead it made an occasional spore into a giant, several hundred times the average size. These gargantuan spores remained alive but did not grow.

Simcox went there. The college scientist welcomed him and told him all he knew. He opened a small pill box and showed him some of the massive spores, really little balls, but in comparison with other spores of the same plant, enormous seeds.

"Have you done anything like that with the club mosses?" asked Simcox.

"No. Only with ferns. But the same thing would happen. At least, I think so."

SIMCOX left at once. He had an idea and was afraid of talking. Strange as it might seem, he went at once to see Timothy Tompkins. He told him the story of the giant club mosses of millions of years before and the tale of the spores, made two hundred times larger than their brother spores by the action of the X-ray bombardment. Tompkins was interested.

"If you can grow me millions of club mosses each six feet in diameter and a hundred feet high, your job is saved and your salary increased ten times; how long will it take to grow just one for me?"

"It may take a year; it may take a lifetime. I told you that the college man was unable to make one of the large spores grow, didn't I?"

"I am not interested in failure," growled the President of Cellulose Consolidated. "Effort without success simply irritates me. You can have unlimited funds, and a year of time. By the end of twelve months you either will or will not make good. You can draw on me for any sum you want. If you fail, I never want to see you again. If you succeed in finding a new and unlimited source of cellulose, you will be

one of the big men in our company. Now, get out of the office! I have other things to do."

With unlimited funds at his disposal for experimental purposes, Simcox lost no time. Hundreds of plants of club-moss were irradiated. Their spore formation was studied. There was no doubt about the fact that large dosage of X-raying produced the massive type of spore which seemed capable of living indefinitely but showed no inclination to grow into new plants. There was the difficulty! How could it be shown that a larger spore produced a larger form of club moss if the spore did not grow?

Metchlinkoff, working on frog's eggs in Chicago, gave Simcox the hint. Irritation of the spore with a fine needle. That stimulated the frog egg; why not the spore of the club moss? Simcox tried it and found that it worked. Once the spore was irritated and buried in rich soil, it started to grow. The growth of the first six spores was so startling, so rapid, that Simcox closed his laboratory to all visitors, had most of his assistants transferred, and deliberately destroyed the young plants.

HE transferred his laboratory to an isolated part of Nebraska. There he had leased a two thousand acre tract. The land was rich, there was some water, the roads were poor, and there were no tourists. He re-established his laboratory, and a hundred feet from the house he planted one of the massive spores.

All he had to do was to wait. It was summer time and hot. In a week the shoot of the club moss was out of the ground. Simcox ran a water line out to the young plant and gave it water daily. At the end of the second week it was twenty feet high, one foot in diameter and gave the impression that it was far from maturity. The scientist

waited one more week and then sent a wire to the President of Cellulose Consolidated, asking him to come out to Nebraska. The message was short but distinctly urgent. Timothy Tompkins evidently realized that Simcox had something to show him. He went to Nebraska by plane. He arrived four weeks to the day after the planting of the spore.

On the flat treeless plain of the prairie the sixty-foot tree moss stood up like a flag pole. It was now over five feet in diameter, and daily observations showed that it was still growing rapidly. Simcox took the President of his company out to the moss without a word of explanation, without even a word of welcome. He wanted Tompkins to make his own observations free from interruption from a subordinate.

Tompkins looked at the tree, felt it, took a penknife and cut into the bark. He took out a pocket magnifying glass and looked at the piece of wood in his hand. At last he turned around to his employee.

"How old is the thing, Simcox?"

"I planted the spore twenty-eight days ago."

"Have you any more of the seeds?"

"Sure! I think that I can produce them by the thousands."

"Then, what are you wasting time for? Get busy! I'll send you a hundred men. Plant ten thousands seeds, fifty feet apart, and we will see what will happen. Three months from now we ought to have a forest. Will they have seeds? Do you suppose we have a new kind of plant? If so, we will not cut a single one of them, but I will lease every piece of land for fifty miles in all directions."

"But are we sure of our finding, Mr. Tompkins? Here is one freak vegetation. How do we know that other spores will grow in the same way? How do we know that the spore from this giant

club moss will reproduce similar trees? Would it not be best to go slowly?"

"No!" thundered the President of Cellulose Consolidated. "We cannot lose a day. I have twice as many orders as we can possibly fill. If this thing is as good as it looks, it is worth the gamble. I am going to lease every inch of land I can, and you stay here and get every seed you can ready for planting. I will have a planting crew here that will do anything you tell them to."

"But how about water?"

"I'll run a pipe line from the Great Lakes if necessary. You annoy me with your timidity. Let's get this thing started."

THREE months from that time a forest of club moss trees was growing in western Nebraska. It was soon found that it was unnecessary to water them. They seemed to get all the moisture necessary from the soil and air. The first tree was now maturing and forming spores. To Simcox' delight and astonishment, these spores were as large as the ones he had first planted. Evidently the trees were able to reproduce spores as large as those activated by the X-ray. And when these were planted, their rate of observed growth exceeded, if anything, the daily growth of the present trees. The spores were carefully gathered and planted. A few of the first trees were cut down and their pulp studied for experimental purposes, but most of the old trees were allowed to stand.

At the end of a year the ranch house was in the midst of a dense forest that extended from it for twenty-five miles in all directions. All of the leased land had young trees planted on it, either by hand or by the wind. What had once been open treeless prairie was now a dense forest. Even the roads were overgrown and it was increasingly difficult

to drive a machine into the center of the growth. Men had been lost in the forest. The constant falling of old trees added to the danger.

If at that time the full import of the novelty had been recognized and corrective measures taken at once, the future terror might have been avoided. But the President of Cellulose Consolidated, not wanting to waste a single year, started similar forests in Kansas, Colorado, Arkansas and the waste lands of Louisiana. It is true that he started lumber camps on the edge of the Nebraska forest, and, for a time, was able to harvest the giant club moss trees as fast as they grew, but, even with the resources at his command, even that first forest outgrew the efforts made to convert it into commercial cellulose.

Two other factors operated unfavorably.

The spores were windblown for hundreds of miles. Where one fell it grew. Where one grew one month a thousand grew three months later. New forests developed seemingly over night. Nurseries, feeling a sure demand for the agricultural novelty, sold seeds by the hundred thousand. Landowners were advised to grow their own forests for fire wood and wind brakes. Everybody wanted to have at least one club moss tree, even if there was no other place to grow it than in the front yard.

Cut into firewood, it burned with a peculiar blaze and an unusual warmth. One tree would furnish winter firewood for a family. Its growth was recommended by charitable associations and fought by the coal miners. If cut down during the first month of growth and cut up, it was readily eaten by cattle. It was new, useful and spectacular.

Not till the third year was the danger realized.

Then it was too late.

THE production of club moss trees had passed out of human control. Their growth crowded out all other vegetation. Their falling trunks began to block the highways, arteries of commerce. Only by constant vigilance were the railroads kept open and safe. The land that formerly grew food for a nation now grew nothing but cellulose. The deserts changed into forests, for the tall club moss had roots that had no difficulty in driving down through the dry sands and reaching the water thirty feet below the surface. The smaller rivers were drained of their water, the large rivers became slow flowing swamps. The cities remained isolated oases, saved by their cement pavements.

The mountains might have saved the Pacific and the Atlantic coastal regions had the danger been realized early enough, and had there been no wind. But where water flowed and wind "blowed" the spores carried their menace.

And with the forests came rain. Not gentle, pleasing showers, alternating with days of sunshine and happiness, but a continual dripping precipitation that aided in the rotting of the falling trees and the more rapid growth of the new vegetation.

For decades man had become urbanized. He had almost forgotten the necessity of the agricultural regions. Milk, meat, vegetables, grain came from farms seldom seen and never appreciated, and all that was necessary to prolong life was the cash to buy the products of the farm brought to the cities by train and truck. Now, acre after acre, farm after farm was abandoned to the silent enemy. Where little families had lived, happy, with their feet on the soil and their heads in the clouds, giant trees shot upward, making all other form of life, vegetable or animal, an impossibility.

The cities were starving. Not only that, but they were increasing in popula-

tion at such a rapid rate that there was no work, no room, and no hope. Armies were mobilized to clear land, but faster than the trees could be destroyed they reproduced. People sickened as they worked, despaired as they labored in the constant rain and unending growth and rotting. The United States was rapidly returning to the Pennsylvania period of the Carboniferous age.

CELLULOSE CONSOLIDATED had apparently caused the downfall of a nation. In an effort to secure more business it had been too successful in the growth of cellulose. There was more of the important raw product now in the United States than a dozen nations could commercialize. Besides, people were not buying these products now. All they wanted was food. Clothing, newspapers, a hundred former necessities now seemed useless luxuries. When a man is hungry he can think of nothing else.

Simcox, haggard, remorseful, thinking of little except the starving millions, walked, practically unannounced, into the once busy office of Timothy Tompkins, the President of Cellulose Consolidated. The erstwhile great man was mixing a can of condensed milk with twice its volume of water and drinking it between puffs of a cigar. He was not very happy. At any time the national consciousness might awaken to the fact that he was responsible for the Country's calamity, and then the mob would demand his life; and death at the hands of a hungry mob was not a pleasant thing.

He looked at Simcox with the anger of a God gone mad.

"Get out of here!" he yelled. "I do not see how you have the courage ever to face me!"

Simcox was not afraid.

The peril of the tree terror had been

a great leveler of caste. A rich hungry man was just about equal to a poor hungry man in those days. He sat down opposite Tompkins, without invitation took one of the Havanas out of the humidor and began.

"No use being sore, Mr. Tompkins. You engaged me to do a certain piece of work and told me I would be without a job if I failed to make good. You wanted more cellulose. Was it my fault that I produced more than you could use?"

"You told me that the life of the nation depended on the supply of cellulose. When you talked to us that day you told of a hundred necessary products that could be made from cellulose and of a hundred more household necessities that might come in the future if the supply of raw material placed the cost of production low enough. Do you remember? How you told of the day when houses, roads, even railroads would be built of cellulose? You threatened me and I reacted to the fear of losing my job by giving you the raw material.

"And what did you and your great company do? Practically quit! Because you could not sell, you ceased to invent new uses for this cellulose and even stopped to supply the world with the stuff you knew how to make.

"You quit! At one time you said that given enough cellulose you would give man a three-day, three-hour working week and let him play the rest of the time. I gave you the raw material, and you let America starve to death.

"But I am here to save the nation if you have the courage to fight."

Tompkins almost swallowed his cigar in his rage.

"There was a time," he yelled, "when I would have picked you to pieces and filled the scrap basket. Now, I am through."

"I thought so," said Simcox, "but you were a man once and there may

still be a backbone under that yellow streak. Let me tell you something. In the outer office I have a new found inventor. He is so much of an insane genius that he can think and talk of nothing except cellulose and things to do with it. He has a little machine. A man can cut pieces of club moss with a pen-knife, feed it into that machine and turn a crank, like a coffee grinder used to have, or an ice cream churn. And out of the other end comes food. Real food. I have tasted it. The fool inventor has lived on it and water for three months and is as fat as a turkey at Thanksgiving time. Food! Think of it! You used to say that a steer could take cellulose, digest it and turn it into meat and fat. I remember reading a book about the termites, and how they lived on cellulose. Now, this inventor has turned the trick. Lord Birkenhead prophesied it for 2030, but you said it was too expensive. But the man tells me his little machine can be made for less than three dollars, and five cents' worth of chemicals will make enough food to keep a family a month.

"Use the resources of your great concern. Put these idle million of city dwellers to work. Pay them with machines and a quart of the necessary compound. Send them to the rims of the forests and tell them to break up the young plants and feed them to the machine. Put hope into their hearts. Send word over the nations that from now on no one will go hungry! Radio the specifications of this machine to each of your factories. Tell every manufacturing concern, automobile plant, furniture factory how to make them. Broadcast it! Put food into the stomach and hope into the soul of the desperate men of the nation! Get busy! This inventor says you can have the machine. He is so busy working on new ideas that he cannot be bothered. He thinks he can

make other machines, little household equipment, run by hand, that will make the lives of people comfortable by new uses of cellulose.

"There is room in the cities for everybody. What has made them desperate has been the lack of food, the daily deaths from starvation. With a development of courage and a national spirit of victory, the tide may yet turn. The forests may fill the farms, but even fern trees cannot live on cement pavements. And that cellulose, you wanted so much and did not know what to do with when you got it, can be made to feed us, clothe us, supply us fuel, houses, roads. Once you were called the greatest of all industrial Americans. Here is your chance to show that you deserved that reputation. What is your answer?"

TOMPKINS stood up by his desk. He had been a great leader, and he was still a great one.

"Bring that man in," he cried.

Soon an odd shaped box was on his office table. A long haired man was caressing it lovingly, as a father would an only child, and telling in six syllable words just how it worked.

Tompkins took a dozen lead pencils and broke them to splinters.

"Cellulose is cellulose!" he cried. "This is cedar wood, but the principle remains the same. Which way do you turn the crank?"

Five minutes later little brown tablets began to drop out of a hole near the bottom of the machine. Tompkins put one in his mouth and started to chew.

"It's good!" he cried. "It has a lead-pencil taste, but that can be remedied, and, anyhow, club moss would be different. I do not know so very much about machinery, but if this man made this one, he can tell my experts how to make more." He pushed a dozen buttons and

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THE TREE TERROR

(Continued from page 553)

started to give orders to the amazed, excited men who had been dozing in a dozen empty offices.

"We are saved!" he told them. "It's going to be a long fight and a hard one, but, once the nation is fed, the rest will be easy. All we need is courage and a backbone. Listen to this inventor. Let him talk and then get busy. Radio the specifications of this machine to all of our factories. Tell them to spread the news. In three days the

starving, eating cellulose, will be growing strong—made from club moss—and then, when the fear of starvation is gone, we will start to use those forests. A hundred new ways of using cellulose will be found, and Cellulose Consolidated will once again be the greatest commercial organization in the world!"

"Do I get that raise in salary?" asked Simcox.

THE END