

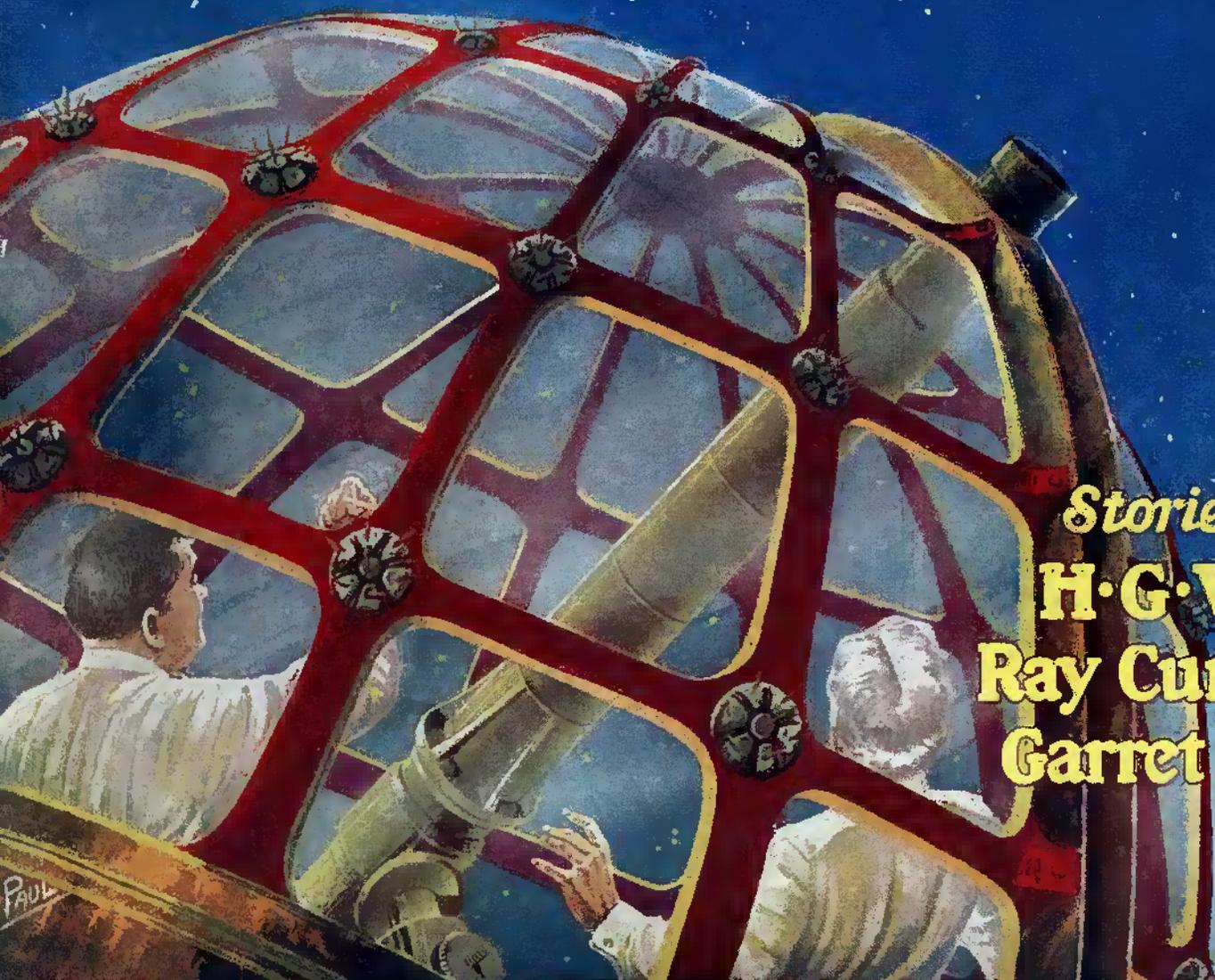
October

BROADCAST
WRNY
STATION

25 Cents

AMAZING STORIES

HUGO GERNSBACK
EDITOR



Stories by-
H·G·Wells
Ray Cummings
Garret Smith

EXPERIMENTER PUBLISHING COMPANY, NEW YORK, PUBLISHERS OF
RADIO NEWS - SCIENCE & INVENTION - RADIO LISTENERS' GUIDE - SPARE-TIME MONEY MAKING - FRENCH HUMOR

7 Tube Set Single Dial Radio

**30
DAYS
FREE
TRIAL**



Metrodyne Radio Sets

Are Equipped
For
**BATTERY or
ELECTRIC**
operation

The Metrodyne
ONLY ONE DIAL TO TUNE



RETAIL PRICE

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Big Discounts to
Agents and Dealers**

Wonderful offer direct from the factory! The world's greatest radio! A perfect working, single dial control, 7 tube receiver! And just to prove our claims, we will ship it to your home for **30 days' free trial**. Test it under all conditions. Test it for distance, volume and tonal quality—and if you are not convinced that it is the best single dial set you ever heard, return it to the factory. We don't want your money unless you are completely satisfied.

Three Year Guarantee

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Our Agents and Dealers make big money selling Metrodyne Sets. You can work all or part time. Demonstrate the superiority of Metrodynes right in your home. Metrodyne Radios have no competition. Lowest wholesale prices. Demonstrating set on 30 days' free trial. Greatest money-making opportunity. Send coupon, a letter or a postal for our agent's proposition.

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A single dial control, 7 tube, tuned radio frequency set. Tested and approved by Popular Science Institute of Standards, Popular Radio Laboratory, Radio News Laboratory and by America's leading Radio Engineers. Designed and built by radio experts. Only the highest quality low loss parts are used. Magnificent, two-tone walnut cabinet with beautiful, gilt metal trimmings. Very newest 1928 model, embodying all the latest refinements.

Easiest set to operate. Only one small knob tunes in all stations. The dial is electrically lighted so that you can log stations in the dark. The volume control regulates the reception from a faint whisper to thunderous volume, **1,000 to 3,000 miles on loud speaker!** The Metrodyne Super-Seven is a beautiful and efficient receiver, and we are so sure that you will be delighted with it, that we make this liberal **30 days' free trial offer**. You to be the judge.



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Metrodyne Super-Six

Another triumph in radio. Here's the new 1928 model Metrodyne 6 tube, two dial, long distance tuned radio frequency receiving set. Approved by leading radio engineers of America. Highest grade low loss parts, completely assembled in a beautiful walnut cabinet. Easy to operate. Dials easily logged. Tune in your favorite station on same dial readings every time—no guessing.

Mr. Howard, of Chicago, said: "While five Chicago broadcasting stations were on the air I tuned in seventeen out-of-town stations, including New York and San Francisco, on my loud speaker horn, very loud and clear, as though they were all in Chicago."

We are one of the pioneers of radio. The success of Metrodyne sets is due to our liberal 30 days' free trial offer, which gives you the opportunity of trying before buying. Thousands of Metrodynes have been bought on our liberal free trial basis.

**6
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\$48⁵⁰**
RETAIL PRICE
Completely
Assembled

**MAIL THIS
COUPON** 
or send a postal or letter. Get our
proposition before buying a radio.
Deal direct with manufacturer—
SAVE MONEY—WRITE NOW!

MAIL COUPON BELOW

**Let us send you proof of Metrodyne quality—our
30 days' free trial offer and 3 year guarantee**

Mrs. Wm. Leffingwell, Westfield, N. J., writes: "The Metrodyne Radio I bought of you is a wow! This is as good as any \$225 machine I have ever seen."

N. M. Greene, Maywood, Ill., writes: "My time is up and the Metrodyne works fine. I got Havana, Cuba, Oakland, Calif., Denver, Colo., Toronto, Canada, all on the loud speaker."

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We will send you hundreds of similar letters from owners who acclaim the Metrodyne as the greatest radio set in the world. A postal, letter or the coupon brings complete information, testimonials, wholesale prices, and our liberal **30 days' free trial offer**.

METRO ELECTRIC COMPANY
2161-71 N. California Ave., Dept. 276
Chicago, Illinois

Gentlemen:

Send me full particulars about Metrodyne 6 tube and 7 tube sets and your **30 days' free trial offer**.

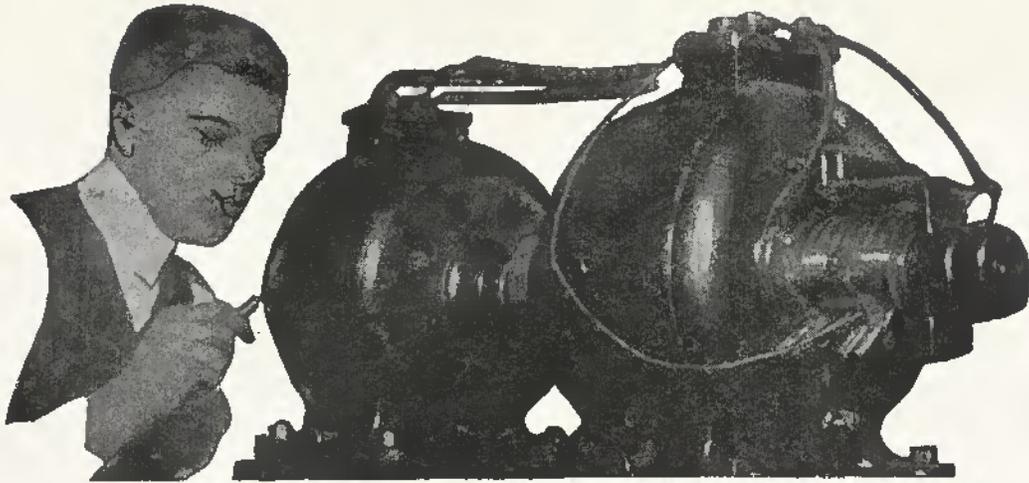
Name _____

Address _____

If you are interested in AGENT'S proposition, place an "X" in the square

METRO ELECTRIC COMPANY

2161-71 N. California Ave. • Dept. 276 • Chicago, Illinois



Amazingly Easy Way to get into ELECTRICITY

Don't spend your life waiting for \$5 raises in a dull, hopeless job. Now . . . and forever . . . say good-bye to 25 and 35 dollars a week. Let me show you how to qualify for jobs leading to salaries of \$50, \$60 and up, a week, in Electricity—NOT by correspondence, but by an amazing way to teach, that makes you an electrical expert in 90 days! Getting into Electricity is far easier than you imagine!

Learn Without Lessons in 90 DAYS

of experience—age, or advanced education bars no one. I don't care if you don't know an armature from an air brake—I don't expect you to! I don't care if you're 16 years old or 48—it makes no difference! Don't let lack of money stop you. Most of the men at Coyne have no more money than you have.



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We will allow your railroad fare to Chicago, and if you could need part-time work we'll assist you to it. Then, in 12 brief weeks, in the great roaring shops of Coyne, I train you as you never dreamed you could be trained . . . on the greatest outlay of electrical apparatus ever assembled . . . costing hundreds of thousands of dollars . . .

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- Here are a few of hundreds of positions open to Coyne-trained men. Our free employment bureau gives you lifetime employment service.
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 - Substation Operator - \$65 a Week
 - Auto Electrician - \$110 a Week
 - Inventor - Unfitted
 - Maintenance Engineer - \$150 a Week
 - Service Station Owner - \$200 a Week
 - Radio Expert - \$100 a Week

real actual work . . . building real batteries . . . winding real armatures, operating real motors, dynamos and generators, wiring houses, etc., etc. That's a glimpse of how we make you a master practical electrician in 90 days, teaching you far more than the average ordinary electrician ever knows and fitting you to step into jobs leading to big pay immediately after graduation. Here, in this world-famous *Parent school*—and nowhere else in the world—can you get such training!

Jobs, Pay, Future
Don't worry about a job, Coyne training settles the job question for life. Demand for Coyne men often

exceeds the supply. Our employment bureau gives you lifetime service. Two weeks after graduation, Clyde F. Hart got a position as electrician with the Great Western Railroad at over \$100 a week. That's not unusual. We can point to Coyne men making up to \$600 a month. \$60 a week is only the beginning of your opportunity. You can go into radio, battery or automotive electrical business for yourself and make up to \$15,000 a year.

Get the Facts

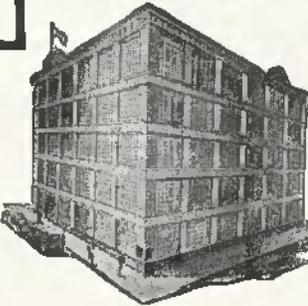
Coyne is your one great chance to get into electricity. Every obstacle is removed. This school is 28 years old—Coyne training is tested—proven beyond all doubt—endorsed by many large electrical concerns. You can find out everything absolutely free. Simply mail the coupon and let me send you the big, free Coyne book of 150 photographs . . . facts . . . jobs . . . salaries . . . opportunities. Tells you how many earn expenses while training and how we assist our graduates in the field. This does not obligate you. So act at once. Just mail coupon.

real dynamos, engines, power plants, autos, switchboards, transmitting stations . . . everything from doorbells to farm power and lighting . . . full-sized . . . in full operation every day!

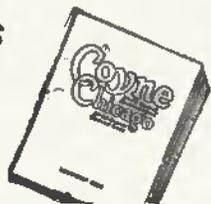
No Books—No Printed Lessons
No books, no baffling charts . . . all

Now In Our New Home

This is our new, fireproof, modern home wherein is installed thousands of dollars, worth of the newest and most modern Electrical Equipment of all kinds. We now have the largest amount of floor space devoted to the exclusive teaching of practical electricity in the world. Every comfort and convenience has been arranged to make you happy and contented during your training.



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500 S. Paulina St., Chicago Established 1899



JULES VERNE'S TOMBSTONE AT AMIENS
PORTRAYING HIS IMMORTALITY

AMAZING STORIES

Vol. 2 No. 7
October, 1927

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SPARE-TIME MONEY MAKING, FRENCH HUMOR

Owners of Broadcast Station WRNY

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Our Cover

this month depicts a scene from Ray Cummings' "Around the Universe" in which the Professor of Knowledge and a Scientist and Tubby, the other occupant of the Space Flyer, see another Space Flyer, somewhat different in shape from theirs, hovering almost directly above them, showing like a dark spot in the Firmament.

HOW TO SUBSCRIBE FOR "AMAZING STORIES." Send your name, address and remittance to Experimenter Publishing Co., 230 Fifth Ave., New York City. Checks and money orders should be made payable to Experimenter Publishing Co., Inc. Mention the name of the magazine you are ordering inasmuch as we also publish RADIO NEWS, SCIENCE & INVENTION, RADIO LISTENERS' GUIDE AND CALL BOOK, SPARE-TIME MONEY MAKING and FRENCH HUMOR. Subscriptions may be made in combination with the other publications just mentioned.

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In Our Next Issue:

TREASURES OF TANTALUS (Conclusion) by Garret Smith. Though Professor Fleckner's *telephonoscope* bids fair to act for the public good, because of its ability to penetrate the thickest walls and look into the most submerged hiding places and so unearth a gigantic criminal trust, avariciousness, with the help of newer and cunning devices, throws the world into panic and a veritable reign of terror. This well-known author makes the most out of the various developments of the plot and intricacies and gives us a tremendously interesting conclusion to an unusually good scientific story.

HICKS' INVENTIONS WITH A KICK (The Hicks Electro-Hydraulic Bank Protector) by Henry Hugh Simmons. Being a true inventive genius, Mr. Hicks, despite his luckless demonstrations, bobs up once more with a more marvelous invention than ever. This time it is a contrivance for the absolute protection of banks against any and all robbers. High water pressure plays an effective part here—too effective in this demonstration, in fact.

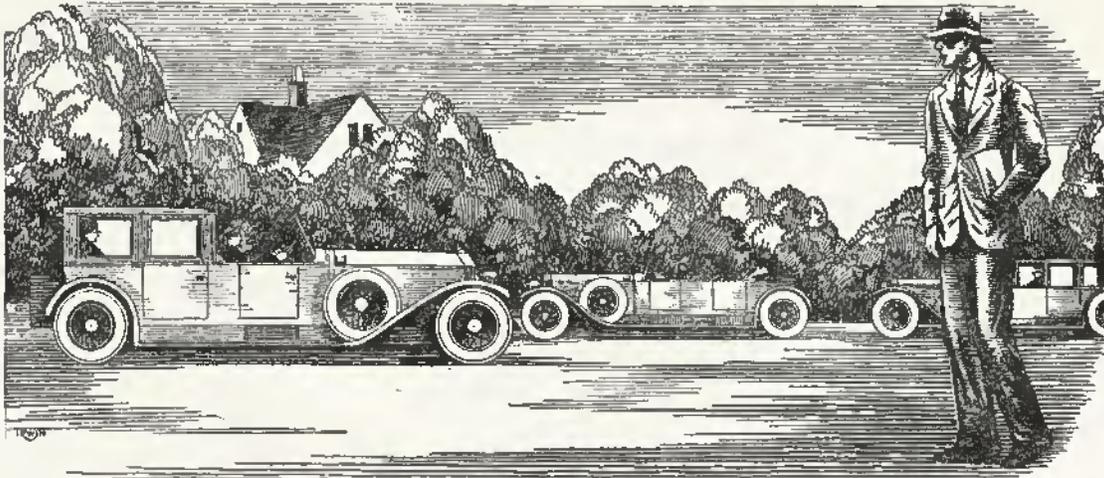
THE ASTOUNDING DISCOVERIES OF DOCTOR MENTIROSO, by A. Hyatt Verrill. This, no doubt, is *the* story of the year. Our well-known author is delving into the realm of time in this most absorbing story, and before you get through reading it your head will be in a whirl. What is the past? What is the present? Can we step into the future? Can you witness something now that happened yesterday, and can you actually see something that is going to take place tomorrow? Dr. Mentiroso shows you how it is done, backing it up by the best of reasons and scientific facts that you will not be able to refute. Don't fail to read this story.

A STORY OF THE STONE AGE, by H. G. Wells. Our famous author has gone back to the stone age and develops a picture before your eyes that is most astounding to our present-day experience. Yet there is no question that the things that Mr. Wells speaks of must have existed in the far gone age when man was still young and not much more than an animal. If you ever wanted to know what your great great ancestors were doing in their day, you positively must read this story.

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A. J. NORRIS HILL CO., 5 Third St., San Francisco, Calif.
412 W. 6th St., Los Angeles, Cal.; Leary Bldg., Seattle, Wash.



Many times in the old days, while I trudged home after work to save carfare, I used to gaze enviously at the shining cars gliding by me, the prosperous men and women within. Little did I think that inside of a year, I, too, should have my own car, a decent bank account, the good things of life that make it worth living.

I Thought Success Was For Others

Believe It Or Not, Just Twelve Months Ago I Was Next Thing To "Down-and-Out"

TODAY I'm sole owner of the fastest growing Radio store in town. And I'm on good terms with my banker, too—not like the old days only a year ago, when often I couldn't have one dollar to knock against another in my pocket. My wife and I live in a suggest little home you ever saw, right in one of the best neighborhoods. And to think that a year ago I used to dodge the lady when she came to collect the rent the little bedroom I called "home"!

It all seems like a dream now, as I look back over the past twelve short months, and how discouraged I was then, at the end of a blind alley." I thought I never had a good chance in my life, and I thought I never would have one. But it was coming up that I needed, and here's the story how I got it.

I WAS a clerk, working at the usual miserable salary such jobs pay. Somehow I'd never found any way to get into a line where I could make good money.

Other fellows seemed to find opportunities. As much as I wanted the good things that come with success and a decent income—all the nicely well-paid vacancies I ever heard of seemed to be out of my line—to call for some kind of knowledge I didn't have.

And I wanted to get married. A fine situation, wasn't it? Mary would have agreed to it—but it wouldn't have been fair to her.

Mary had told me, "You can't get ahead here you are. Why don't you get into another line of work, somewhere that you can advance?"

"That's fine, Mary," I replied, "but what can I do? I've always got my eyes open for a better job, but I never seem to hear of a really good job that I can handle." Mary didn't seem to be satisfied with the answer, but I didn't know what else to tell her.

It was on the way home that night that I stopped off in the neighborhood drug store, where I overheard a scrap of conversation about myself. A few burning words that were the cause of the turning point in my life!

With a hot flush of shame I turned and left the store, and walked rapidly home. So that's what my neighbors—the people who know me best—really thought of me!

"Bargain counter sheik—look how that suit fits," one fellow had said in a low voice. "Bet he hasn't got a dollar in those pockets." "Oh, it's just 'Useless' Anderson," said another. "He's got a wish-bone where his back-bone ought to be."

As I thought over the words in deep humiliation, a sudden thought made me catch my breath. Why had Mary been so dissatisfied with my answer that "I hadn't had a chance?" Did Mary secretly think that too? And after all, wasn't it true that I had a "wish-bone" where my back-bone ought to be? Wasn't that why I never had a "chance" to get ahead? It was true, only too true—and it had taken this cruel blow to my self-esteem to make me see it.

With a new determination I thumbed the pages of a magazine on the table, searching for an advertisement that I'd seen many times but passed up without thinking, an advertisement telling of big opportunities for trained men to succeed in the great new Radio field. With the advertisement was a coupon offering a big free book full of information. I sent the coupon in, and in a few days received a handsome 64-page book, printed in two colors, telling all about the opportunities in the radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities. I read the book carefully, and when I finished it I made my decision.

WHAT'S happened in the twelve months since that day, as I've already told you, seems almost like a dream to me now. For ten of those twelve months, I've had a Radio business of my own! At first, of course, I started it as a little proposition on the side, under the guidance of the National Radio Institute, the outfit that gave me my Radio training. It wasn't long before I was getting so much to do in the Radio line that I quit my measly little clerical job, and devoted my full time to my Radio business.

Since that time I've gone right on up, always under the watchful guidance of my friends at the National Radio Institute. They would have given me just as much help, too, if I had wanted to follow some other line of Radio besides building my own retail business—such as broadcasting, manufacturing, experimenting, sea operating, or any one of

the score of lines they prepare you for. And to think that until that day I sent for their eye-opening book, I'd been wailing "I never had a chance!"

NOW I'm making real money. I drive a good-looking car of my own. Mary and I don't own the house in full yet, but I've made a substantial down payment, and I'm not straining myself any to meet the installments.

Here's a real tip. You may not be as bad off as I was. But, think it over—are you satisfied? Are you making enough money, at work that you like? Would you sign a contract to stay where you are now for the next ten years, making the same money? If not, you'd better be doing something about it instead of drifting.

This new Radio game is a live-wire field of golden rewards. The work, in any of the 20 different lines of Radio, is fascinating, absorbing, well paid. The National Radio Institute—oldest and largest Radio home-study school in the world—will train you inexpensively in your own home to know Radio from A to Z and to increase your earnings in the Radio field.

Take another tip—No matter what your plans are, no matter how much or how little you know about Radio—clip the coupon below and look their free book over. It is filled with interesting facts, figures, and photos, and the information it will give you is worth a few minutes of anybody's time. You will place yourself under no obligation—the book is free, and is gladly sent to anyone who wants to know about Radio. Just address J. E. Smith, President, National Radio Institute, Dept. M-5, Washington, D. C.

J. E. SMITH, President,
National Radio Institute,
Dept. M-5, Washington, D. C.

Dear Mr. Smith:

Please send me your 64-page free book, printed in two colors, giving all information about the opportunities in Radio and how I can learn quickly and easily at home to take advantage of them. I understand this request places me under no obligation, and that no salesmen will call on me.

Name

Address

Town State

FREE 10 DAYS TRIAL

THE NEW
IMPROVED

INKOGRAPH

"PENCIL POINTED PEN"

\$1.50

The Perfect Writing Instrument

GREATEST VALUE EVER OFFERED

\$1000 REWARD

to anybody who can prove that these testimonials were solicited by us.

Inkograph has proven so satisfactory and has elicited considerable favorable comment an enclosing money order, please send me three more. T. J. Trow, Traveling Claim Agent, Joplin, Mo.

The Inkograph fully justifies all claims you make. I own a Waterman but Inkograph is far preferable. Frank R. Sargent, Oakland, Calif.

You have one of the best writing instruments I ever used regardless of price. I use the lowest grade stationery and there is never a blot or scratch because of its round smooth point. It is a wonderful invention. L. H. Orley, Albano, Va.

Oh boy, I am tickled skinny to have the Inkograph, it's a darling, I can now make carbon copies in taking orders and send original ink to factory instead of a penciled sheet. It surely flows over the paper as if it was grease instead of ink. No trouble at all and a thing I could not do before to trace straight lines very fine and clean. No smear, no muss of any kind. It's just great. E. A. Simms, Jersey City, N. J.

My Inkograph is the smoothest writing instrument with which I have ever written. That is saying a lot. I am a teacher by profession. I have a \$7.00 pen and another that cost more than the Inkograph, but Inkograph is better than either. It is the greatest improvement in writing instruments since the Babylonians recorded their thoughts on clay tablets with a triangular pointed reed. John R. Atwell, Chadwick, N. C.

My Inkograph is the first and only writing utensil I ever owned that I can use with pleasure. To be without it for any time would upset my business day. It has always worked perfectly. I have never had any difficulty with it. Arthur L. Fox, Centerville, Mich.

I am a bank teller, have used all kinds of fountain pens but can honestly say for my work I never found a pen so easy and tireless to write. Do you make out bills or sales slips?—use an Inkograph and make a permanent original in ink with carbon copies. You can permit any one to write with your Inkograph, for no style of writing can affect the Inkograph point as it will a fountain pen.

Delighted: It writes bully—you have invented a pen that is perfection. It is so much more rapid than my \$9.00 fountain pen. I wish you abundant success. S. L. Carlton, Aurora, Ill.

I am very well pleased with my Inkograph. It is just what I have been looking for. I have had several ink pencils but nothing like the Inkograph; it writes like the point was greased and it makes no difference what kind of paper, it is fine for shipping tags. S. T. Jarrett, Harrisville, W. Va.

The Inkograph is all that you claim it to be. Enclosed find order for two. Robert Heller, Craigville, Pa.

The Inkograph, I am thoroughly convinced, is the best writing instrument I have ever used. It is sure, sane and clean and always ready to use. I am very well pleased with it. J. E. Rampton, Pensacola, Fla.

NEVER before has any manufacturer of a standard writing instrument which is guaranteed to give perfect satisfaction, offered you so great a value. Remember, the Inkograph answers the purpose of both pen and pencil combined. Its point is shaped like a fine lead pencil point and writes with ink free and easy without a miss, skip or blur. The steady uniform flow of ink actually improves your handwriting. Won't blot, scratch, leak or soil hands.

You who already possess a standard fountain pen will find the Inkograph a most valuable addition to your writing equipment, for it will do everything any fountain pen can do and many very important things which it is impossible to accomplish with any fountain pen at any price.

Combines the Best Features

of both pen and pencil, minus the weak points of both, plus improvements not found in either. The lead pencil smudges, the point breaks and its writing soon is obliterated. Most fountain pens skip, scratch, flood, clog, leak, blot, soil hands and clothing. The old stylographic ink pencil dries up, balks, blots, writes heavy, flows unevenly and is never reliable. The Inkograph feeds as fast and uniform on the 20th page as it did on the first.

Cannot Leak

Not the tiniest drop of ink will spill, although one filling is sufficient to write thousands of words. Will write on any quality of paper.

Makes 3 to 4 Carbon Copies

at one time with original in ink. Bear down as hard as you like without fear of bending, spreading, injuring or distorting its 14 Kt. solid gold point. Are you a salesman?—use an Inkograph, make your orders in ink and retain a duplicate for your records. Do you wish to keep a copy of your private correspondence?—use an Inkograph. Do you do office work which requires clear carbon copies?—use an Inkograph. Do you make out bills or sales slips?—use an Inkograph and make a permanent original in ink with carbon copies. You can permit any one to write with your Inkograph, for no style of writing can affect the Inkograph point as it will a fountain pen.

SAME SIZE AS \$7 & \$8.75 FOUNTAIN PENS

Draws Lines to a Ruler Without smearing, smudging or blurring the paper. Writes with any color of ink.

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The ink dries as fast as you write, because the flow is fine, even and uniform.

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Prevents clogging. No complicated mechanism to clean or get out of order. A year's guarantee certificate with full directions accompanies each Inkograph and is your absolute protection.

An Instrument of Refinement

In appearance, quality, workmanship and material it is the equal of writing instruments which sell for a great deal more. It's beautifully highly polished finest quality of black, hard rubber, it's 14 Kt. solid gold point and feed, safety screw cap, self-filling lever and clip make it an instrument of distinctive elegance and refinement. Each Inkograph is designed and finished to please the eye and fit the hand of all.

You Who Are Dissatisfied With Your Fountain Pen

Try the Inkograph—remember, all we ask you to do is try it, for if it does not prove thoroughly satisfactory and if it is not handier and does not write smoother and is not far superior to any fountain pen you ever owned, whether it cost \$5, \$6, \$7 or \$8, return the Inkograph to us and we'll refund your money—no questions asked.



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NEW YORK, N. Y.

DEALERS

Stationery Stores, Drug Stores, Department Stores, etc., send for our catalog and trade prices.

SEND NO MONEY

Your name and address are sufficient. Pay postman \$1.50, plus postage on delivery. When remittance accompanies order, Inkograph will be sent postage prepaid. If within ten days the Inkograph does not prove satisfactory return it and we'll refund your money without further correspondence. It is because we are sure the Inkograph will meet your requirements to perfection that makes it possible for us to make you so attractive an offer.

This Coupon Properly Filled Out Is all that's necessary. Send it today and procure one of the New Improved Inkographs on a 10-Day Free Trial, with no strings tied to it. If you prefer smaller size with ring on cap to be carried on watch chain or ladies' sash, mark X here

INKOGRAPH CO., Inc., 91-147 Centre St., New York, N. Y.

Gentlemen: You may send me your Inkograph. I will pay postman \$1.50, plus postage on delivery.

Name.....
Address.....
City..... State.....

Received my Inkograph. Am surprised to know how well I can write with it. The Inkograph is a wonderful little writer, it's my friend now for good penmanship. I am writing this letter with it; can you tell the difference between Inkograph and pen letters? I can in my answer. C. R. Fuller, Patterson, Mo.

I received my Inkograph with which I am writing this letter. I have purchased at least a dozen ink pencils. Yours seems to be the only one that gives perfect satisfaction. I believe you have solved the problem of the perfect writing instrument. Dr. Richard T. McLaury, Dunkirk, Ind.

The Inkograph is truly the best pen I ever had the pleasure to use barring no price or make of pen, after I take into consideration the high price I usually paid for a Parker, or a Waterman pen, I cannot see how such a low priced pen as the Inkograph can be put on the market and give such unusual service. Harvey L. Winston, Brentwood, Calif.

In making out local requisitions, it is necessary to make an original and two carbon copies on very heavy paper, and the Inkograph does this twice as well as the hardest indelible pencil, and is much nearer the original is much more legible. Wm. L. Fortney, Placerville, Ia.

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AMAZING STORIES

THE
MAGAZINE
OF
SCIENTIFUNCTION

HUGO GERNSBACK, *Editor*
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Extravagant Fiction Today - - - - - Cold Fact Tomorrow

AMAZING YOUTH

By HUGO GERNSBACK

THIS is a talk on Youth, because the further progress of the world now lies in the hands of our youngsters. In progress, in originality and invention in general, it is Youth most often that leads. Youth, unhampered by experience, which often proves destructive and a big handicap, goes right ahead and solves problems which the older man approaches with trepidation and misgivings or does not tackle at all, simply because he has either too much knowledge or his mind is in a rut.

Indeed it has been found that most of the great inventions have been made by younger people. Edison, for instance, did his best work when he was a comparatively young man. Bell invented the telephone when quite a young man. In radio, DeForest and Armstrong made their great inventions when still comparatively young. As a matter of fact, most of the great inventions have been made by inventors before they were much over twenty-five years old. When it comes to original thinking, the young man, as a rule, has it all over the older one. His outlook is usually fresh. He is unhampered by set ideas and can, therefore, more easily attain an entirely different viewpoint on all things. For that reason, also, Youth takes much more quickly to innovations than the older person; age-old habits prevent him from adopting the new and untried, and often revolutionary developments. The older person much prefers to stand by and watch the new thing develop, whereas Youth quickly accepts the possibility and is willing to take a chance, even if possible danger is involved. This makes for progress and is indeed necessary for evolution.

One of the outstanding facts about AMAZING STORIES is the percentage of youthful readers who find food for thought and a great stimulus throughout the pages of the magazine. While our office statistics show that 90 per cent of the copies of AMAZING STORIES are bought by adults, the fact remains that the younger generation makes a dash for each copy, even before father gets a chance to read it. One

would think that youngsters from twelve years downwards would not be able to read and digest the stories in this magazine, because most of them require real thought to be understood. Nevertheless, our circle of young friends is constantly growing, and the thousands of letters reaching us show that the youngsters read the stories, not only with interest, but with intelligent understanding. Very often, they are the ones that make the most worthwhile criticisms, and if the authors make some minor mistakes, as they are apt to do once in a while, it is usually the youngsters who find the mistake even when the slip gets by the editors.

This is gratifying, for if we can make the youngsters think, we feel that we are accomplishing our mission, and that the future of the magazine, and, to a degree, the future of progress through the younger generation, is in excellent hands. Once upon a time the youngsters read Indian stories, which were not at all educational; nowadays it is scientification, which is an education in itself. All we can say therefore is "More power to the young men, and let's have more of them."

And while we are on the subject, we have received hundreds of letters from supposedly the "youngest reader" of AMAZING STORIES. We challenge the youngsters by publishing a picture of Master Robert Smith, of New York, seven years old, who not only knows how to read AMAZING STORIES, but is well-versed in scientification generally. At our office recently, this exceptional youngster astonished the editors when he freely developed his views upon scientification. He seemed to know a good many of the better known scientification writers, such as H. G. Wells, Jules Verne, Garrett P. Serviss, etc., and talked intelligently about them. Neither has he missed a single copy of AMAZING STORIES since its inception. Asked what particular style of scientification story he favored, he unhesitatingly stated that he preferred stories of space and of interplanetarian travel.



Master Robert Smith, age 7, possibly the youngest reader of "Amazing Stories."

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from WFRNY on various scientific and radio subjects.

AROUND THE UNIVERSE

By Ray Cummings



The Great Mogul of Jupiter was a towering giant some fifteen feet tall. The audience with His Highness was held in front of the Space Flyer as the travelers found it difficult to walk on Jupiter, owing to the great gravitational pull which increased their weight considerably.

CHAPTER I

In Which Tubby Becomes Aware of His Wonderful Gift, and Accompanied by Sir Isaac Swift DeFoe Wells-Verne, Starts for Venus



HAT ain't so," Tubby spoke up suddenly from the seclusion of his seat across the room. He glanced at the three men who sat around the little table under the circle of light, their poker game temporarily suspended, the cards and chips pushed to one side. "That ain't so nohow. Don't you tell me it is!"

"He ain't tellin' you," responded one of the men caustically.

"I ain't sayin' what I think," the first man defended. "I'm tellin' you what he said. The Stars goes right on past the Sun—right to the edge of Space—only there ain't no edge of Space. That's what he said."

"You're right, Jake," agreed the second man. "That's what he said."

Tubby glared belligerently, and brought his pudgy fist down upon the flimsy arm of the camp chair into which he was wedged. "That ain't so. There must be an edge to Space," he snorted. "How can Space go on forever? That ain't got no sense to it."

The first man continued patiently:

"He said if you could imagine the edge of Space with nothin' on beyond, that would just be more Space, wouldn't it?"

This question addressed directly to Tubby, confused him momentarily. The place where Space stopped with nothing on beyond! Sure that would just be more Space. Then, quite suddenly, the flaw in the argument struck him.

"You got the wrong idea," he declared condescendingly. "I ain't never said there was nothin' on beyond the edge of Space."

"He's right, Jake," the second man put in. "He ain't never said that."

The first man stared.

"You're assumin' somethin' you ain't got no right to assume," Tubby went on mercilessly.

The first man collected his scattered wits. "Well, what did you say?" he demanded.

"I didn't say nothin'," Tubby responded. Then to change the subject he added abruptly:

"Who was he—said all this?"

"A Perfessor—an—an Astronomer," replied the first man. "Us heard him give a lecture last week."

"Did he say the moon had people on it?" Tubby persisted.

The first man, confused by the sudden introduction of this new topic, answered sullenly:

"No, he didn't say nothing about no people in the moon."

"What you gettin' at, Tubby?" the third man put in. "We're talkin' about Space, not no men in the moon."

Tubby smiled genially. "I'm talkin' about the moon. I read a book by a guy named Wells. Now he says——"

"He ain't no Astronomer," the first man objected. "What's he know about it?"

The third man continued the attack.

"Stick to what you were sayin', Tubby. You said there would be somethin' at the edge of Space—not just more Space."

"I didn't say nothin' about it," Tubby repeated. "But I will say . . . There is an edge to Space because when you get there you wouldn't find more Space, you'd find——"

"What?" demanded the first man aggressively when Tubby hesitated.

"Why—why more Land—that's what you'd find."

Tubby glared through the blue haze of the tobacco smoke that hung like a pall about the unventilated room. "More Land," he repeated triumphantly. "Ain't that argument enough? Don't that show Space can't go on forever?"

The third man was gathering up the cards and chips. "Let's go ahead with the game," he suggested. "This here argument ain't got no sense. You shut up, Tubby—you ain't in this."

"Right," said Tubby, with the magnanimous air of a victor. He shifted his feet more comfortably on the second camp chair and leaned back contentedly. "You don't want me talkin'. I can shoot your argument full o' holes in no time."

The first man insisted on proceeding with his astronomical narration, while Tubby listened idly. It was then—as he sat there vaguely sorting out in his mind the miscellaneous statements regarding stars, planets and comets which his friend was making—that his great gift was revealed to him. The revelation came unobtrusively—so unobtrusively in fact, that at first Tubby did not grasp its real significance.

"I wish they'd quit that talkin' an' go on with the game," he murmured to himself with annoyance.

It seemed quite logical that at that instant Jake should decide he wanted to resume the poker game.

At all events, in another moment the chips were clicking on the board table—science was forgotten for the more absorbing intricacies of poker.

Tubby, even then not realizing his marvelous gift, was left alone with his thoughts. Enormously large numbers whirled in his head—strange words—orbis, suns, planets, comets, stars . . . Stars! He seized upon that, as one

word at least, that was really familiar. It was a beautiful night out, he remembered; and as he gazed upward to the dim, smoky rafters of the room he was sorry he was not outdoors.

Tubby Discovers His "Wishing Power"

"I WISH I could see them stars now," he murmured.

And quite naturally, there were the stars, brilliant and glittering, spread out above him like millions of diamonds on a huge blue-velvet cloth. The moon

HERE is one of the most interesting interplanctarian and interstellar stories ever printed. If you are attracted by astronomy, and like to take your lessons in sugar-coated pills, here is a story that you will not soon forget. The narration, incidentally, is written in a lighter vein, with Mr. Cummings' indescribable good humor. For its breadth and completeness, this story easily commands one of the first rank positions in all interstellar space travel stories that have appeared in recent years. Mr. Cummings knows his science, and knows how to spin a most excellent yarn. You simply can not afford to pass this story by.

hung over a clump of trees, above Bill Hawkins' apple orchard.

There are some very surprising things that occur so naturally they do not cause surprise. The revelation of Tubby's marvelous gift was one of them. He was not surprised to see the stars, only pleased.

"I *wish* I knew somethin' really true about them stars," he muttered thoughtfully. And then with sudden vehemence:

"I *wish* I knew all about them stars. I *wish* I knew all about Astronomy—I *wish* I could see it all for myself."

He felt fingers plucking at his sleeve, and turning, faced the dim figure of a man who was standing by his side.

"I came," said the man softly, "because you sent for me." He stepped forward a little, out of the shadow to a place where the moonlight fell on his face. Tubby thought he had never seen so sad a face before. It was long and very thin. It needed a shave, Tubby thought; and its eyes were unnaturally bright. A thin wisp of scraggly brown-white hair was above the face; and below, just above the collar of a soft white shirt, protruded a perfectly enormous Adam's apple.

Tubby's gaze swept the man's thin, but somehow muscular-looking figure—bareheaded, coatless, the white negligée shirt with loose, soft collar and a flowing black bow tie; and very baggy tweed trousers that flapped on bony legs.

"I'm here because you wanted me," the man repeated. His voice was deep and throaty, and inexpressively sad.

Tubby felt immediately sympathetic. "I'm sorry you're so sorry about somethin'," he said consolingly. "I didn't mean to send for you. I—"

The man smiled gently, pathetically. Tubby stared at his Adam's apple, fascinated, for it was bobbing up and down as though its owner were swallowing rapidly.

"Oh, I don't mind," the man said patiently. "*You* couldn't help it. You wished you knew all there was to know about Astronomy——" He paused, his voice trailing away.

"Right," said Tubby encouragingly. He felt somehow tremendously sad, but determined not to show it. "That's what I wished. And so you——"

"So, of course, because you have the power to make all your wishes come true, I had to hurry here to tell you everything you—wanted to know."

His voice broke; and Tubby saw, even in the dim moonlight, that his eyes were filling with tears.

"I'll tell you *all* about Astronomy," the man went on in his dull monotone. "But you won't believe me."

His utterly hopeless depression was contagious. Tubby swallowed the lump in his throat. He put out his hand and touched the man's elbow—a round, bony knob underneath the thin sleeve of his shirt.

"Yes, I will believe *you*," he said kindly. "I wouldn't never think you was a liar."

The man brightened perceptibly.

"Let's get acquainted," Tubby added. "Then you can tell me why you're so sad."

Professor Wells-Verne Introduces Himself

"MY name is Isaac Wells-Verne," said the man. "Sir Isaac Swift DeFoe Wells-Verne, but my friends call me Professor."

"Mine's Tubby—pleased to meet you, perffessor."

They shook hands.

"What are you perffessor of?" Tubby asked, after an awkward silence.

Sir Isaac's expression, which had cheered somewhat at the introduction, clouded over again.

"Professor of Knowledge," he said sadly. "It is my business to know everything and to tell people about it—in writing."

"Oh," said Tubby.

"I do tell them——" Sir Isaac sighed heavily, and a tear slipped from one of his eyes and rolled down his lined face—lines of care, and of emaciation rather than age, for the man was not really old. "I *do* tell them—but nobody ever believes me. Life and people on the moon, for instance——" He sighed again: and shrugged resignedly. "I've told them all about that and they don't take me seriously. They think because I've never been there, that I'm making it up. Sometimes they won't even buy what I've written. They——"

Tubby's fat little arm went around Sir Isaac's thin waist.

"Don't you care, perffessor. I'll believe you. I won't never think you're makin' nothin' up." A sudden thought occurred to him. "You're hungry, ain't you, perffessor? You *look* hungry. Did you eat today?"

"I—no, I didn't," Sir Isaac admitted reluctantly. "But I don't care about eating. I want people to appreciate my genius. I——"

"You *must* eat," declared Tubby. He expanded his stomach. "Look at *me*—I ain't never missed a meal in ten years."

The further thought struck him that possibly Sir Isaac had no money with which to buy food. McGuirk's lunch-wagon was less than a mile away—Tubby himself would pay for the meal. And then, as a climax to this mental activity, Tubby remembered his own newly discovered power.

"I wish we had a abso-*lut*-ly perfect dinner served right now, here on the ground," he declaimed abruptly.

And, even before Tubby himself realized his wish had come true, Sir Isaac was squatting cross-legged on the ground eating the food with avidity. Tubby had eaten only an hour before, and with difficulty he crammed down barely a third of the lavish meal. But Sir Isaac was equal to his task; and, for ten minutes, Tubby completely satiated, sat in silence watching his new friend empty the huge silver platters. Tubby noticed now that from the pockets of Sir Isaac's shirt the stubs of three or four grubby lead pencils and a fountain pen protruded; and that the third finger of his right hand had a corn on it, near the end joint; and all his fingers were ink-stained. Also from each of his hip pockets, as he sat hunched forward on the ground, Tubby could see a huge bundle of folded manuscript, sticking out.

When everything edible was completely eaten, Sir Isaac sighed contentedly.

"I wish we each had a good cigar," said Tubby promptly; and striking a match deftly with his thumb nail, he courteously lighted the huge black perfecto which Sir Isaac had in his mouth.

With his own cigar lighted, Tubby leaned back luxuriously and smiled at his companion.

"This ain't so bad," he declared cheerfully. "Now, perffessor, tell me all about *everything*. You can be-

gin with—" He deliberated. "—begin with the edge of Space. These here guys—"

Tubby broke off, for a stupendous idea had just occurred to him. Sir Isaac knew all about everything—but he had not actually seen it. The Moon, for instance. He had never been there—that's why people wouldn't believe what he wrote about it. Now with his (Tubby's) ability to wish for anything, why not go there—go everywhere—and see *everything*? It ought to be possible . . .

"Listen, perffessor," he said, excitedly. "You don't need to tell me nothin'. Let's go see things for ourselves." He explained his idea vehemently.

Sir Isaac looked almost dazed for an instant. "If I only could," he said musingly, his deep voice filled with awe. "I know just what we would find—on the Moon, Venus, Mercury, Mars—everywhere, everything—I know it all. If only I *could* verify it—could see it all for myself—"

Tubby was standing up impatiently. "Come on, perffessor. Let's go."

Sir Isaac climbed to his feet mechanically, a look of exaltation on his face.

"If only I could—" he murmured; but Tubby interrupted him sharply.

"Come on. Don't be no goop."

"But where? How?" asked Sir Isaac almost stupidly, for the anticipatory joy in his heart had dulled momentarily even his gigantic intellect.

"I *wish* we could go anywhere in the Universe. I *wish* we were all ready to go now. I wish we had a—a *abso-lute-ly* perfect automobile an' house to go in," Tubby intoned rapidly.

The Interplanetary Space Flier Appears

THEY both saw it the same instant, shining in the moonlight in a field not fifty feet away—a pale, grey-white, square metallic object, as large as the little building that housed O'Conner's Grocery.

"There it is," said Tubby. "What is it? Come on—let's go see."

Sir Isaac's eyes shone as he looked at it.

"My Inter-planetary vehicle," he murmured, pride and awe mingling in his tone. Without another word he gripped Tubby by the hand, jerking him forward at a run.

Tubby's breath was almost gone when they arrived. He stood leaning against the side of the vehicle, panting. The thing was indeed as big as a very small cottage. It was made of a metallic substance—similar to aluminum only different, Sir Isaac said. In shape it was like a huge cube with a little dome set on top. It had several tiny windows of heavy plate glass set in each side, with a small metal door in front, which door now stood invitingly open.

Tubby, his breath recovered, walked around the vehicle, inspecting it curiously; while Sir Isaac stood regarding it as a proud mother might regard her precocious offspring.

After a complete circuit outside, Tubby peered through the doorway into a dim interior.

"Come on in, perffessor. It's all ready, waitin' for us."

They went inside together; and Sir Isaac, as though he had lived in the place all his life, immediately switched on a light.

Inside, the vehicle was divided into several tiny rooms on two floors—just like a toy cottage, Tubby thought—and seemed fully furnished and equipped

ready for occupancy. There was a store-room of food—a little kitchen, like the kitchen of a Pullman dining car—a main room, filled with a mass of scientific instruments—and two very small bed rooms upstairs. Tubby sat down on one of the beds tentatively. Its mattress was soft; its springs yielding but strong, and its coverings luxurious.

Tubby sighed with relief. "I ain't no kicker, perffessor, but I do like to sleep comfortable."

They went back into the instrument room, where Sir Isaac quietly inspected a little keyboard like that of a typewriter.

"What's that?" Tubby asked. "Do you know how to run this thing, perffessor?"

Sir Isaac straightened. His manner had completely changed. He was now forceful, commanding, dominant. Tubby was impressed by his look, even before he spoke.

"This is *my* Inter-planetary vehicle," he said sternly. "I invented it—I designed it—I have operated it, in my mind, many times. It is one of the most important of my contributions to science. I know *all* about it, of course."

"Oh," said Tubby. "That's fine. Then we're all ready to start, ain't we?"

Sir Isaac bowed gravely.

Tubby at the moment was standing beside one of the little windows. The moon was still over Bill Hawkins' apple orchard; and at the sight two ideas came to Tubby simultaneously.

"Just a minute, perffessor." Sir Isaac was about to close the heavy front door. "I ain't goin' 'til I wish them apples of Bill Hawkins' is lyin' rotten on the ground. He's a mean guy, he is—wouldn't let me pick none *ever*."

Tubby's eyes were sparkling with vindictive joy at the thought of this simple and efficacious revenge. "Come on, perffessor. Let's go see how all them apples look when they're rotten."

Sir Isaac's glance was scornful.

"That is childish," he said shortly; and banged the door shut.

Tubby, subdued but still wishing fervently and audibly that this catastrophe would befall the luckless Bill Hawkins, stood by the window while Sir Isaac went to the keyboard and unhesitatingly pressed one of its keys.

There was a faint but perceptible trembling of the room. Tubby's feet pressed hard against the floor and his stomach seemed falling. It was like an elevator that suddenly takes you up much too fast.

The Professor and Tubby Leave the Earth

SIR ISAAC switched off the light, plunging the room in darkness. Through the window Tubby saw a moonlight landscape silently dropping away beneath them.

He turned from the window after an instant, slightly sick and very frightened; but at once he felt better. The purring had ceased. The room, in fact, was apparently motionless and quite silent. Tubby felt no further desire to look out of the window; he sat down in a chair, mopping the perspiration from his forehead with his shirtsleeve.

Sir Isaac, his tall thin figure barely visible in the moonlit room, was still standing rigid by the keyboard, his fingers pressed delicately but firmly on its keys as a surgeon's assistant holds the patient's pulse

during an operation. Tubby stared at him a moment, then ventured:

"Where—where we goin', perfessor?"

Sir Isaac moved, and as his fingers left the keyboard to itself, Tubby's heart leaped. Would the thing fall if you didn't watch it? Evidently not, for Sir Isaac went over to the window quite calmly.

"We will not bother with the moon just now," he said thoughtfully, more to himself than to Tubby. "No, we can stop there coming home. . . . I think we should go toward the sun first, and then, after Venus and Mercury, skip back to Mars and so on out. . . . Yes, that will be best."

He turned away from the window toward Tubby.

"Our first stop will be Venus," he added authoritatively.

"Venus!" exclaimed Tubby. "That's fine. Then—then where do we go?"

"After that," said Sir Isaac slowly and impressively—"after that we will inspect the entire Universe!"

CHAPTER II

Tubby and Sir Isaac Pass the Moon, and are Fairly on Their Way to Venus

"COME over here, Tubby," said Sir Isaac a few moments later. He had gone back to the keyboard, pressed another of its keys after making a rapid mathematical calculation with one of his pencil stubs on a little paper tablet, and now was standing quietly by the window again. "Come here, Tubby, and look out."

Tubby shook his head emphatically. "You look out. I ain't interested."

He was considerably more frightened now than a few moments before, for a very disconcerting thing had happened. He had secretly been reassured as they started, by the knowledge that in the event of any dire disaster, he could easily wish himself safely back at home. It had been getting extremely warm in the room, and he had wished it would be cooler. But, so far as he could tell, it was getting warmer, rather than cooler. Alarmed, he had wished vehemently that they were back on Earth looking at Bill Hawkins' apples. But nothing had happened. Sir Isaac was then making his mathematical computations at the keyboard; finally he had pressed another key carefully, and quite in defiance of Tubby's frantic mental wishes, walked quietly to the window.

Tubby considered the situation, and now decided to consult his companion about it.

Sir Isaac laughed softly.

"That was merely your *Earthly* power," he said condescendingly. "I suppose I am glad you possessed it, since you were enabled to bring into material being this inter-planetary vehicle of mine." He raised his hand deprecatingly. "Of course, I could easily have constructed it myself. In fact, I was intending to—as soon as I had the necessary money."

Tubby was aggrieved at this ingratitude. "An' then I—I ain't able to wish for nothin' no more?"

"No," said Sir Isaac. "Naturally not—since you have left the Earth. You are now in the realms of Science—subject only to rational scientific laws. That magical wishing ability you had was childish. I could never be concerned in an affair like that."

He seemed to shudder at the thought, and added emphatically:

"I am a man of Science. Everything I have ever conceived has been strictly scientific. I am ashamed of you—and of course, now that you are in *my* realm, naturally all such foolishness has been left behind."

Tubby pondered this, sitting hunched up in his chair and sweltering in the heat. He was somewhat sullen; but presently, when Sir Isaac patted him kindly on the shoulder and assured him they were in no great danger, he cheered up a little.

"It's too hot in here, perfessor," he declared. "Can't we open the window an' get a little air in?"

Sir Isaac smiled at the idea. "There is no air outside," he said quietly. "We have already traversed the few hundred miles of atmospheric envelope and passed beyond even the most rarefied strata of the Earth's atmosphere. We are now in space."

"Oh," said Tubby. "Well, just as you say. But it's awful hot."

Sir Isaac was bending down to squint upward through the window, which from where Tubby was sitting was merely a black rectangle.

"It will cool off presently," he said casually. "There's the thermometer by you. See what it says."

The room was now dimly lighted by one small electric bulb—which was lucky, Tubby thought, for there was not even moonlight coming in through the window. He found the thermometer. It stood a little over a hundred degrees.

An alarming idea came to Tubby; it would be terrible to smother and be so hot all at the same time. "Say, perfessor, how are we goin' to breathe when we use up all the air we got in here?"

Sir Isaac reluctantly turned from his inspection of whatever it was showed through the window, and pointed to one of the instruments on a table over against the wall.

"In breathing," he explained, "we alter the air only in so far as we use up its oxygen and add to it an excess of carbonic acid gas. Now over there on that table is Reiset and Regnault's apparatus—which I still consider the best of its kind. It produces oxygen from chlorate of potassium and releases it into the air as fast as we use it."

Sir Isaac smiled to himself with satisfaction. "I have thought of and provided for every contingency. The carbonic acid gas that we exhale is absorbed." He indicated several containers under the table. "Those hold caustic potash, which absorbs the carbonic acid gas. . . . I have explained all this in my books, but I suppose you have not read them."

"Yes—no," said Tubby. "Not all of them, I guess." He felt a little humiliated. "I ain't so very scientific, perfessor. You'll have to tell me things as we go along."

"I will," agreed Sir Isaac magnanimously. He pulled out his handkerchief and mopped his forehead. "It is hot. That's because of our friction in going through the Earth's atmosphere so fast. We're far beyond the atmosphere now—exposed to the intense cold of inter-planetary space. We'll be freezing in a little while—you need not worry about the heat."

Tubby glanced apprehensively toward his discarded coat, and tried to recall how many blankets there were on the bed upstairs.

Sir Isaac added:

"Come over here and look out the window. Don't be afraid."

Through the window Tubby saw the stars, brighter, more brilliant than they had ever been before. Freed now from the distortion of the Earth's atmosphere, they glittered like huge, sparkling diamonds, surrounded, not by the familiar blue of the sky as seen from the Earth, but by a profound inky darkness.

It was a marvelous—indeed a stupendous—sight. The whole extent of the heavens swarmed with stars and constellations of pristine purity. Here and there hung huge, spiral nebulous masses, fleecy white, and glittering with tiny blazing points of white fire. Some of the larger stars were blue-white, others silver, still others a dull glowing red; and across the firmament stretched that immense ring formed by an impalpable dust of stars, the "Milky Way," in the midst of which our own sun ranks only as a star of the fourth magnitude.

"Ain't all that pretty?" Tubby marveled. His fear had entirely gone. "Where's the moon?"

"The moon is on the other side of us," answered Sir Isaac. "It is shining into the room next to this." The instrument room, in which they were, only extended half the width of the vehicle. "Looking out this window we cannot see the moonlight, for there is no atmosphere to diffuse its rays. . . . Stoop down and look upwards, Tubby."

Tubby squinted up through the window from beneath and saw a very large, thin silver crescent—an enormous arch extending nearly a third of the way across the sky. It glowed with a blue, almost phosphorescent light, and its outlines were blurred and wavy. Some parts of it were brighter than others, and there were many dark, almost black spots.

The Earth Seen From Space

"WHAT'S that?" he asked, amazed. "I ain't never seen nothin' like that in the sky before. Is that where we're goin' to? We must be almost there. What is it? Venus?"

"That's the Earth," said Sir Isaac calmly. "We have turned over, you see, because our base is heavier. We are falling diagonally away from the Earth, partly toward the moon and partly toward the sun. I shall head directly for the sun later tonight."

It was very hard for Tubby to realize that they were going the other way, having turned almost completely over; but finally he managed it. He was beginning to feel comparatively little surprise at anything any more.

"Why don't we see all of the Earth?" he demanded. "Why is it so thin—like a new moon?"

"Because the Earth is 'new'," Sir Isaac explained. "From the position we now occupy that is all that is illuminated by the sun's rays, though if you look closely you can distinguish the dim outline of the unilluminated portion of the sphere. You see the Earth is in its first phase. It—" He seemed contemplating the use of some profound scientific language; then, meeting Tubby's puzzled glance, he shrugged and gave it up.

"It is just like a new moon," he added. "Only it's a new Earth."

They inspected the moon itself a few moments later, through the window of the adjoining room. It hung apparently motionless just below the level of

the window. All around it in the blackness, the stars shone as brightly as though it were not there—which, as Sir Isaac reminded, was merely because there was no intervening atmosphere to diffuse its rays and thus obscure the stars.

The moon was somewhat larger than when seen from the Earth, and considerably brighter. Its rays bathed the store-room with a brilliant, blue-white light. Tubby was opening a box of crackers as he stood regarding it.

"Ain't that romantic," he murmured a moment later, with his mouth full of biscuit. "That's absolute-ly pretty moonlight. Come on, perfessor—eat somethin'. This travelin' so fast makes me hungry."

They made a very comfortable little midnight supper of sardines—which Tubby found in a well-filled ice box—and the crackers. Sir Isaac's appetite revived with eating, and he devoured such a prodigious quantity of the food that Tubby became alarmed over an ultimate shortage.

"It's quite all right, you know," Sir Isaac assured him. "We are supplied for over a year. I've never started on a journey like this—even a mental journey—without an entirely adequate food supply. Besides, we can replenish along the way. You will find the Mercurian cuisine particularly good."

It had been growing steadily colder; and Tubby, discovering that the tiny kitchen which adjoined the store-room held a very decent little gas stove, made them each a steaming hot cup of coffee.

"How cold is it liable to get, perfessor?" he asked, as they sat at an immaculately clean board table and drank the coffee. "Ain't this house got any heatin' apparatus? A nice little furnace now—"

"It can be heated," Sir Isaac answered. "But we shall not need it. It will be warm enough presently."

Certainly the weather in space was exceedingly changeable; but that was to be expected when one was traveling from place to place with such rapidity.

"But how cold would it get if we stayed where we are?" Tubby persisted. He was beginning to be theoretical also, which, as Sir Isaac had remarked, is the first prerequisite of a scientific mind.

"I think I once estimated the temperature of space to be about 250 degrees Fahrenheit below zero," remarked Sir Isaac. "Pass me the cream, will you? And the coffee pot? You make pretty good coffee."

"Thanks," said Tubby. "I ain't so terrible good at cookin'—" He paused deprecating, his amazement at Sir Isaac's estimation at how cold it could get forgotten in the compliment to his culinary skill.

"Minus two hundred and fifty degrees," Sir Isaac repeated thoughtfully. "I wish I could verify it now. But we won't suffer from the cold. Soon we shall be—"

As though in answer to his unspoken words, sunlight burst in through a window in the floor directly under Tubby's feet. He had not known this window was there, and leaped aside in terror. The vehicle at that moment had emerged from the conical shadow cast by the Earth, and the diagonal rays of the sun struck its lower surface. Bathed in its golden fire, which mingled with the moonlight from the side window, the room in a moment became warm and pleasant.

"This is nice," said Tubby, with rapidly recovered equanimity. He discarded his coat again, and pushed the hot coffee from him. "We sure do have speedy changes of weather, don't we, perfessor?"

Sir Isaac had donned a pair of smoked spectacles and was on his knees peering down through the window. He called Tubby and offered him a second pair of the glasses.

Tubby sat down on the floor. The sun, through the smoked glass, appeared a glowing red ball, with enormous tongues of flame rising from it. The globe itself was no larger than usual. They were closer to it, Sir Isaac remarked, but its distance still was so comparatively great that its visual increase of diameter was undiscernable. Also, on Earth, the atmospheric refraction enlarged it.

The sun was not directly beneath them, but off considerably to one side—on the side away from the moon. And although Sir Isaac had already explained the phenomenon in the case of the moon, Tubby was greatly amazed to see the stars shining quite imperturbably all around the sun.

"That's the first time I ever seen stars shinin' in the daytime," he murmured.

Sir Isaac climbed to his feet. "I'll be back in a moment. I want to change our course and put on more speed."

He left Tubby sitting there and went into the instrument room, where, after a few more algebraic calculations, and careful reference to a huge book that lay at hand, he depressed another of the keys slightly—and, after an instant's hesitation, two others on another rank of the keyboard.

Tubby, squatting on the floor in the other room, saw the sun and all the stars swing slowly over to one side—the whole firmament shifting silently under him. The sun was directly underneath when the movement ceased. Looking over to the side window he saw that the moon had risen considerably. It was now so high he could only see it because he was down on the floor.

Sir Isaac returned.

"We'll make good speed now," he said. "We're headed directly toward the sun, with eleven and a half times our former velocity." He sat down beside Tubby on the floor.

It was amazing to stare down through that window at the sun and stars—into the immensity of space directly under them—and to realize that they were falling into it. Yet Tubby was not alarmed, possibly because the vehicle felt so stable, so vibrationless, so absolutely silent and motionless. There had not been the slightest perceptible movement since that first instant when they started. In changing their course it was the stars and sun that appeared to move, not the vehicle.

Tubby pondered all this. "Why don't we feel like we was movin', perffessor?" he demanded some minutes later. "If we're goin' so fast—"

"My dear fellow," Sir Isaac answered, "you must realize that all motion is relative. There is no such thing as absolute motion—it all depends upon your immediate surroundings. Einstein might tell you that as something very new—yet I have always known it."

"I don't get you," said Tubby, puzzled.

"The Earth," said Sir Isaac, "is flying through space at the rate of some 66,000 miles an hour. You never felt that motion, did you? But when you are in a train going 60 miles an hour—that motion you do perceive. That is because, relative to your immediate surroundings, you are moving that fast. Do you understand now?"

"No—yes," said Tubby. "I guess so. Show me Venus. When do we get there?"

Venus, which fortunately was approaching inferior conjunction—that point in its orbit when it is between the Earth and the sun—was discernible slightly to one side of the sun at a visual distance of about twice the sun's diameter. Tubby saw it as a very large, bright, blue-white star.

"A telescope would show it as a crescent in its last phase," said Sir Isaac.

Tubby, with their first stop in such plain view directly beneath them, was intensely interested. "Tell me all about Venus," he demanded. "An' tell me how you run this—this inter-planetary house we're in, so you can make it go where you want to."

Sir Isaac glanced at his watch. "Twelve fourteen. You must get some sleep soon. I will explain the operation of my vehicle tomorrow."

Tubby realized he *was* a little sleepy. "How long we been travelin'?" he asked.

"Two hours and twenty-seven minutes." Sir Isaac pulled out a lead pencil and a little slip of paper and began a rapid calculation.

"We are now about 947,000 miles from the Earth," he announced.

"In two hours an' a half! That's some travelin'."

Sir Isaac smiled. "I should not say that—however, it is quite satisfactory. I started very cautiously. We went through the Earth's atmosphere considerably less than one one-hundredth that fast. I increased our velocity soon after that—and just now, when I altered our course, I increased it again eleven and a half times."

Some Facts About Venus

"GO on," said Tubby. "Tell me more. Tell me about Venus."

"Venus," began Sir Isaac, "is a globe very little smaller and of very slightly less density than our Earth. Its mass, hence, is only a little less—gravity on its surface being .88 that of the gravity on the Earth. . . . Do you follow me? I'm only talking in round numbers, of course."

"Of course," Tubby agreed. "Go on."

"It revolves on its axis once in 23 hours, 4 minutes and 19¾ seconds. Those are my figures, you understand—they are quite exact. Therefore, its day is very similar in length to our own. Its orbit lies about 67 million miles from the sun—some parts of it further, some nearer. The Earth, you know, revolves at a mean distance of about 93 million miles from the sun. Venus makes one complete revolution around the sun in a little more than 224 days—hence its year is that long—about a third shorter than ours. Venus has seasons just as we have—only less marked. Its atmosphere is a little denser than ours, but altogether Venus is more like the Earth than any other of the planets."

"Good," said Tubby. "Go on."

"It has no satellite," Sir Isaac added as an afterthought.

"What's a satellite?"

"A satellite is a smaller body revolving about a planet, just as a planet revolves around the sun. The moon is the Earth's satellite. It revolves around the Earth about once a month."

"How far away?" Tubby demanded.

"Oh, very close. Only about a quarter of a million miles. We are already four times that far

from the Earth. You can see how close the moon and Earth are together now. Look!"

Sir Isaac pointed to the side window, pulling Tubby over on the floor nearer to it. The moon had risen still further, and had dwindled greatly in size. The tip of the Earth, very much smaller than before and more silvery, showed in the upper corner of the window.

"Why, they're gettin' right together," Tubby exclaimed. "That moon really belongs to us, don't he? He's our little brother!"

"Yes," said Sir Isaac. "We'll stop off there going home. Now about our present velocity. Venus, at the time we started, was about 31 million miles from the Earth. We have already gone about one million, at an average rate of some four hundred thousand miles an hour. I have now increased this velocity to four million, six hundred thousand miles per hour."

Sir Isaac looked a little worried as he named these figures. "I hope we don't hit anything," he added anxiously.

"Hit anything!" Tubby echoed. He glanced down through the window at the heavens beneath. "Ain't we got plenty of room? It looks like we had plenty."

Sir Isaac sighed. "All space is relative to motion. We haven't very much room at this velocity. It's so crowded in here near the sun. Outside—particularly beyond Neptune—things will be different. Then I can really put on speed."

He shrugged. "You go to bed, Tubby. I'll watch here. I don't fancy we're in any great danger."

"Right," said Tubby. "If you see anything comin' you steer around it." He got to his feet. "Good night, professor. I'm goin' upstairs right away. When do we land at Venus?"

Sir Isaac was again absorbed with his mathematics, the sunlight from below lighting with strange outlines his lanky figure and earnest, intellectual face.

"What?" he asked abstractedly.

Tubby meekly repeated his question.

"I shall alter our course later tonight," said Sir Isaac. "I am using the sun's attraction now. It's a little longer route, but simpler. Later I shall head directly for Venus and slow down somewhat."

He added:

"I'll call you about six o'clock. We will be fairly close in by then. We'll land shortly after breakfast. . . . Good night."

"Good night, professor. Don't make no mistakes with them figures, will you?"

He turned, and climbing to the floor above, carefully selected the better of the two beds and soon was snoring heavily.

CHAPTER III

In Which Tubby and Sir Isaac Meet the Venus-Girl and Learn of the Plot to Destroy the Earth

TUBBY had gone to sleep in the starlight and very dim moonlight. He awoke most uncomfortably warm, to find the glaring sunlight beating directly on his bed through the bedroom window. For a moment he did not know where he was. The sun, larger than he had ever seen it before, was about level with the window—shining among the stars in the black sky, intolerably bright, excessively hot. He lay blinking and gasping; then with returning memory, he leaped out of bed and jerked down the green roller shade.

The vehicle was without vibration, silent as before. The room was hotter than midsummer. Where was the professor? Was anything wrong? What time was it?

"Oh-h, professor!" Tubby bellowed.

Sir Isaac's voice answered him from below.

"Oh, you're awake, are you? Come on down. Dress as coolly as possible."

Tubby was dressed in a few moments, putting on his thinnest clothes—white flannel trousers, white buckskin shoes and white negligee shirt—which he had found in the bureau drawers and the wardrobe. He was glad to find them there, and glad that they fitted him so perfectly, for he wanted to look his best when arriving on Venus.

When he got downstairs he found Sir Isaac also dressed all in white, with his shirt sleeves rolled up and his shirt open at the throat exposing half his bony but broad chest. Around his forehead was tied a white silk handkerchief to keep the hair out of his eyes. He was sitting at the instrument room table, working at his interminable figures.

The side window of the room, which was now turned away from the sun, showed only the black void of space with its glittering stars. Through another window, in the floor directly under Sir Isaac's feet—which Tubby had not known to be there since it had been covered the night before—a soft, pale-blue light was streaming. It flooded the entire room, more intense than moonlight, but blue rather than silvery.

Sir Isaac looked up from his calculations and smiled.

"Good morning. I was just coming up to call you."

"The sun woke me up," said Tubby. "It's awful hot up there. . . . It ain't so cool down here either. . . . What's that blue light from? How are we getting on? What time is it?"

Sir Isaac laid down his pencil reluctantly.

"Seven thirty-three," he said. "You've had a good long sleep. I just altered our course again. We intersected the orbit of Venus twenty-seven minutes ago, so I thought I had better turn and head directly for her. That's why the sun swung up to your window."

Tubby hung his natty Panama hat on a rack and approached Sir Isaac.

"What's that blue light? Venus?"

Looking down through the window, Tubby saw directly beneath them an enormous blue half moon, with dark, irregular patches all over it. Against the black background of space it glowed with intense purity—its pale-blue light making it seem ethereal—unreal.

"That is Venus," said Sir Isaac softly. "You can see the whole of the sphere when your eyes become accustomed to the light."

A moment more and Tubby saw the dark, unilluminated portion. He saw, too, that where the edge of the light crossed the face of the globe it was not a continuous line, but was broken into many bright spots and patches of darkness.

"That's where the sun strikes the tops of the mountains," Sir Isaac explained. "The dark places are valleys and plains. . . . Let us have breakfast. Aren't you hungry?"

"No—yes, sure I am." Tubby rose to his feet from where he had been kneeling heavily on the

floor. "That Venus is awful pretty. How far away is she? When do we get there?"

"We intersected her orbit at a point 1,142,606 miles away, roughly speaking," Sir Isaac replied. "I had to change our velocity once or twice during the night—but still I fancy I may say we have done fairly well." Sir Isaac drawled this out complacently. He was, indeed, very English at times.

"I ain't got nothin' to complain of," Tubby agreed. "When do we land?"

"Our present velocity is only 575,001 miles per hour. Venus is coming toward us at the rate of some 68,000 miles per hour. . . ." Sir Isaac seemed to be calculating in his head. ". . . But allowing time for landing—we shall have to slow up much more a little later on, you know—well, I think we should be there by ten-thirty or eleven o'clock this morning."

"Very good," said Tubby briskly. "Come on. Let's eat."

They had bacon and eggs for breakfast, and iced coffee with whipped cream, because it was too hot for regular coffee. Tubby would have made pancakes, but there did not seem to be any maple syrup, at which he was exceedingly annoyed. Several times during the meal Sir Isaac went into the instrument room for a moment to make a brisk calculation, to verify their course and to decrease their velocity a little.

Tubby's questions about Venus were incessant at first; but as Sir Isaac said, why discuss it theoretically when they were to see it so soon?

The store-room, which they were using as a dining room because it adjoined the kitchen, was directly under Tubby's bedroom. The sun hung level with its window, but they kept the shade closely drawn. After breakfast they returned to the instrument room, Tubby insisting he would not wash up the dishes so soon after eating; and Sir Isaac showed him the Earth. It was about level with the instrument room side window and thus almost exactly opposite the sun. So far as Tubby could see it was a star no different from any of the rest of them, except possibly a little larger. The moon, of course, was invisible.

Venus, through the window beneath their feet, had grown very much larger during breakfast. It was now an enormous glowing ball, half dark, half light, apparently nailed fast to the black surface of the firmament. The sensation that they were high above it and falling directly down to its surface came to Tubby suddenly. It made him a little giddy at first; but the unpleasant feeling soon passed away.

For nearly an hour they sat talking idly, while this glowing sphere beneath them grew steadily in apparent size. They could distinguish even its dark portion quite clearly now, and its convexity was unmistakable. There were hardly more than 25,000 miles above its surface, and falling slightly toward its northern hemisphere, when Sir Isaac suggested that Tubby wash up the breakfast dishes.

"I shall go down through the atmosphere very slowly," he said. "But still I think we shall be there in rather more than an hour."

Tubby hastened into the kitchen, and Sir Isaac, pencil and pad in hand, took his station at the keyboard. When Tubby finally returned the instrument room was considerably darker than before. Sir Isaac, with two small electric bulbs lighted, was still seated at the keyboard.

"Say," began Tubby indignantly, "the sun went behind a cloud or somethin'. I ain't quite finished, but I don't know how to light the lights."

They had already entered the atmosphere of Venus, and had encountered, as chance would have it, a heavy bank of clouds—heavier than clouds ever are in the atmosphere of the earth. The sun thus obscured, the interior of the vehicle had grown quite dark.

"Never mind," said Sir Isaac. "Let it go. We'll be there very shortly."

Tubby located his Panama hat, rolled down his sleeves, and donning a thin blue serge jacket sat down to await their landing. He could see nothing but grey mist through either window for a time; then, as they burst through the clouds, the room suddenly brightened.

Sir Isaac bent over the window in the floor, calling to Tubby. Beneath, spread out in a vast panorama extending to the horizon in every direction, lay the landscape of Venus—forests of green vegetation; a thin silvery ribbon of water; tiny grey blobs that were cities; and in the distance a range of blue-green mountains with heavy white masses of clouds above. And, curiously enough, by a familiar optical illusion, it seemed now a concave surface, as though they were hanging over the center of a huge shallow bowl, with the horizon rising upward to form its circular rim.

"My!" exclaimed Tubby. "Ain't that pretty? Just like bein' in a airplane, ain't it perfessor?"

Sir Isaac, hovering anxiously between the floor window and the keyboard, was now exceedingly busy.

"I've got to select a landing place," he said. "If you see a large open space where there are no trees, tell me at once."

Tubby, forgetting the possible damage to his white trousers, sat down on the floor beside the window, peering intently downward. They were falling rapidly; the landscape grew momentarily larger in detail, passing slowly to one side as they fell diagonally upon it.

The instrument room was now hotter than ever before. Tubby took off his hat and coat again, and dashed the dripping perspiration from his face.

"Hey, perfessor, slow up a little," he called to Sir Isaac at the keyboard. "We're gettin' pretty close."

They were now at an altitude of hardly three thousand feet. The circular horizon had already risen so that the range of mountains in the distance was visible through the side window. It was a beautiful day outside—subdued rays of sunlight filtering through the white cloud masses and falling upon the vivid green countryside in brilliant patches of light.

They passed over the narrow river, and Tubby saw an open space surrounded by tremendous forests of tangled green vegetation, with occasional white blobs that might have been houses. Beyond, perhaps five miles distant, a city lay—its low stone buildings gleaming a dazzling white.

When they were directly over the open space, Sir Isaac depressed another key sharply; and the vehicle began falling vertically downward, with constantly decreasing velocity, until, when they were only a few hundred feet up, it seemed floating gently down rather than falling.

Sir Isaac's eyes were now glued to the window, his

fingers resting lightly on the keys. Tubby stood up and put on his coat again; and a moment later, with scarcely a perceptible jar, they landed on the surface of Venus.

Sir Isaac relaxed, his face radiating triumph.

"We have landed," he cried exultantly. "A perfect trip, my dear fellow—12 hours, 14 minutes and 7 seconds elapsed time!"

"Right," said Tubby. "We're here. Come on professor, let's go outside an' get some air."

"What's that?" Tubby exclaimed abruptly. "Don't you hear somethin', professor?"

Music was wafting to them on the breeze—soft, liquid tones like the music of a harp, and the sweet, pure voice of a girl singing.

"It's over there," Tubby half whispered. "Over in the banana trees. Come on—let's go see."

They crept quietly forward; and within the grove of trees came upon a tan-bark path. As they followed it the music grew steadily louder, until nestling under the huge spread of banana leaves they saw a little white marble pavilion, with a tiny splashing fountain before it. The figure of a girl in white reclined beside the fountain—a girl who was apparently alone, playing on a small harp-like instrument and singing to its accompaniment.

"Hello-o!" Tubby called incautiously.

The girl sprang erect; and stood trembling, lyre in hand, as they hurried forward. Tubby saw she was a rather small, very slim girl, dressed in a flowing white garment from shoulder to knee, which was gathered at the waist with a golden cord whose tasseled ends hung down her side.

"Good morning, ma'am," he said graciously. "It's a nice day, ain't it?"

The girl smiled, seemingly reassured by his greeting.

"We trust you speak our language," Sir Isaac added anxiously. "It has always been my theory that on Venus——"

The girl replied in a gentle, softly musical voice:

"I speak the language of the North Country of Venus, sir."

Her fear seemed to have left her. She stood, with dignified bearing, waiting for them to explain their presence.

Sir Isaac, with infinite relief on his face, turned to Tubby. "You see? I am vindicated. I always knew that on Venus—particularly in the North Country—the language was——"

Tubby frowned. "My name's Tubby," he said to the girl. "An' my friend's name is——"

"Sir Isaac Swift DeFoe Wells-Verne," stated Sir Isaac impressively. "We are charmed to meet you, Miss——er——"

"I am called Ameena," said the girl, simply; she extended her hand in most friendly fashion.

When they had all shaken hands, she added:

"You are not of my world, surely. We so seldom have visitors here, I cannot tell——"

"We're from the earth," said Tubby promptly. "We just got in this mornin'."

"The earth!" Ameena exclaimed. She seemed suddenly perturbed. "I had thought you were Mercurians—men of the Light Country perhaps. We have never had earth-men here before. Never have I seen——"

"No," said Sir Isaac. "We are the first."

The girl had seated herself on the marble rim of the fountain; her pretty little face was clouded over with anxiety.

"I am so glad you came," she said after a moment of silence. "Now I can warn you of the danger to your earth. My people are so indolent. The Martians are about to descend upon your earth and conquer it. Rebels from the Twilight Country of Mercury are their allies. Only last month they were here in Venus—emissaries asking our people to join with them." She shrugged. "We would not do that, of course. What is war to us? These Martians do not covet *our* world, for we have nothing—only our fruits and our wine, and our simple buildings, and our music and poetry—and love-making."

She added, "But your earth—that is different. Your world they desire. They——"

"Martians to conquer the earth!" Sir Isaac gasped, stupefied.

"They have gone to Jupiter also," Ameena went on. "When they found we would not join with them, then they said they would enlist help from the great Jovians themselves. I do not know if——"

"Oh, my gosh!" Tubby was almost speechless with fright.

"To conquer the earth!" Sir Isaac repeated. "When, Ameena? Only tell me when?"

She answered quietly, but with obvious agitation: "Already they have conquered your moon. Your poor Selenites could offer but little resistance, and a Martian outpost is established there. And the Twilight army of Mercury is already massed in readiness on Mars."

She paused; then added swiftly:

"At the next opposition of Mars with your earth—only two months off they say it is—then the Martians and their allies will descend in hordes upon you!"

CHAPTER IV

In Which Tubby Takes Command and A Fatal Catastrophe Is Imminent

IN TRUTH it was a drastic, desperate situation for their native earth of which the voyagers were thus unexpectedly informed. Even without his reference books, or the use of mathematics, Sir Isaac's well informed mind told him that they had no time to waste. Mars would reach opposition—that point in its orbit when it was nearest the earth—in just 57 days, 6 hours and 30 minutes from the present moment. Sir Isaac knew that. He also knew that if the miserable renegades of the Twilight Country of Mercury were allied to the Martians in an attack upon the earth, this attack, when it occurred, would be irresistible. And already the enemy had conquered the moon—occupied it—established there a hostile outpost barely 250,000 miles away!

Sir Isaac's stern, intellectual face was pale as he questioned the Venus-girl more closely. Tubby, when the details of this dastardly plot began to sink into his mind, spluttered with indignation.

"How dare them people attack our moon?" he demanded. "That ain't right. We never did nothing to them. What are we going to do about it, professor? We got to do something'."

Sir Isaac had seated himself beside Ameena on the fountain rim. He was trembling a little, and his thin lips were pressed tightly together.

"Yes," he said, struggling to keep a semblance of

composure in his voice. "Yes, you are right. We must do something. But what?"

"That's what I said—what?" Tubby prompted. "Go on, professor."

He had so forgotten Ameena's gracious beauty in the excitement of the moment that his hat was now jammed on the back of his head, and his fat little fists were clenched belligerently.

"It isn't the moon I'm worried over," Sir Isaac went on musingly. "That's a mere detail. It's the safety of our earth itself. If they land there in any strength at all we'll be annihilated in a day—every living being on the earth! Why with that Mercurian Light-ray—and with those great machine bodies to house the Martian Intelligence—" Sir Isaac broke off, overcome at the thought his words invoked. He recovered after a moment, however, and added to Tubby and the girl impartially:

"I fancy you have never read my books. I've told all about it in them."

Ameena shook her head; Tubby seemed embarrassed.

Sir Isaac obviously was disappointed. "Oh well, of course here on Venus they had no sale. It is immaterial. . . . This attack on our earth is too horrible—it is unthinkable. It must not be."

"No," agreed Ameena soberly. "It must not be. But what can we do to prevent it?"

"We?" exclaimed Sir Isaac. "You will help us?"

She held out her two hands simply; and Tubby and Sir Isaac impulsively grasped them.

"I could not let my cousins of the earth come to harm for lack of *my* help," she said quietly.

Sir Isaac, sentimental by nature, was again overcome with emotion; Tubby pressed the girl's hand warmly, beaming on her.

"That's fine, Ameena," he declared. "You are a regular girl, ain't you?"

There was a brief pause. Then Ameena said:

"I do not know if in Jupiter they are lending help to the Martians or not. But in the Light Country of Mercury I know they hate the Twilight People—these outlaw neighbors of theirs who are joining with the Martians. They of the Light Country, perhaps, would help us."

"The Light Country of Mercury!" Sir Isaac echoed. "By jove, how stupid of me! Of course! They, too, have the Light-ray. With one Light-ray we can fight the other!"

"Fine," agreed Tubby, still beaming at Ameena, who flashed prettily under his openly admiring gaze.

Sir Isaac stood up with determination. "Mercury is now fortunately approaching inferior conjunction with Venus. It is barely thirty million miles away from us at this present moment. Let us go to Mercury at once!"

"Come on!" cried Tubby enthusiastically. "Let's go. Let's aim to get there this afternoon—we can if we hurry." And clutching Ameena by the hand, he started off at a run through the giant banana grove, Sir Isaac following close behind.

After a hundred yards Tubby stopped abruptly, almost jerking Ameena off her feet.

"Say, listen, little girl—how about your family? Ain't your family liable to get scared, you runnin' out into space this way without sayin' nothing' to nobody?"

Sir Isaac also seemed worried by this thought, but the girl smiled readily. "I have heard about

your earth families," she said. "In Mercury they have them also. But here on Venus there is only the State and the Individual. At fourteen I was free from control of the State. I am my own mistress now." She raised her arms with a pretty gesture. "Even love has not come to me yet. I am free."

Sir Isaac was relieved. "Of course! Naturally. How stupid of me. I should have known that on Venus—"

"Great," said Tubby. "Come on then—let's get goin'." He started off again as fast as his fat legs would carry him.

They departed from the surface of Venus ten minutes later, hurtling up through the atmosphere at a velocity that heated the interior of the vehicle like an oven. Sir Isaac put its cooling system into operation at once—chemically cooled coils over which air was driven by electric fans and then circulated through the various rooms—after which, ignoring their guest, he seated himself at the instrument-room table and began a computation of their course to Mercury.

Tubby showed Ameena over the vehicle with enthusiasm. He had forgotten for the moment the dire portent of this new journey and was like a boy on a holiday. The girl was intensely interested in everything, especially in the marvelous, ever-changing aspect of her own world as they slowly turned over and dropped away from it.

"You can have all the upstairs to yourself," Tubby declared, with due regard for the conventionalities. They were standing then in the doorway of one of the dainty little chintz bedrooms. "The professor an' I'll bunk downstairs. He's a real nice guy, the professor—you'll like him."

"I'm sure I shall," Ameena said. Her eyes, glancing at Tubby sidewise, were veiled by their heavy black lashes. She added softly:

"And you, too, my friend Tubby."

Tubby did not quite realize it then, but, indeed, this Venus-girl, typical of her race, had a distinct talent for love-making.

When they came to the kitchen, Tubby was much embarrassed over the remains of the breakfast dishes. But Ameena proved herself a real housewife by immediately assuming charge of this department of the vehicle. She began washing the dishes at once—a curiously incongruous sight in her Greek-maiden robe as she bent over the kitchen sink!—while Tubby stood admiringly by, watching her.

When the kitchen and store-room were immaculate, Tubby and Ameena returned to the instrument room. The sun was shining up through the lower window; the vehicle was cooling off a trifle since leaving the atmosphere of Venus; they were now well launched into space.

Sir Isaac, having completed his computations, greeted them triumphantly.

"We have traveled 2,138 miles," he said. "I am heading directly for the sun now. I have been taking it very slowly until a moment ago."

"Very good," Tubby agreed, with a most business-like air for Ameena's benefit. "But we got to hurry from now on if we're goin' to get there today."

They sat down then to discuss the future. There was really very little to discuss, as a matter of fact, for Ameena's knowledge of war conditions throughout the solar system was very slight. What the

voyagers could do to protect the earth depended upon two factors. Had the great Jovians joined in this dastardly war? And would the Light-Country of Mercury lend its aid—its Light-rays and other weapons—for the earth's defense?

"Well," said Tubby, "we'll know pretty soon. What's the use arguin'? Ain't I right?"

Sir Isaac yawned involuntarily in spite of their interesting argument. He looked embarrassed.

"You're sleepy," exclaimed Tubby solicitously. He added to the girl:

"The perfessor ain't had a wink of sleep since we left the earth last night. He'd better go take a nap."

Sir Isaac was indeed tired out. "I must direct our flight," he said. "I cannot leave our course to—"

"Why can't you?" Tubby demanded. "I ast you twenty times already to show me how this here thing works. I can run it the same as you, if you show me how just once."

In the face of his growing fatigue which would not be denied, Sir Isaac was forced to yield.

"My inter-planetary vehicle operates upon a very simple principle," he began. "First you must know that the law of gravitation says that every body in the universe attracts every other body directly as the mass and inversely as the square of the distance between them."

Tubby and Ameena were all attention.

"We don't quite get you," Tubby said.

"Directly as the mass means that if one body weighs 100 tons and another weighs 10 tons, the big one will exert ten times the attractive force of the little one."

"That is very clear," said Ameena.

"Go on," nodded Tubby.

"And inversely as the square of the distance means that when bodies are twice as far apart they only exert one-fourth the attractive force upon each other. Thus you see every mass of matter in the universe is attracting every other mass according to those laws.

"Now each of the six faces of this vehicle—top, bottom, and the four sides—is lined with a metallic plate. This very curious metal is found principally on Mercury—although, as I have shown in my books, it has been prepared by one scientist on earth—he who went first to the moon. My projectile, fired from an enormous cannon, you remember, failed to reach the moon, but merely encircled it."

"I remember that other one," Tubby exclaimed.

Sir Isaac was pleased. "Yes. . . . That was where I explained my gravity screen. . . . Well, we are using now a device very much like that, only vastly more efficient. You see, in this particular inter-planetary vehicle I have a current something like the Mercurian Light-ray, and something like our own electricity. With it I charge any or all of these metallic plates both negatively or positively. I mean, I can make them *neutral* to gravity—so that gravity is cut off entirely as in the case of the gravity screen. Or I can make them *attractive*, or *repellent*. Without any charge, you understand, they are attractive, as all matter is. With my negative charge they repel with exactly the same force as normally they would attract."

"Ah," said Tubby.

Sir Isaac warmed to his task. "Let me explain to you the exact result of this. When we were resting

on the earth's surface, I cut off—only partially, for you see the change may be made with any rapidity desired—the gravity from our base. Having then an insufficient attraction from the earth to hold us there, we left its surface, flying off at a tangent because of the earth's rotation on its axis. . . . But I won't go into that. . . . Once in space, as we are now, I merely make one face attractive, and the others neutral or repellent. Thus the attractive face acts on whatever heavenly bodies lie in the direction, and we are drawn toward them. For greater speed I also use the repellent power of those bodies lying behind us. For instance, after leaving the earth, I used the attraction of the sun—only a portion of it, of course. Later, merely for experiment, I combined with that a fraction of the earth's repulsion. Early this morning, when we approached Venus, I used *her* attractive power, cutting off the sun completely."

Sir Isaac turned to the keyboard. It was quite similar to the keyboard of a very large typewriter—and with more keys. These keys were of three different colors—white, red and black—and all of them were numbered plainly.

"These keys," said Sir Isaac, "you will observe are on six banks—each bank governing a different face of the vehicle. For instance—" He indicated the lowest row of keys—"this bank governs our base. And this, the top of the vehicle—and these are the sides.

"There are, you notice, fifteen keys on each bank. When they are all up there is no action at all—the face allows any heavenly body to attract with its full, normal force. But, when I press down this red key—each bank has one, you see—then the face becomes neutral to gravity. The seven white keys give seven different intensities of attraction, and the seven black ones give seven different intensities of repulsion. A key pressed down stays down until you pull it up."

"Sure," agreed Tubby. "That ain't so awful complicated."

Sir Isaac went on:

"You will understand then that when number seven white key is down, the face is fully attractive, just the same as it is with *all* the keys on that bank *up*. Do you follow me?"

"Absolutely," nodded Tubby. "I doped that out long ago."

"Well," said Sir Isaac, "with these ninety keys, working singly or together, a very great number of combinations can be obtained. We can go in any direction we choose, and at almost any velocity—at least I have never been able to calculate any limit to the velocity if sufficient time for acceleration is allowed."

"Right," agreed Tubby. "You mean we don't get up speed all at once—we keep goin' faster. That's good. . . . Show us what's doin' now."

"Our present course is very simple," continued Sir Isaac. "You observe five of the red keys are down—the top and all four sides of the vehicle are neutral to gravity. On the bank governing our base the *first* white key is down. We are being drawn toward the sun, pulled by one-seventh of the sun's attraction. If we wanted to go faster we could use more of the sun's attraction, or some of the repulsion of Venus. If we wanted to go slower, we could combine some of the *attraction* of Venus, which would act as a drag. By balancing the attraction of Venus

and that of the sun we could stop entirely. . . . I think I shall use another seventh of the sun's attraction. Watch carefully."

Sir Isaac suited the action to the word, pressing down the second white key of that bank, and then releasing the other.

Tubby watched closely. "That's easy. What else?"

For half an hour more Sir Isaac explained the navigation of space—with practical demonstrations, during which he made the heavens swing over at will in most dizzying fashion as he altered the vehicle's course. Finally Tubby announced himself satisfied, and competent to assume charge for a few hours at least.

"You go lie down," he said. "We'll get you up when Ameena has lunch ready."

Still Sir Isaac hesitated. "In half an hour," he explained, "I would, I think, increase our speed by using about three-sevenths the repellent power of Venus."

He indicated the changes. "Our velocity is steadily increasing as we approach the sun—but we must go still faster. We *are* in a hurry."

As he turned to leave the room, his face clouded with sudden anxiety.

"We shall shortly attain a velocity of nearly seven million miles an hour," he said soberly. "I—I hope I'm not taking too great chances. It's so crowded in here with meteorites. We've been marvelously lucky so far."

"Go on to bed," commanded Tubby. "I ain't goin' to let us hit nothin'. I'll watch. If I see anything comin' I'll thump them keys, or yell for you."

Most reluctantly, Sir Isaac gave up command; and, with Ameena's gracious permission, he retired to one of the upper bedrooms.

Trouble!

IT really was Ameena's fault, though Tubby was too much a gentleman ever to say so—for if Ameena had not called him into the kitchen it could never have happened. She had gone to prepare the noonday meal, and Tubby reluctantly had parted with her and maintained his post at the lower window of the instrument room. The sun shone up at him intolerably bright.

Nothing showed in the sky below, except that huge, flaming red ball slowly but steadily increasing in size—the sun as it appeared through the smoked glass—and those glorious constellations of stars hanging immovable in the black firmament. In thirty minutes exactly, by the instrument room's chronometer—Tubby had added to their velocity three-sevenths the repellent power of Venus. This world they were so rapidly leaving hung directly overhead—an enormous silver-blue sphere now completely illuminated by the sun, but visible only from the upper windows of the vehicle.

It was just after he had put on the additional speed that Ameena had called Tubby into the kitchen to ask him how to open a can of tomatoes for canned goods were unknown on Venus. Tubby, once in the kitchen, had forgotten to return to his post. He was sitting in the doorway of the adjoining store-room, chatting vivaciously with Ameena, when suddenly he became aware of an unusual light coming diagonally in through the side window.

Leaping up, he saw in the black, starry void a

huge silver disc—a thousand moons in size! It was below them, off to one side. It was so close he could see barren, rocky mountains on it; and it was turning over like a ball thrown into the air. Even while he gazed, with his heart in his throat, it doubled in size, so stupendously fast was it approaching—and already exerting its attractive power upon the base of the vehicle, it was altering the vehicle's course so that the heavens began shifting sidewise.

With a startled cry, Tubby dashed into the instrument room, Ameena following him with the can of tomatoes still in her hand. Through the instrument room floor window the heavenly derelict, again doubled in size, shone directly beneath them. They were rushing into it, drawn irresistibly by its attraction!

Tubby took one horrified glance, and then, jumping to the keyboard, he depressed half a dozen of the keys indiscriminately. There was no answering vibration perceptible within the vehicle; but outside its windows the heavens were whirling! The sun, Venus, the threatening derelict globe, a myriad of stars—all flashed past the windows so rapidly they were distorted into mere blurs of light. The vehicle, beyond control, was spinning on its axis and falling abandoned in space!

Tubby and Ameena, standing stock-still on that solid, apparently motionless floor, were giddy at the sight.

"Oh-h, perfessor!" Tubby bellowed. "Help, perfessor! Come here quick! We're all fallin' to pieces!"

Sir Isaac came clattering downstairs, his apparel awry, his face still dazed by sleep. With one quick glance at the windows he hastened to the keyboard. Tubby and the girl stood anxiously beside him.

"Somethin' w-went wrong," Tubby chattered. "There's a b-big world right outside. We war r-run-nin' into it."

The vehicle, spinning like a top, gave Sir Isaac no opportunity of locating the correct keys to depress. He first threw them all into neutral; then tried, tentatively, throwing the attraction into the base of the vehicle for that instant when it was facing Venus, and releasing it an instant later.

For five minutes he worked, his face pale with anxiety. "Am I stopping our rotation?" he asked. "Are we slowing down?"

Tubby forced his gaze to the window and saw that the heavens were spinning with a little less rapidity.

"Go on," he encouraged. "You're doing' fine."

"I don't dare leave everything in neutral," Sir Isaac muttered to himself. His gaze was glued to the floor window; the perspiration was rolling down his face. "Inertia would carry us forward on our former course without any force of attraction. We could not avoid collision. Perhaps we cannot anyway."

"Don't say that," pleaded Tubby. "Go on. You're doin' fine."

Ameena now crouched on the floor, gripping a chair leg to steady herself; and peered intently downward through the window. At each instant when Venus came into view she called to Sir Isaac, and he promptly depressed the necessary key, releasing it once the planet had swung past. With Ameena's help he did this more accurately than before, and gradually the vehicle's axial rotation was decreased.

Finally they caught Venus and held it directly beneath them.

Sir Isaac stood up, trembling. "Thank God!" he exclaimed. "We are headed the other way. The danger is past."

Now that the excitement was over, Tubby felt extraordinarily weak in the knees. He sat down in a chair, panting.

"What was it, professor? What happened?"

"An asteroid," Sir Isaac answered, smiling weakly. "A minor planet, unknown to astronomers. I knew its orbit lay in here, but I had calculated the asteroid itself to be on the other side the sun this month—fool that I was!"

A moment later, carefully, Sir Isaac resumed their former course. The asteroid had disappeared; the sun now shone up from beneath them as before.

"How close did we come to it?" Tubby asked, when they had all three recovered calmness. "I guess we didn't miss it by more'n a mile."

"We passed it about 4,000 miles away!" Sir Isaac answered.

Tubby was amazed. "Four thousan' miles! An' I thought we nearly hit it!"

Sir Isaac smiled. "I should not care to come any closer. Our velocity at that moment was 7,200,000 miles an hour. That is exactly 2,000 miles per second. In just two seconds more we would have collided with that asteroid and been annihilated! That's why I said we were crowded in here. It is very dangerous to approach within a million miles of anything."

They had lunch shortly after that, Sir Isaac insisting on having his served on the store-room floor so that he might keep close watch through the lower window there, for comets, and even infinitesimal meteorites, as well as asteroids, were to be avoided. As Sir Isaac pointed out, to collide with even a hundred ton meteorite at a velocity of 2,000 miles a second would be a fatal catastrophe!

After lunch, over their cigars, while Ameena straightened the kitchen, Sir Isaac told Tubby about Mercury, which he had hoped they would reach about five o'clock that afternoon, but which now they might not arrive at before six or seven o'clock.

"Mercury," Sir Isaac explained in his slightly pedantic way, "is the smallest of the major planets, and the closest to the sun. It's orbit lies at a mean distance of 36,000,000 miles."

"An' how far did you say Venus was from the sun?" Tubby asked. He was becoming avid for astronomical mathematics.

"Sixty-seven million," answered Sir Isaac.

"An' the earth is 93,000,000. An' the moon a quarter of a million from the earth." Tubby was memorizing the figures. "All right. Go on."

"Mercury makes one revolution around the sun every eighty-eight days. That is the length of its year. It is so close to the sun that the enormous solar attraction holds one side of it always facing that way. Hence its axial rotation is also once in eighty-eight days, and it has no day or night—always daylight, twilight or darkness according to what portion of its surface you are on."

"What part are we goin' to?" Tubby demanded.

"To the Light Country, where there is daylight—

but it is not too intense. Heavy clouds and a dense atmosphere make life possible on Mercury, even though it is so near the sun. In the Fire Country, which directly faces the sun, the planet is practically uninhabited. We will land at the Great City—the largest center of population on the planet. It is the Light Country people we want to enlist as allies, against their outlaw neighbors, the Twilight people and those horrible Martians."

This brought them again into a discussion of the Martian plot which they were determined at all hazards to frustrate. Ameena joined them shortly after that, and for hours they argued, without however, reaching any new conclusions.

Sir Isaac was momentarily growing more sleepy; and finally, when Tubby had solemnly promised that for two hours he would not leave the window under any circumstances and would call out at once if anything unusual came into sight, Sir Isaac again retired. They were then about 18,000,000 miles from Mercury, which shone as the brightest star in the lower hemisphere of the firmament, visually quite near the sun's outer limb. And so great was their haste that again Sir Isaac had resumed almost their former speed.

During these two hours, Tubby and Ameena sat on the floor by the window, exchanging accounts of their respective worlds.

"I'm strong for Venus," Tubby declared once. "When we get these Martians put in their place, an' get our moon back, I believe I'll come to Venus to live."

The girl agreed that would be very nice indeed; and Tubby, intoxicated by her beauty and the fragrance of her person, suddenly laid his hand over hers.

"Ain't this romantic though—shootin' around the sky like this? Sing somethin', Ameena. Where's that harp you had?"

Ameena played on her lyre, and sang; Tubby listened, and complimented her, and urged her constantly for more. Thus absorbed in their youth, the two sat oblivious to the vehicle's course, while the sun blazed larger and hotter, and Mercury grew from a gleaming star to a silver crescent—larger and larger until, like Venus of the morning, it stretched an enormous arch in the blackness, with the sun to one side behind it.

Fortunately for the safety of these bold voyagers (and indeed for the future existence of earth itself, which depended upon the success of their mission), no other uncharted wanderers of space chanced to be in the vehicle's path during those two hours.

It was nearly half-past four when Tubby came to himself. A glance through the window reassured him that all was well, and, reluctantly tearing himself from Ameena's presence, he went upstairs to awaken Sir Isaac.

They entered the atmosphere of Mercury at 6:57 P. M., shortly after a hurried supper. Falling diagonally over the Dark Country, they came into the Twilight Zone. A few moments later the Narrow Sea lay beneath them, and at last they sighted the Great City at the edge of the Light Country.

It was 7:29 P. M. exactly when, with only a slight jar, they landed upon the surface of Mercury.

CHAPTER V

In Which the Mercurians Prove Themselves Utterly Selfish, and the Disappointed Voyagers, Pursued by the Enemy, Hasten to Jupiter

HOW selfish is human nature the Universe over! After a voyage of some thirty million miles, the travelers might quite as well have remained on Venus! The Mercurians of the Light Country were sorry—indeed, they greatly deplored the action of their neighbors of the Twilight Country in joining with the war lords of Mars against the unoffending Earth—but they would do nothing about it! How simple all human problems become, when viewed in that detached spirit! How human nature does repeat itself, wherever in the Universe it may be found!

The audience with the ruler of the Light Country took place at 9:40 p. m., Earth's Eastern Time—shortly after the First Meal, as time chanced to be on Mercury.

Tubby, Sir Isaac and Ameena gravely faced the white-haired King and his aged dignitaries who were seated around a huge table in the Audience Room. The place was crowded; its gallery above, open to

the public, was thronged with those curious to see these strange visitors from another world.

Sir Isaac, who, fortunately, was fairly fluent in the Mercurian tongue, explained their mission. He was earnest and eloquent. And when he had finished having done his very best, the King, after a whispered conference with his councillors, made his speech of condolence!

Sir Isaac was aghast. He translated the King's words briefly to Tubby and Ameena.

"How dare they?" the girl cried. "It is inhuman. Tell him *I* say——"

Sir Isaac interrupted her, in a whisper, for the Audience Room was intensely quiet.

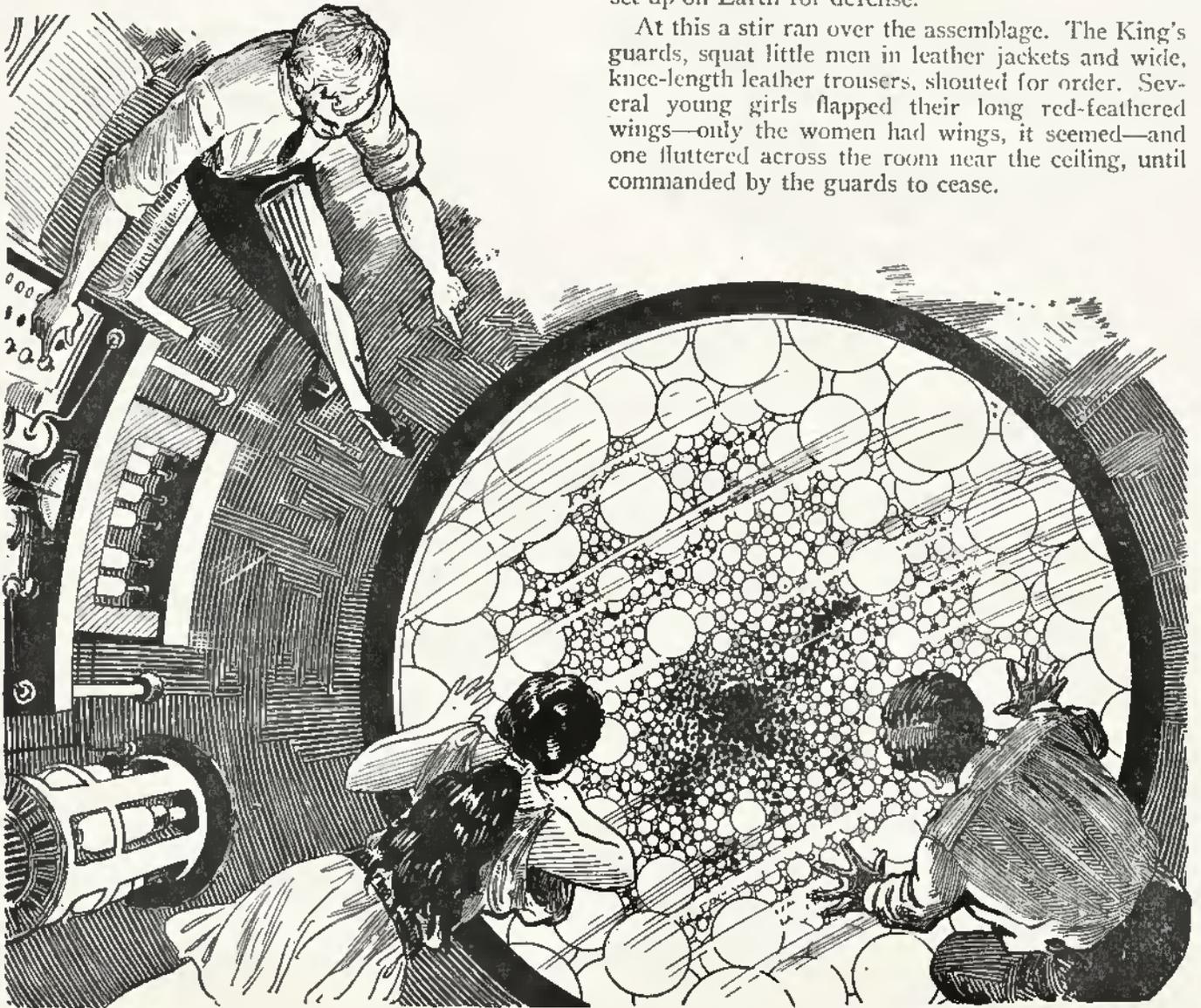
"*Your* position is not so impregnable, Ameena. Your own people refused to mix up in this interplanetary war. How can you expect——"

"My people have no weapons of war," she defended passionately. They know nothing of fighting. Never has a voice been raised in anger in my world! What could they do to help, if they would?"

"You let her alone," Tubby whispered vehemently to Sir Isaac. "She's got the right idea. You tell this King *he* can help. Ain't he got that Light-ray? Make him lend it to us."

Sir Isaac then requested the use of the Light-ray—a sufficient amount of its apparatus which they could set up on Earth for defense.

At this a stir ran over the assemblage. The King's guards, squat little men in leather jackets and wide, knee-length leather trousers, shouted for order. Several young girls flapped their long red-feathered wings—only the women had wings, it seemed—and one fluttered across the room near the ceiling, until commanded by the guards to cease.



They entered the Milky Way on the seventh day after passing Alpha Centauri. Though their actual entrance into the Galactic Plane was unmarked, the firmament simply blazed with bright stars.

The King looked exceedingly grave at Sir Isaac's request; his whispered conference with his advisors lasted several minutes. At last he shook his head.

Sir Isaac translated his answer. "He says he is sorry. They could not trust their Light-ray to another world. He claims the Earthmen would then learn its secret and some day might use it against Mercury."

"He's a fool!" shouted Tubby angrily. "Ain't they got it on Mars already? An' maybe on Jupiter?"

Tubby Sassses the Mercurian King

HE turned toward the King. "Say listen here you——"

Thirty feet separated Tubby from the King at that moment, but he encompassed it in one bound, for on so small a planet as Mercury even Tubby weighed hardly sixty pounds! He landed beside the King's chair.

"Say, listen here you——"

As Tubby's fat little body went hurling through the air pandemonium broke out in the room. Girls were fluttering about; the guards were pushing and shoving the crowd. One or two of the older women fainted. A little boy broke into terrified screaming.

The King, finding he was not hurt, ignored Tubby's fist in his face, and with rare presence of mind rose to his feet, shouting reassuringly to the assemblage. Three of the nearest guards, their faces dark with anger, were making for Tubby belligerently; one of the aged counsellors put a restraining hand on his shoulder, but he shook it off.

Sir Isaac bawled:

"Come back here, you fool! They'll kill us all!"

It was Ameena's pleading voice, rising above the tumult, that brought Tubby to his senses. He stopped abruptly his abuse of the King, and with another prodigious bound leaped over the heads of the intervening people, and landed back beside his friends.

"Come on, let's get out of here," he gasped. "This here Mercury ain't goin' to get us nothin'."

Sir Isaac, with true diplomatic suavity, waited until order was restored. He then paid his respects to the King, apologizing for Tubby's conduct, and stating with curt dignity that the Earth would solve its own problems and look after its own safety in its own way. After which, escorted by the King's guards to protect them from the incensed populace, the three visitors coldly departed.

As they left the room, a young girl—with huge wings and a sneering, unpleasant face, so different from the beauty of the other girls in the room as to mark her of another nation—climbed from the balcony into one of its outer windows. Poised there a moment, she launched herself into the air, spread her wings and flew away.

Sir Isaac, Tubby and Ameena were on the palace steps when this girl flew past, just over their heads. She shouted something venomously at Sir Isaac, and rising higher, flew rapidly toward the Narrow Sea and the Twilight Country.

Sir Isaac did not mention this incident then to Tubby or Ameena, who had not noticed the girl. Indeed, he forgot it in a moment, though afterward it was brought most vividly and unpleasantly to his memory.

Flying Through Space Once More

IT was 11:45 p. m., Earth time, when the vehicle was again launched into space. When they had passed over the Dark Country and had left the atmosphere of Mercury—headed this time away from the Sun, back toward Venus and the Earth—the three inter-planetary adventurers sat down quietly in the instrument room to determine what should now be done, in the face of this unexpected disappointment.

"An' here we went an' wasted all day," Tubby moaned. "We could have been almost anywhere while we was foolin' around here with them selfish, pin-headed——" He trailed off into abuse of the Mercurians.

Sir Isaac, more practical, summed up the situation as it now stood.

"We have, of course, no means of knowing whether the inhabitants of Jupiter are against us or not," he said. "But at all events, at the next opposition of Mars with the Earth we may expect their attack."

"Less'n two months from now," Tubby put in gloomily.

"In fifty-six days and eighteen hours," Sir Isaac corrected. "I assume their method will be to mass their army first upon the Moon. From that point of vantage, always close to the Earth, they can launch their successive attacks at will."

"That is what they will do," Ameena cried. "From the Moon, of course."

Tubby frowned. "What will they do to the Earth? You say they're goin' to kill us, but you ain't never said how."

Then Sir Isaac, his voice trembling in spite of himself, explained the horribly destructive power of the Mercurian Light-ray—that beam of red-green light-fire, which from giant projectors ignited everything within its path over a distance of fifteen miles! And the tremendous war-machines of the Martians—giant mechanical bodies housing the Martian directing brain in their tops—mechanisms with metal legs like steel girders fifty feet long running rampant over the Earth!

"That's enough!" interposed Tubby hastily, mopping his face. "Don't tell us nothin' more like that. My idea is, we better not let 'em land on the Earth."

"Quite right," agreed Sir Isaac. "But how to prevent them? That's just the question."

It was the question indeed, and for another hour they wrestled with it.

"Let's eat," Tubby suddenly announced. "We can do that if we can't do nothin' else."

Tubby now found himself, after this episode on Mercury, somewhat more in the nature of leader of their enterprise than he had been before.

"We're done with Mercury," he said, when over the midnight supper the argument was resumed.

Sir Isaac nodded. "We are, most certainly."

"An' Venus ain't no use to us."

"No," Ameena put in. "My world is powerless."

Tubby went on with merciless logic:

"If we go home an' wait, we're licked sure."

"Yes," agreed Sir Isaac, "that will mean absolute annihilation, even though the world's armies and navies were massed to our defense."

"An' we *can't* land on the Moon," Tubby persisted. "They'd murder us in thirty seconds—on our own Moon too." The pathos of this struck Tubby with

sudden force. "Ain't that actually criminal? Can't land on our own Moon!"

"What *are* we going to do?" Ameena asked hopelessly. "Oh, dear, we cannot seem to land anywhere."

"How about Jupiter?" Tubby demanded. "That's a big place, ain't it?"

"The largest planet of the solar system," said Sir Isaac. "But whether they are friends or enemies—"

"Well let's go see an' find out!"

The logic as well as the daring of this simple suggestion was immediately apparent.

"If them Jupiter people ain't enemies they can help us easy." Tubby added. "Let's take a chance anyway."

There seemed nothing else to do. The Earth was powerless to defend herself. Help must be obtained—from whatever source—at all costs.

And so it was decided.

The Course Set for Jupiter

BACK in the instrument room Sir Isaac computed their course to Jupiter. A little later, for it was then nearly three o'clock in the morning, Ameena retired to the upper floor.

The vehicle had now reached a point in space almost midway between Mercury and Venus. Tubby suddenly remembering the asteroid with which they had so nearly collided that afternoon, peered anxiously down through the lower window, to the tiny blue-white disc among the stars that was Venus.

Sir Isaac, hearing Tubby's muttered exclamation concerning the asteroid, laughed reassuringly.

"It has passed on in its orbit," he said. "Rushing around the Sun in a most eccentric ellipse, it is now many million miles from here."

Having been the one to suggest their future course of action, Tubby was feeling his growing responsibility. He felt simultaneously his need for more specific astronomical information than he now possessed.

Tubby Learns More About Stars and Orbits

"IF I'm goin' to boss this expedition," he announced, "I got to have all the dope in my head."

Sir Isaac had frequently been tracing their flight upon a celestial map of his own making, and Tubby now demanded to see it. Sir Isaac produced it readily, from the table drawer, and clearing a space on the table, unrolled it before them. By the light of an electric bulb—for the side and floor windows admitted nothing but starlight—Tubby examined it.

"This is merely a rough drawing I made myself," Sir Isaac explained apologetically. "It shows the solar system—though not at all to scale—and gives a rough idea of the present positions of the planets, and our course up to date."

This is what Tubby saw:

"You notice," said Sir Isaac, indicating with his pencil point, "that the Sun occupies the center of the solar system, and the planets revolve around it in concentric rings which are called orbits. These are not circles, but are ellipses—so that the Sun is not exactly in the center, but a little off to one side—in one of the foci of the ellipse, to be technical. Thus the orbit is somewhat nearer the Sun in one portion and further away in another. The amount of this

difference is called the eccentricity of the orbit."

Tubby nodded his comprehension; Sir Isaac went on:

"Fortunately, as you observe, all the planets chance to be on this side the Sun just now. . . . I must alter our course toward Jupiter. We are now headed for Venus, but Jupiter, you see, is considerably further along in his orbit."

Sir Isaac went to the keyboard, and a moment later Venus, as seen through the lower windows, swung sidewise out of sight. A new region of gleaming stars—none of unusual brightness—came into view.

"I am heading well past Jupiter," said Sir Isaac. "We are falling diagonally sidewise now, *forward* by the combined attraction of all those stars, and *sidewise* by the repulsion of Venus and the Earth and all the stars behind them. This will bring us into a direct line drawn from the Sun to Jupiter—and then I can make better speed by using the Sun's repulsion and Jupiter's attraction combined, which I cannot do now."

By careful consultation of the chart, Tubby finally got this clear.

"It's a longer route," Sir Isaac added. "But I think it will prove quicker. . . . You'd better lie down, Tubby—you're tired out."

Tubby was indeed terribly sleepy—but, unselfishly he realized that Sir Isaac must be also.

"I'll watch," he said. "*You* take a nap."

But Sir Isaac wished to get the vehicle upon its direct course first.

"We'll be in line with the Sun and Jupiter in about two hours," he explained. "I'll call you then. From then on we will hold the same course all the way."

Tubby yielded, and started upstairs. Then, remembering Ameena, he went into the store-room instead, and with the cushions from one of the chairs of the instrument room for pillows, stretched out on the floor and went to sleep promptly.

* * *

"Wake up," said Sir Isaac, shaking him. "It's seven forty—you've been asleep nearly four hours."

Tubby rubbed his eyes, and clambered to his feet. "What's doin'? Anything new? Where are we?"

"We're on our direct course to Jupiter," Sir Isaac answered. He had shaved and washed. His hair was slicked back and he was smoking a cigar; but his face was haggard and he looked tired out.

"You can take charge now," he added. "I must get some sleep, if only for a few hours."

Tubby sat alone on a cushion at the floor window of the instrument room. The Sun, from which they were now receding, as Sir Isaac had told him, at a velocity of 15½ million miles an hour, was blazing high over the roof of the vehicle, and thus was invisible from the starlit room downstairs. Through the floor window Tubby could see nothing but gleaming silver stars. One of them, he could not distinguish which, was Jupiter.

Tubby whistled to keep himself awake. After an interval he looked at the chronometer. It was 8.20 A. M. Why didn't Ameena wake up? Tubby was lonesome and depressed. A little later he went into the kitchen and made himself a cup of coffee. Again he wished fervently Ameena would come down and join him. Should he wake her up? Wasn't it time for breakfast? Wouldn't she even come down?

For another hour he wandered disconsolately about the lower rooms, glancing at intervals through the floor windows to make sure no derelicts were in

sight. Remembering Sir Isaac's jaunty appearance, he shaved and washed—fortunately having had the forethought, the night before, to rescue his razor from the bedroom upstairs.

He had about decided in desperation to awaken the girl, when, on an impulse he climbed into the little dome on the roof where Sir Isaac had mounted a small telescope. A moment later he was clattering down through the vehicle, bellowing loudly for Sir Isaac and Ameena.

The Sky Travelers Are Followed

"HEY, perfessor! Ameena! Oh, Ameena! Get up, quick! There's somethin' follerin' us!"

Sir Isaac came bounding upstairs from the store room, meeting Tubby in the upper hallway. From one of the bedrooms came Ameena's sleepy voice:

"What is it? Must I get up?"

Together the two men rushed up into the little observatory. Another vehicle, twice as large as their own and somewhat different in shape, hovered almost directly above them, showing as a dark spot in the firmament and edged with silver from the Sun's rays behind it.

"That Mercurian girl!" Sir Isaac gasped, with sudden memory. "She flew to the Twilight Country! She said she was going to have revenge!"

They were indeed being followed! This pursuing enemy was at that moment hardly more than five miles away, and was overtaking them rapidly!

CHAPTER VI

In Which the Voyagers Pass Mars, Dodge the Minor Planets and Interview His Supreme Highness the Great Mogul of Jupiter

SIR Isaac dashed back to the instrument room three steps at a time, with Tubby at his heels. Ameena came from her room and followed them.

"What is it?" the girl demanded. "Is something wrong?"

Tubby called back over his shoulder:

"Them Mercurians is after us. Right overhead—comin' fast. Come on down—we got to do somethin'."

Sir Isaac rushed to the keyboard.

"Switch our course," Tubby suggested. "Let's see if they can turn when we do. . . . Or how about goin' faster? Can we go faster?"

"Wait," commanded Sir Isaac. He depressed two keys—a black one on one bank and a white one on another—and raised the ones which had been down. Then he dashed away upstairs again.

Tubby had no more than time to compliment Ameena on her appearance—she was dressed quite as on the day before, but her face was flushed with excitement and her eyes sparkled, so that she was more beautiful than ever—when Sir Isaac was back. He sank into a chair and smiled at them weakly.

"That danger's past, for the moment. We have left them out of sight behind us."

"So quick?" exclaimed Tubby. "Out of sight already? We must be goin' some."

Ameena looked her relief. Sir Isaac made some further adjustments of the keys.

"I've just slowed us up again," he said. "I would not dare go as fast as we would very soon have been going."

"Well, how fast are we goin' the way you got it now?" Tubby persisted.

28 Million Miles Per Hour

"ABOUT 28 million miles an hour," stated Sir Isaac. "Of course I haven't computed it yet—but I judge we shall shortly attain that velocity. I am now using six-sevenths of the Sun's repulsion with everything else in neutral. Our rate of speed depends very largely on the length of time allowed for acceleration, you understand."

He gazed down through the lower window anxiously, and muttered:

"Heavens, I do hope nothing gets in our way!"

"Maybe we better slow up," Tubby suggested. It did seem a trifle fast to be going, when he came to think of it. On the other hand such a speed was not in the least beyond his understanding now. Sir Isaac had already explained something of the laws governing freely falling bodies; and Tubby had recalled that old stunt of dropping a baseball from the top of the Washington Monument, which fell so fast even in that little distance that the professional catchers could hardly catch it. The vehicle was more than a freely falling body—it was being *pushed* downward.

Sir Isaac shook his head at Tubby's suggestion that they slow up a bit.

"We must chance the danger," he said, though not without considerable perturbation. "That Mercurian vehicle may be able to attain this speed also—or even a greater one. We cannot tell."

"Suppose they *should* overtake us," Ameena speculated. "They could not board us—or collide with us without death to themselves?"

"They might have some means of destroying us—I do not know," Sir Isaac replied. "Though possibly the Light-ray is useless in Space." His voice became meditative. "Curious I never thought of that before. I suppose it *would* be inoperative."

"I think," said Ameena, "that they are merely trying to reach Jupiter before us. Perhaps they want to warn the Jovians against us. To persuade them not to—"

"Meaning—?" Sir Isaac interrupted eagerly. The poor man's mind was working so constantly that he seemed grateful to anyone who would do his thinking for him.

Ameena finished:

"Meaning that I think it shows that on Jupiter the rulers are at least neutral."

"Sure," exclaimed Tubby. "You're some clever girl, Ameena. If them Jovians was our enemies, these Mercurian guys wouldn't bother chasin' us there. They'd know we'd get walloped anyhow. You got the right idea, kid." He gazed admiringly at Ameena, and the Venus-girl blushed charmingly.

This conclusion, thus happily arrived at, cheered the three adventurers immeasurably. They now felt tolerably certain of at least a square deal on Jupiter—if only they could arrive there ahead of the enemy.

"Well, that bein' settled," declared Tubby, rising. "Let's eat."

On this flight outward from the Sun they had crossed the orbit of Venus about 6.30 A. M., while Tubby and Ameena were asleep—though this course to Jupiter took them many million miles ahead of Venus' position in her orbit. This Tubby and Ameena readily understood by another glance at Sir

Isaac's drawing, which they consulted soon after breakfast.

About 8.15 A. M., while Tubby had been on watch alone, they had crossed the orbit of the Earth—though nearly twice as far then from the Earth as they had been from Venus.

"Mars revolves around the Sun at a mean distance of 141,701,000 miles," said Sir Isaac, some little time after breakfast. "We should have intersected his orbit about 10.40 A. M.—that was when we were closest to him."

"An' you didn't tell us!" cried Tubby reprovingly. "I want to get a look at that—that murderin' villain."

It was then about ten minutes of eleven. Mars, to which they had passed comparatively close, still showed as a half-lighted, circular, reddish disc. Its tracings of fine intersecting lines—the "canals"—were quite distinguishable.

Even at the enormous velocity the vehicle had now attained, all the heavenly bodies hung apparently motionless in the firmament—except Mars, which because of its nearness, seemed slowly moving upwards as the vehicle dropped past it.

Tubby, standing at the side window, shook his fist at the disturber of the peace of the Solar System.

"We'll fix you yet—you—"

Ameena laughingly pulled him away.

"Is Mars as large as my Venus?" she asked Sir Isaac. "Or your Earth?"

"The diameter of Mars is 4,316 miles," said Sir Isaac. "The Earth is 7,917 and Venus 7,629."

"Only a little guy!" Tubby was contemptuous. "That's the way with them little fellers—Mercury too—always lookin' for a scrap."

Sir Isaac went on:

"Mars revolves around the Sun once in a little less than 687 days. That is the length of his year. His orbital speed is 15 miles per second. He is ahead of the Earth now in his orbit, but the Earth travels forward at the rate of 18½ miles per second. Thus you see, the Earth is overhauling Mars—and when they are both in line with the Sun, that will be opposition. That's their closest point to each other until the Earth comes around again—and that's when the Martians will attack."

Sir Isaac, because of one threatened catastrophe or another, had had so far very little sleep since leaving the Earth two days before. About half past eleven that morning Tubby and Ameena sent him to bed again.

"Don't let me sleep more than two hours at the most," he said anxiously. "There are thousands of Minor Planets in here between Mars and Jupiter."

"Shucks," disclaimed Tubby. "That don't make no difference. Ain't I on guard?"

It was a magnificent chance for sarcasm, but the sterling character of Sir Isaac forbade such weakness. All he said was:

"Our velocity of 28,000,000 miles an hour would be sufficient to carry us from Earth to Venus, or from Venus to Mercury in a little over sixty minutes! I don't want you to forget how fast we are falling now."

With which admonition he retired.

It was a long, tiresome, comparatively uneventful day—at least it would have been, if Tubby had not had Ameena's companionship. She sang to him again; and with his somewhat raucous tenor voice they contrived "Inter-planetary duets" as Sir Isaac jocularly called them. When they had tired of music

they climbed into the dome to make sure their pursuers had not again come into sight. The overhead sky, out of which they were falling, showed nothing unusual. Mars—well above them now—had dwindled to a small, reddish star; the Earth, Venus and Mercury were indistinguishable among the mass of other glittering worlds.

"Look at the Sun," said Tubby. He pulled Ameena toward him. He had indeed, progressed to where his arm was almost constantly about her, which, since youth and love are the same the Universe over, Ameena accepted as quite reasonable and natural.

"Ain't the Sun gettin' little?" Tubby added.

The orb of day had dwindled to half its apparent size as viewed from Earth. The vehicle too, was growing hourly colder. Ameena shivered a little.

"Come on down," said Tubby solicitously. "We'll have to get the perfessor to heat the place up more—an' get you dressed warmer." His appreciative glance swept Ameena's dainty figure. "I'll see what I can dig you up—right after lunch. Come on down where it's warmer—let's play cards."

Explaining to the girl the intricacies of the fifty-two different cards of the deck took nearly another hour, after which Tubby's stomach peremptorily informed him that it was time for lunch. He swept up the cards, and with sudden thought gazed anxiously down through the lower window to see if they were about to collide with anything. Jupiter had grown to a marvellously brilliant star; beyond that, everything was as before.

"You go fix up somethin' to eat," he said to the girl. "I'll call the perfessor—he's asleep long enough anyway."

Sir Isaac came down shortly, dressed in a warm-looking tweed suit with golf trousers. Glancing at the chronometer, he immediately plunged into an intricate mathematical calculation.

"Our velocity since 9.30 this morning has averaged just 28,502,122 miles an hour," he announced a little later. "My guess was right."

"Good," said Tubby. "Come on into the dinin' room. Lunch is ready."

After lunch Tubby himself dressed more warmly—in a Norfolk jacket golf suit and heavy grey flannel shirt, an outfit that was extremely becoming. He then sent Ameena upstairs, magnanimously offering her anything and everything in the way of apparel she could find. She returned a few moments later, and stood shyly awaiting his approval. She had dooned a heavy pair of golf stockings and rubber-soled shoes which miraculously were almost small enough for her. And over her knee-length white dress, she was wearing a natty-looking man's overcoat which almost swept the ground. Her hair was now piled on her head, with a huge, red-silk handkerchief bound around it.

Even Sir Isaac glanced up from his figures long enough to admire her appearance. She looked indeed, like a radiantly beautiful little Earth-girl, on her way to the beach for a swim.

"Fine," declared Tubby. "Keep that coat buttoned up an' you'll be nice an' warm."

They were now—it was about 2.30 P. M.—more than half-way in distance from Mercury to Jupiter, Sir Isaac announced.

"Tell us somethin' about Jupiter," said Ameena, sitting down beside Tubby and giving him her little hand to hold. "You said it was a very big Planet."

"It's mean diameter is 87,380 miles," Sir Isaac answered. "Its volume is 1390 times greater than the Earth!"

"Some big Planet," Tubby commented.

Sir Isaac added:

"And it makes one revolution around the Sun in 4332.5 days. Thus its year is equal to 11 years, 314.9 days on Earth."

"My goodness," said Tubby.

"But Jupiter's *day* is only about 9 hours and 56 seconds long. That is because it rotates on its axis so very swiftly."

Tubby interjected.

"This here Jupiter's a *re-mark-able* Planet, ain't it?"

"Go on," said Ameena. "Tell us more."

Sir Isaac seemed embarrassed. "Well to tell you the truth," he said hesitantly, "I don't really know very much about Jupiter. You see I've never really had occasion, up to now, to——"

"Right," interrupted Tubby. He had no wish to be hard on his friend, especially before a girl. "What's the difference? We'll soon be there an' see it for ourselves. . . . When *do* we land, perfessor?"

Sir Isaac looked worried again.

"At our present velocity I calculate we should enter the Jovian atmosphere about 10.15 P. M. to-night, but——"

"Very good, *in-deed*, perfessor."

"But I dare not maintain this velocity," Sir Isaac finished.

"Why not? Ain't we in a hurry?"

"We *are* in a hurry certainly," Sir Isaac conceded. "But, as you know, the more haste the less speed sometimes. We are now in the region of Minor Planets. More than eight hundred of these little worlds have been discovered and listed, even by those inefficient astronomers of Earth. I have never given the subject much attention—except in the case of 'Hector Servadac'—and in *that* story——"

"*We* ain't seen no Minor Planets yet," Tubby hastily interrupted.

Sir Isaac drew him and the girl to the side window.

"There are a dozen or so," he said simply.

Tubby made them out after a moment—very tiny half-moons gleaming among the stars. They were apparently moving upward as the vehicle fell past them, while all the stars appeared quite motionless.

"Some of these little worlds are only from a few hundred thousand to a million miles away from us," Sir Isaac added. "We could reach them with this velocity in a minute or two! They're all around us now—so you can understand what chances we're taking."

Tubby understood indeed; and when, a little later, he saw through the lower window a gleaming disc come into sight, grow to the size of the Moon, and sweep past them to one side and out of sight above them—all in the space of a minute—he was glad enough to have Sir Isaac reduce his speed. It gave the pursuing Mercurian vehicle a better chance to overtake them, of course, but even that was the lesser of the two dangers.

The evening was a long one. Tubby and Sir Isaac played cards after dinner, with Ameena an interested spectator. They discussed their Mercurian pursuers a little—the other vehicle had not again appeared. Ameena retired about ten o'clock and Sir

Isaac, shortly afterward, lay down at Tubby's feet on the floor of the instrument room.

Tubby faithfully kept watch until two in the morning. Jupiter was now considerably larger than the Moon appears from Earth—a silver disc with broad dark bands on it, and a huge red spot, like a dull red lantern gleaming from its lower hemisphere. The red spot winked and went out shortly after Tubby discovered it.

When Sir Isaac woke up, of his own accord, Tubby, too tired to ask any questions, fell asleep on the floor, wrapped up in a blanket from the vacant bed upstairs. He dreamed he was a railroad train and that Jupiter was flagging him with a red lantern. He wanted to stop, but couldn't. There was a terrible collision. . . .

Tubby opened his eyes to find Sir Isaac shaking him violently.

"All right," he protested, sitting up dizzily. "Lemme alone. What time is it? Ain't we there yet? Where's Ameena? 'What's that red light comin' from?"

The Travelers Approach Jupiter

IT was just six o'clock. A lurid red glare was shining up through the lower window. The room was frightfully hot! Tubby, as soon as he was fully awake, stared down through the heavy glass pane. The dark surface of Jupiter, over which they were poised, stretched out as far as he could see in every direction. Directly underneath the window, like the huge mouth of a red-hot furnace, yawned a gap in the Jovian atmosphere from which lurid tongues of flame were licking upward into Space—venomous, scarlet-red tongues thousands of miles in length.

Tubby was awed as well as alarmed. They were dropping directly into the mouth of Hell!

"Don't be frightened," laughed Sir Isaac from behind Tubby's shoulder. "We're two million miles up yet and falling only at the rate of half a million miles an hour. That is the great red spot of Jupiter. I've always wondered just what it was. Those are tongues of flaming hydrogen. It proves conclusively that Jupiter is more like the Sun than any other Planet. Its surface is not solid on this side, and, as you see, it is internally heated to a very considerable degree."

While Tubby gazed, fascinated, Sir Isaac went on enthusiastically:

"Jupiter is partially self-luminous, which I have also always believed. And, because of its internal heat, the surface temperature is easily warm enough to sustain life, even out here so remote from the Sun."

"That looks absolutely *too* hot to live in," Tubby declared, gazing down into the crater of this mammoth volcano.

Sir Isaac laughed again; evidently he was in high spirits at this complete verification of his theories.

"Of course it's too hot on *this* side. I knew that, but I came around here to see the red spot. We had to follow it around, you see, because of the Planet's very rapid axial rotation. The surface, as I said, isn't solid. Nevertheless, since we know that Jupiter *is* inhabited, however much it would appear *not* to be, there must be at least a small portion of solid surface. We'll go around to the other side again and locate it."

"Like lookin' for land when flyin' over the ocean?" Tubby illustrated.

"Exactly. That is just what it can be compared to."

Tubby rose to his feet.

"Very good, perffessor. Very good, *in-deed*. You navigate us around, an' I'll go wake up Ameena. She mustn't sleep *all* the time. We got to eat."

Passing One of Jupiter's Satellites

THEY passed fairly close to Satellite IV, which revolves around its mother globe at a mean distance of 1,162,000 miles. They were then having breakfast, and during the remainder of the meal Sir Isaac entertained them with a most interesting dissertation on the nine satellites of Jupiter.

They were all three dressed as on the evening before, though Ameena had discarded the overcoat. She resumed it after breakfast, however, for when they had passed around over the other hemisphere of Jupiter, beyond the flames of the "red spot," exposed again to the cold of Inter-planetary Space and warmed only by a very small, pale little Sun, the interior of the vehicle rapidly cooled off.

After breakfast, an observation of Jupiter through the lower window showed only dense, black cloud masses.

"Let's go down, perffessor," Tubby suggested. "Can't see nothin' up here through them clouds." He added gloatingly:

"I guess we beat them Mercurians in, all right."

They entered the Jovian atmosphere about eight o'clock—at an altitude of 1,400 miles—a depth of air strata that surprised even Sir Isaac. Inky blackness surrounded them for a time. At 110 miles they emerged into daylight. Later all the clouds swept away. The pale Sun shown through the side window, rising over the horizon—for it chanced to be early morning on this portion of the mighty Planet—shortly after dawn of a clear, frosty-looking Jovian day.

"Looks awful chilly out," Tubby remarked dubiously.

"Yes," agreed Sir Isaac. "We would be freezing in here now if it were not for our friction in passing through the atmosphere. I have shut off our heating apparatus. . . . It will be much warmer down below, however. The internal heat of Jupiter warms its lower strata of air."

At an altitude of 25,000 feet they could distinguish quite plainly the Jovian landscape over which they were passing horizontally—a barren land that looked as though it might be thick black water and mud. It seemed to boil very sluggishly in spots. Here and there it appeared firmer—and there were curious vegetable growths as near like two hundred foot mushrooms as anything else Tubby could think of.

The landscape was changing constantly. Now they came over a barren, almost rocky land, with enormous trees like pines and cedars. Half an hour later the forests began occasionally to be dotted with cities—mammoth buildings rising in terraces two thousand feet into the air. . . . Everything seemed built on the same gigantic scale.

They selected, quite at random, one of the largest of the cities; and descended in an open space nearby. It was 9.50 A. M. when they came to rest upon the surface of Jupiter—a flight from Mercury, smallest major planet of the solar system, to Jupiter the largest, of exactly 34 hours and 5 minutes.

The Sky Party Meet the Great Mogul

THE audience with the Great Mogul of Jupiter—who came riding out of the city with his Wise Men on an enormous animal—like a queer-looking elephant with broad, very flat feet—took place about 12 o'clock noon Earth Eastern time, though it was by then late afternoon of the Jovian day.

It may seem remarkable that so great a dignitary would go to his visitors rather than bidding them come to him. The answer, however, is obvious to any thinking student. Tubby and Sir Isaac had flatly refused to allow themselves to be carried; and since gravity on the surface of Jupiter is more than 2½ times that of the Earth, they could hardly stand on their feet, much less walk!

The Great Mogul was a towering giant some fifteen feet tall, with his Counsellors in proportion. A robe of richly-colored cloth fell in folds to his feet. There were ropes of enormous gems about his neck—that is to say they might have been considered gems, though they looked more like little gargoyles moulded out of red and green putty and his braided white beard hung down his chest to his waist.

The audience was held in front of the vehicle, with Tubby, Sir Isaac and Ameena sitting on the floor in its doorway while a circle of guards kept back the crowd of giants that had collected. Within this circle the Great Mogul and his four Wisest Men stood.

Tubby felt as though he weighed over four hundred pounds—which indeed was the case; and his companions in proportion.

"It's just like being a Lilliputian in Gulliver's Travels," he whispered to Sir Isaac as the Great Mogul kneeled down to see him more closely. Tubby was struggling for breath; a great weight seemed compressing his chest; his head was ringing; his eardrums felt as though something were pushing them inward—all, as Sir Isaac had explained an hour before, because of the excessive pressure of the Jovian atmosphere. It was most disagreeable. And especially it was unpleasant to be nailed down by one's own weight—to be forced to interview the greatest monarch of the Solar System in an undignified sitting posture on one's own doorstep!

Sir Isaac beamed when Tubby made his remark about the Lilliputians. "Ah, so you *have* read my 'Gulliver's Travels?' There was a book! If I do *say* it myself, my scientific conceptions in that were—"

"Sh!" Tubby whispered. "He's talkin' to us!"

Tubby noticed suddenly that the Great Mogul and all his followers had very big, flat feet—shaped like snow-shoes—as though they were meant for walking on very soft surfaces. They—

The Great Mogul was talking in a huge, roaring voice. The words were strange, unintelligible.

Sir Isaac smiled with embarrassment; and shook his head. "Too bad," he whispered to Tubby. "I ought to know their language—but I don't. You see I've never written much about Jupiter. I—"

The little Jovian stepped forward—a stoop-shouldered, weazenet individual no more than nine or ten feet tall. By his face he might have been two or three hundred years old. He looked more like a giant mummy than a man.

"I speak your Earth-language," he said. "All of

them—the languages of the Solar System are my study.”

Tubby felt impressed. He whispered to Sir Isaac:

“Looks like he’d been studyin’ too much, don’t he? Mean lookin’ guy, huh, perfessor?”

The Interpreter added:

“His Supreme Highness demands that you explain your mission.”

Sir Isaac did so, respectfully but eloquently outlining the nature of the disaster that threatened the Earth from Mars and Mercury, and ending by pleading most earnestly that the great Jovians lend their aid to the Earth to prevent so murderous an attack.

The Interpreter turned to his master and translated. When he had finished, the Great Mogul laughed!

The three voyagers knew then, before an answering word was spoken, that their mission to Jupiter was a failure. They had made their plea—the lives of all the teeming millions of people of the Earth were at stake—and the Great Mogul laughed!

“That dirty, mean——” Tubby would have broken into open villification, but Sir Isaac stopped him.

The Great Mogul was now speaking to his Interpreter.

“His Supreme Highness the Great Mogul is extremely sorry,” said the Interpreter a moment later.

“Yes, he looks it.” This from Tubby.

The Interpreter’s face darkened as he repeated this sarcasm to his master. A torrent of passionate anger swept over the Great Mogul’s face. The Interpreter listened to his words a moment; then, in translating them his anger made him lapse into an Earth-colloquialism more expressive than elegant.

“His Supreme Highness says all you little worlds can shoot yourselves to Hell for all *He* cares,” said the Interpreter.

Tubby tried belligerently to rise to his feet, but his weight made the effort a lamentable failure.

“We’re sorry,” Sir Isaac shouted at once. “Tell His Highness we meant no offense. . . . These Jovians are most hot-tempered people it would seem.” He added this last to Ameena in an undertone.

“Ask him about Saturn, Uranus and Neptune,” the quick-witted girl said immediately.

Sir Isaac put the question as humbly and placatingly as possible.

“They are uninhabited,” said the Interpreter sourly.

His Supreme Highness was making ready to depart, apparently without further interest in the proceedings. Tubby had almost managed to climb to his feet, but at last he gave it up and sank back again.

“Come on,” he panted. “Let’s get—out of this. . . . This ain’t no place for us—we’re wastin’—time again.”

Without further ceremony, like little disappearing manikins in a mechanical box, the three voyagers pulled themselves back out of the doorway of their vehicle and closed the door after them. Sir Isaac rolled across the floor of the instrument room—the easiest mode of locomotion—and hoisted himself into reach of the keyboard.

An instant later the vehicle, freed from the tremendous gravitational pull of Jupiter, flew like a rifle bullet into Space.

CHAPTER VII

In Which the Voyagers Pass Saturn, Uranus and Neptune, and Leaving the Entire Solar System Behind Them Boldly Launch Into the Outer Realms of Interstellar Space

AGAIN, after a voyage of some 450,000,000 miles the would-be saviours of their own world were doomed to disappointment! When they had again safely traversed the Jovian atmosphere, avoided Satellites II and IV with one of which they very nearly collided and were again launched into space, headed they cared not whither for the moment, the adventurers sat down to discuss this terrible misfortune.

As might be expected, the discussion yielded nothing. The miserable Jovian affair was most discouraging, though Tubby took a measure of satisfaction in it.

“I’m sorry for them Mercurians when they get here,” he declared, with a sudden grin at the thought. “I wouldn’t wish them no worse luck than askin’ a favor of that Mogul guy.”

“But what will we do?” Ameena asked. The brave little girl was extremely agitated as the possibility—even probability—of their final failure forced itself upon her. “Saturn, Uranus and Neptune are uninhabited! That leaves us nowhere else to go—and we *must* have help. We must!”

“I wouldn’t bet a plugged nickel on anything that guy said about them other Planets,” Tubby declared doggedly. “I say—let’s see for ourselves. It ain’t so much of a trip, is it?” Tubby, with Ameena’s hand to hold most of the time, was not finding the voyage unpleasant in the least.

Ameena flashed him a look of admiration as he made this sturdy suggestion. Sir Isaac pondered.

“We are now about 485,000,000 miles from the Sun,” he said thoughtfully. “Saturn’s mean distance is 887,098,000 miles; Uranus is 1,784,732,000 miles, and Neptune is 2,796,528,000 miles from the Sun!”

Tubby was slightly staggered; but he tried not to show it.

“That ain’t so far,” he declared. “Maybe we could speed it up a little out here.”

Sir Isaac, as the idea began taking hold of him, was making a swift mathematical calculation.

“We might go past each of them without stopping to land if they are not habitable,” he said finally. “Owing to their present positions it would be a trip of about 3,281,000,000 miles from here.”

He added:

“That’s nearly a third further than a direct route to Neptune owing to Saturn and Uranus being out of line.” He showed Tubby and Ameena his chart again. “However, we ought to be able——”

“Sure thing,” Tubby interrupted. “Let’s get goin’. We’re always wastin’ so much time.”

They were comparatively uneventful, the days that followed—uneventful that is, so far as astronomical occurrences were concerned. To Tubby, however, they were days of never-flagging interest. Sir Isaac, with his charts and his mathematics, concerned himself almost exclusively with navigating the vehicle. He had started on a rapidly-growing manuscript also—a sequel to the “War of the Worlds,” he said; and except for a brief game of poker in the evening, he left his fellow-travelers entirely to their own devices.

Tubby and Ameena cooked the meals together,

and washed the dishes; and, for relaxation sang their *Inter-planetary ducts*. For the rest, Tubby held her little hand, and with his arm around her awed into silence, they watched together the never-ending vista of glorious stars toward which the vehicle was falling with constantly accelerating velocity.

Now that their voyage was extended into such gigantic distances, Sir Isaac, more than ever before, felt the need of haste. Only fifty-five days and some six hours from the time they left Jupiter remained before the fatal opposition of Mars with the Earth. Much could be accomplished in fifty-five days; but still, as Tubby lugubriously remarked, at the rate they were accomplishing it, fifty-five days was a very little time. Wherefore Sir Isaac, setting his determined jaw firmly, hurled the vehicle with prodigious velocity onward.

The danger of collision, which had so perturbed Sir Isaac in the region of Minor Planets between Mars and Jupiter was now greatly lessened. They had plenty of room now—for Asteroids, Meteors, even Comets were seldom sighted. It was a run of some 460,000,000 miles to Saturn, through a region of space comparatively deserted.

The Travelers Approach Saturn

AT their former maximum velocity of twenty-eight million miles an hour, which Sir Isaac now maintained as an average, sixteen hours after leaving Jupiter they were approaching Saturn. It was then half-past four the following morning. Sir Isaac had slept the afternoon previous and was on watch. He awakened Tubby; and Tubby went immediately upstairs and called Ameena. Shortly afterward all three were crouched over the instrument room floor window, peering down at the great Ringed Planet above which they were seemingly poised some twelve million miles away. Sir Isaac had decreased their speed materially so that they might make observations without approaching too close.

Saturn, a globe almost as large as Jupiter, and with its marvelous system of rings very much larger, at this proximity was a magnificent sight. The globe itself—a gigantic silver disc occupying half the firmament visible through the window—had broad bands of darkened area upon it similar to those the voyagers had observed on Jupiter. But those rings! Tubby and Ameena were amazed into silence; even Sir Isaac was awed by their splendor.

As viewed from the vehicle's present position, the concentric rings—the inner one somewhat darker—were opened up to an angle of nearly thirty degrees—a glistening, gleaming silver band, like the broad brim of a crownless hat encircling the Planet—a silver brim more than 37,000 miles broad, with a total diameter, including the sphere it encircled, of nearly 167,000 miles! Hanging there in space below them, the Planet, its rings and its several tiny moons bathed the interior of the instrument room with silver fire. It was the most glorious, most stupendous sight that human eyes had ever looked upon!

"Let us go down close," said Sir Isaac quietly.

A little later they could make out the composition of the rings with perfect clarity. Billions upon billions of tiny fragments of star-dust, each of them infinitesimal satellites, each of them like tiny moons reflecting the sunlight, whirled in their respective orbits about the mother Planet!

"The wonder of it!" Sir Isaac murmured. "A billion billion, and yet countless other billions of satellites—all on one identical plane, each separate, each holding its place and following its own circular orbit!"

Through the cloud-masses occasionally the on-lookers could distinguish the surface of the Planet itself—could observe that it also was in motion, moving in gigantic whirlpools.

"It is undoubtedly entirely liquid or gaseous," said Sir Isaac, "of a density very much less than water. We shall find no inhabitants here."

"No, I s'pose not," Tubby agreed. He seemed, for once, reluctant to proceed with the journey. He sat with his arm tightly encircling Ameena's waist—as who would not, with such a girl and such a sight before one? "I guess we got to get on our way," he added with a sigh.

The Course Is Set for Uranus

SIR ISAAC altered their course; and in an hour more they were well on their way to Uranus, with Saturn and his rings high in the firmament above them.

It was a run of about eleven hundred million miles from Saturn to Uranus. Sir Isaac had already maintained an average velocity of twenty-eight million miles an hour for some hours. He now determined to better it. Beyond Saturn, he was convinced, there was still less chance of encountering any derelicts. And, with each passing hour—each passing Planet from which they hoped to obtain help for their own threatened world—the panic in their hearts grew.

It was Tubby who voiced it most strongly.

"In fifty-four days from today the Earth goes out of business," he remarked dolefully, from a deep, reflective silence into which all three had fallen.

"Fifty-four days and twelve hours," corrected Sir Isaac. "If we don't succeed."

"We shall succeed," declared Ameena. "We must never think but that we shall."

Thus, always, woman's stronger hope and courage never flags.

The run to Uranus occupied some 28 hours—an average velocity of a trifle over 39,000,000 miles an hour. It was about noon of the following day when, after no particularly unusual incidents—Sir Isaac again slowed down for them to make observations.

It had grown colder steadily; the vehicle's heating plant was in active operation. The Sun had dwindled to a little blazing point among the stars.

All that morning the travelers had sat looking downward, watching Uranus grow from a brilliant star to a little moon; from moon to glowing silver-green disc. And now, at noon when they slackened their fall, the seventh Planet of the Solar System lay beneath them.

After Saturn, the sight was disappointing. Uranus, 32,879 miles in diameter, lay perfectly barren. Its axial motion, observed closely over a period of time, was distinguishable—like the minute hand of a clock that creeps slowly forward. Sir Isaac believed it to be of some six or eight hours duration.

Heavy banks of cloud masses obscured the Planet's surface; Sir Isaac had not believed Uranus would prove to have an atmosphere—but it had, and a very

dense one obviously. But the surface of the Planet itself, what little they occasionally could see of it, was obviously liquid.

Uranus Not Inhabited

"NO inhabitants here," said Sir Isaac. Quite evidently he was tremendously disappointed, for he knew that the average density of Uranus was not much more than that of Jupiter, and he had hoped that in this instance the Jovian interpreter had been lying.

"No inhabitants here," Tubby echoed sadly. "Well, let's get on our way."

Between the orbits of Uranus and Neptune there lies a mean distance of 1,011,796,000 miles—that is to say, something over a thousand million miles. Neptune now, however, was unfortunately very much further along in its orbit, so that the oblique course necessary to reach this latter Planet lengthened the distance to nearly eighteen hundred million miles. Sir Isaac, after a very abstruse calculation, announced the exact mileage to be seventeen hundred, and ten million and twenty-six.

Tubby was getting used to these gigantic figures, which as anyone can realize, are only relative. Sir Isaac pointed this out clearly.

"On Earth, in a railroad train," he said, "if you were going at the rate of fifty miles an hour and had a journey of 1,710 miles to make, it would not be very confusing to fathom the figures, would it? Or to calculate how long it would take you to make the run? That is exactly comparable to this run we have before us now, from Uranus to Neptune. We have about 1,710 million miles to go, and I propose to average about 50 million an hour."

Here Sir Isaac fell back upon one of his favorite topics. "All distances are relative to other distances. A mile to a snail is a long trip, but an airplane makes it in two or three dozen seconds. There is no such thing as absolute distance—or absolute motion, or time or size. Everything is relative to something else. Twenty-four hours is a very little time in the life of an elephant—but it is more than a lifetime to many insects. Our trip from here to Neptune is not more than an inch in all the countless miles of space. . . . But I'll tell you more about that some other time."

"Right," said Tubby, considerably relieved. "Just now we got to eat. Ameena's got lunch all ready."

The flight to Neptune occupied just thirty hours—an average of 57 million miles an hour. Sir Isaac was intensely pleased, though as he admitted to Tubby, the maximum velocity of the vehicle had never yet been tested.

Tubby and Ameena were also enthusiastic.

"Wonder what become of them Mercurians who was after us?" Tubby speculated. "Swell chance of them gettin' way out here."

"They must have stopped at Jupiter," said Ameena. "We were gone then—they could not tell where."

This, obviously, was logical. At all events, the Mercurian vehicle was now the least of their worries. Neptune lay beneath them. Would they secure, on this far outpost of the Solar System, the help they needed? Fervently they prayed so, for it seemed their last chance.

The Sky Fliers Approach Neptune

IT was just 6 P. M., on the day following their departure from the vicinity of Uranus, when Sir Isaac held the vehicle poised above the surface of Neptune. The Planet, very slightly smaller than Uranus, lay completely enveloped in its dense atmospheric envelope.

"We got to go down," said Tubby frowning. "Can't see nothin' from way up here."

The descent through Neptune's atmosphere was pleasurable, for the friction warmed the vehicle once more to comfortable temperature. At an altitude of some fifteen thousand feet they emerged from the dense cloud-banks into Neptunian daylight. And what a dim, miserable daylight it was! And below, what a bleak, dreary sight met their disappointed gaze! With sinking hearts—their last hope gone—they stared downward. Neptune's surface—flat, unmarked by a single distinguishing physical conformation—might have been the surface of a polar sea! In all directions, to the circular rim of the raised horizon, stretched a level surface of grey-white snow, dirty-looking in the twilight which was Neptune's day. But whether land lay beneath, or merely some frozen liquid, could not be told.

There was not a sign of life—nothing but bleak desolation. It was an amazing sight—an old world seemingly, when everything in the logic of Sir Isaac's scientific mind had led him to anticipate a new one—a world of heat, of liquid or gas turbulent from its own internal fire.

Sir Isaac muttered to himself. Looking upward through the side window with Tubby, they saw the Sun through a rift in the clouds—a tiny pencil-point of light in the dull, reddish-blue sky—a dreary, remote Sun, hopelessly impotent to light or to warm this far-away offspring.

Tubby's face was solemn as he turned to his friend.

"Ain't no use goin' down no farther. That's our finish—that puts our Earth out of business."

Silently the vehicle, with its three saddened, frightened occupants, ascended through the Neptunian atmosphere, again into space.

"Well," said Tubby finally. "Now what? That's the end, ain't it?"

Again it was Ameena who first recovered her courage. Her lips were compressed; her beautiful, dark eyes blazed with determination.

"It is *not* the end, my friends! To such men as you the end never comes before defeat!"

She pointed to the Stars blazing outside the window—the band of "Milky Way," a myriad stars brighter now from this outer edge of the Solar System—and added:

"There are other worlds—countless other worlds. Let us go to them! With all the haste we can make—forgetting danger to ourselves—let us hurry. Here at home, in our own little Solar System, we have been rebuffed. But somewhere in this Universe there must be humans who are unselfish—who though without hope of reward, still will not suffer their own kind to go down into disaster and death!"

Her enthusiasm was contagious.

"Come on!" shouted Tubby. "Let's get goin'! There's a big star—let's go to that one!"

Sir Isaac thumped his fist on the table.

"We will!" he exclaimed. "I shall attain a velocity

never before even imagined! We must—we shall find help for our Earth!"

A few moments later, sweeping circularly around Neptune, the undaunted adventurers left the Solar System behind them and launched themselves boldly out into the uncharted realms of Inter-stellar Space!

CHAPTER VIII

In Which, En Route to Alpha Centauri, Sir Isaac Explains the Structure of the Universe and Plunges Into the Most Abstruse Mathematical Calculation Ever Attempted by the Human Mind

"WE must not rush into this thing thoughtlessly," Sir Isaac declared, when the first flush of their enthusiasm was passed and practicality began to creep in. "We must plan—calculate. Our time is limited. We only have——"

"Fifty-two days exact," Tubby finished. "How far we got to go? Ain't we gone a good ways already?"

Sir Isaac had made several brisk computations a few moments before. Neptune, with the entire Solar System behind it, already hung far above them. They were falling downward, apparently toward a very bright Star which gleamed amid a myriad of its fellows in the lower firmament.

"We have relatively a very great distance to go," said Sir Isaac, answering Tubby's question. "We are already on our course to the nearest of all the Stars—and fortunately we happen to be at that extremity of the Solar System nearest to it." He pointed to the lower window.

"Very good," approved Tubby as usual. "The closest Star. Very good. What's its name an' how far away are we? An' say, what's a Star anyway? We been dealin' in Planets so long——"

Sir Isaac smiled. "To answer your last question first, I shall have to give you a brief explanation of the nature of the entire Universe."

Anticipating a somewhat lengthy dissertation of the sort Sir Isaac seemed to delight in, Ameena settled herself beside Tubby and gave him her hand to hold.

"Go on, Sir Isaac, please do," she pleaded.

"Go ahead—shoot!" said Tubby.

Thus encouraged, Sir Isaac began:

"The region we call Space is a limited area whose boundaries I shall explain some other time."

Tubby and Ameena were anxious to know.

Sir Isaac frowned slightly. "Oh well—that is immaterial. In that scientific narrative I dealt with infinite smallness, and now we are dealing with infinite largeness. The theory is the same. . . . However, this region we call Space is devoid of air. It is not, of course, a vacuum, but is completely filled by the ether."

"What's that?" demanded Tubby.

"The ether, my friends, is an agglomeration of imponderable atoms, which, relatively to their small dimensions, are as far removed from each other as are the Celestial bodies in Space. It is these atoms which, by their vibratory motion, produce both light and heat in the Universe. . . . That's my own definition. I hope you like it?"

"It's—it's beautiful," declared Ameena.

"Thank you," replied Sir Isaac, smiling graciously.

"I think it is rather neat. I've used it frequently. Though lately, these foolish modern scientists of Earth are beginning to dispute me. . . . Well, to proceed. In this region of Space, billions upon billions of Celestial bodies are whirling. They all obey recognized laws of Celestial mechanics—all are acted upon by different balancing forces. . . . I shall not weary you with that."

"No," said Tubby. "We'll pass that up. Go on."

"These Celestial bodies range in size from the most gigantic blazing Suns, millions of times in volume of our own Sun of the Solar System, down to the very minutest fragment—which is nothing more or less than an atom of the ether itself!

"We call these Celestial bodies by different names. A Star, for instance, refers to luminous bodies. Our own Sun is one of them. Planets are reflecting, or partially self-luminous bodies revolving around a central Sun. You already understand what Satellites are. Then there are Asteroids, which are merely Planetoids—smaller Planets. And there are Comets, and Meteors, and——"

"Never mind all them," Tubby interrupted hastily. He squeezed Ameena's hand consolingly as Sir Isaac plunged on:

Other Worlds Than Ours

"THEREFORE, you understand, we live on one of the Planets—I beg your pardon, Ameena—on two of the Planets of the Solar System—the Earth and Venus. Our Sun, with all its Planets, forms only *one* System of an infinite number. Each of those Stars—" He waved his hand again toward the window—"Each of those Stars very probably has revolving about it a system of worlds much greater than our own 'Solar System.'"

"My goodness," Tubby commented. "This here Universe is a big place, ain't it? We only got started, so far."

The memory of those fifty-two days of grace which were all that remained to them, struck Tubby forcibly. He added anxiously:

"How soon do we get to this first Star, perffessor?"

The Space Flyer Is Headed for Alpha Centauri—the Nearest Star

SIR ISAAC referred to a memorandum. "The nearest Star to the Solar System is Alpha Centauri," he answered. "The Astronomers of Earth recently claim to have found one slightly nearer, but I do not recognize it. That is Alpha Centauri we are heading for—a splendid binary of the First Magnitude, with a parallax of 0.75" whose components revolve in 81 years. I mean—" he added apologetically, "it is really two Stars several hundred million miles apart, revolving around each other. It is drifting through Space with a velocity of some sixty miles a second."

Tubby lifted his eye-brows; Sir Isaac continued hastily:

"Every Star is moving—drifting, I call it—as though they were in gigantic currents circulating about—I don't know just whither or why. Our own Sun, for instance, with all its Planets, is drifting—floating toward some of the Stars and away from others—at the rate of many miles a second, but always holding its mass of Planets intact."

Tubby turned to the girl beside him. "Kind of complicated, ain't it, Ameena?" Then to Sir Isaac:

"How far is this closest Star we're headin' for? I ast you that, an' you——"

"I was getting to that. But if you *must* know at once——" Sir Isaac spoke with some asperity. "If you insist, I'll tell you that Alpha Centauri is a trifle less than 25,000,000,000,000 miles from here!"

Tubby and the girl stared blankly as Sir Isaac stated this astounding figure.

"You see? I knew you would not understand me. What I wanted to explain first, was that in dealing with these larger figures, to save confusion we generally use a larger unit than the mile. The best one is the Light-year. It is the distance light travels in a year."

"How far?" Tubby asked, with rapidly recovered poise.

The Professor Explains Meaning of Light-Year

"LIGHT travels about 186,000 miles a second," said Sir Isaac. "Multiply that up to a year and divide it into 25,000,000,000,000 and you get 4.35. A child could do that by simple arithmetic. Thus you find that Alpha Centauri is distant 4.35 Light-years."

This latter figure was considerably less awe-inspiring. Tubby seized it eagerly.

"Only four Light-years. That ain't so far."

"No," said Sir Isaac, smiling with returned good humor. "Comparatively speaking, of course, it isn't far. All distance is relative. If you can travel fast enough, 4.35 Light-years, especially compared to the many hundred Light-years which separate some of the Stars, is relatively quite near. . . . Now about our own velocity——"

It was, in truth, the problem of attaining a sufficiently great velocity to cope with these greater distances that had worried Sir Isaac from the moment they decided to launch out into Inter-Stellar Space. Within the comparatively narrow confines of the Solar System—menaced by Asteroids and Meteors—a great velocity was neither necessary nor desirable. But now—in the outer realms—it was both.

Sir Isaac, in spite of his bombastic statement to Tubby as they left the Earth, had never really anticipated a prolongation of the voyage beyond Neptune. Nevertheless he had always believed that the vehicle's velocity, theoretically, was illimitable. Several factors contributed to this conclusion. It is one of the laws of motion, inertia to be exact, that a body once in motion and not acted upon by any force, will continue forever in motion at exactly its original rate. Thus, whatever force was applied to the vehicle must *accelerate* its rate of speed indefinitely.

The entire Solar System now lay above them, and thus the combined repellent force of all its Planets and its Sun could be used. This, with the attractive force of all the countless gigantic Stars that lay below, Sir Isaac was confident would cause them to fall into the void of Space with tremendous velocity—a velocity that had no limit except the time allowed for acceleration.

Haste was needed, and now, for the first time since leaving the Earth, Sir Isaac used almost all the total force at his command. They had left the vicinity of Neptune about 8 P. M. At midnight, just when the sleepy Ameena was about to retire, Sir Isaac looked up from the most complicated calculation he had so far made.

Speeding Through Space at 200,000 Miles Per Second

"OUR velocity is now approximately two hundred thousand miles a second," he announced triumphantly.

"Thousand!" Tubby exclaimed in dismay. "We was goin' in millions this afternoon!"

"I said a *second*," Sir Isaac returned. "We did attain—at one short period last night—about a hundred million miles an hour. But I cut it down at once. This is per second—not per hour."

"Oh," said Tubby with relief. "How much is that an hour?"

"About seven hundred and twenty million—that is to say, seven times our former maximum."

This was joyful news indeed; but Sir Isaac's next words dispelled the joy completely.

"At this rate," he added, "we should reach Alpha Centauri in about four years!"

And in fifty-two days Mars would destroy the Earth unless they were back there to prevent it!

"But—but then—" Tubby protested. Sir Isaac's quiet smile stopped him.

"You need not worry over that," he said. "There are many forces acting upon us which you do not understand. The acceleration of a falling body is in astounding ratio—especially when it has an additional repellent force above it. . . . I've told you that before. Wait until tomorrow—then we shall see."

There followed a somewhat lengthy silence.

"Say, professor," Tubby began finally, "ain't this kind of re-mark-able—this extra speedy travelin'?"

Sir Isaac looked up from his mathematics. "My dear fellow, I *do* suppose these Astronomical figures confuse you. I've already tried to explain——"

"No—I mean, *us* bein' able to go so fast." Sir Isaac laid aside his pencil, and frowned. "I see nothing extraordinary in it. Your mind is still in its Earth-rut. You must get out of *that* line of thinking."

"I will," Tubby declared humbly. "Only tell me how to."

Sir Isaac's good nature returned, promptly as usual. He laughed.

"You must understand that on Earth you have always been dealing—personally, I mean, with mileage the longest distance of which is the circumference of the Earth—25,000 miles. All your life you have been a little ant, chained down by gravity. Naturally, for you, motion has had a very narrow meaning. Your own motion, in relation to the ground beneath you, is all your mind daily recognized. That, for you, was the standard of motion."

"But, my dear friend, that is not really motion at all. You were like an ant, crawling around the narrow limits of its little world. How can you expect an ant to understand, or to fathom the velocity of an airplane, or a rifle bullet, which covers in a fraction of a second, a space—a distance—equal to the entire known world of the ant?"

Sir Isaac was gradually warming up.

"You call that motion. On the other hand, though you did not know it, perhaps, both you and the ant have always been moving with great rapidity. For instance, the rotation of the Earth on its axis, if you happened to be on the Equator, would carry you around a circle of 24,000 miles in one day—every day. That is a thousand miles an hour. Added to that, the Earth also moves around in its orbit some

66,000 miles an hour. Still more than that, the Sun drags the Earth along at about 36,000 miles an hour. This motion of the Sun can only be calculated by its relation to the other Stars. And, so far as I know, the whole Universe may be hurtling through Space a thousand times that fast. In fact, I think it is. And still more than *that* probably Space itself is moving—a million times faster than everything else. . . . But that you cannot understand yet. . . . I'll explain *that* to you later."

"Tell me more," Tubby murmured desperately.

"Well," said Sir Isaac, "In Space you see, all Earthly ideas of motion must be reconstructed. We are now a Celestial body ourselves—obeying all the laws of Celestial Mechanics—a little world all our own—a world of three inhabitants."

It was an interesting thought; it aroused in Tubby a sudden patriotism for the vehicle and its welfare.

Sir Isaac went on quietly and earnestly: Some of the Stars are drifting at the rate of 250 miles a second. *Drifting*—you understand. But we are not drifting, we are *falling*—pulled down by attraction from below and pushed down by repulsion from above. Is it any wonder then—after falling freely for millions of miles, and with such a constant, tremendous impulse—that we should attain an enormous velocity?"

Both Tubby and Ameena admitted the reasonableness of this. Motion, as Sir Isaac so clearly pointed out, depended entirely upon the motion of something else with which you compared it.

"I guess it ain't so wonderful, professor," Tubby said finally. "But you got to get used to thinkin' about it."

Sir Isaac smiled, and turned to the tired girl. "Hadn't you better run along to bed, Ameena?"

Tubby escorted her to the foot of the stairs. As he parted with her for the night, she said softly:

"Do not worry, Tubby dear. We shall succeed—I know it."

With a radiant smile she kissed him goodnight and darted up the stairs. For an hour thereafter Sir Isaac's figures fell upon deaf ears; the memory of Ameena's beautiful face and the tenderness in her voice—attributes that had all the inherited intensity of hundreds of Venus-women ancestors behind them—absorbed Tubby's entire consciousness.

During the night, Tubby and Sir Isaac alternated keeping watch, though as usual Tubby did most of the sleeping. Poor Sir Isaac was getting thinner than ever; but his wonderful courage and vitality held him up. He was almost always either working with his calculations, or using some of the many scientific instruments with which the room was equipped; and, for diversion, writing his manuscript, which hourly grew in bulk.

The Professor Writes a Narrative of the Trip

HE was engaged in this latter occupation the following morning after breakfast, when Ameena, coming in from washing the breakfast dishes, timidly asked him what he was writing. He looked up to her with tired eyes as she and Tubby, with arms around each other, stood beside him.

"I am writing a scientific narrative which I think I shall call 'Around the Universe,'" he said quietly.

Ameena clapped her hands. "Oh, isn't that fine? All about our trip! Will you publish it on your

Earth? Everyone will love to read about all these wonderful things, won't they?"

Sir Isaac's smile was very gentle, slightly cynical. "My dear child," he said, "you do not understand human nature. People may condescend to read what we have done, but do you think they will *believe* it?"

"But, of course, they *must*," the girl cried. "Is it not actually happening to us?"

Sir Isaac sighed. "It is, most certainly. But people are so skeptical. They do not even believe that Jupiter is habitable. They will think I made it all up—treat it as a joke. All my scientific data—my personal observations—the most wonderful Astronomical—"

"Let 'em go to blazes," Tubby put in fiercely. "We'll give it to Venus. If them Earth-people ain't got no more sense than—"

"But first we must save the Earth-people, or those terrible Martians will destroy them," reminded Ameena.

Tubby sobered. "That's so." Another thought struck him. "We'll save all them Earth-people from gettin' murdered—an' then they'll laugh at us for tellin' them how we did it! That's gratitude for you! That's—"

Ameena kissed him gently. "Never mind, Tubby. We shall do what we can—for the sake of humanity—without hope of reward."

Sir Isaac, practical as always, remarked somewhat cynically:

"To accomplish that, we must have help. We must find some other humans in this Universe as unselfish as ourselves. Can we do that? I doubt it."

"You are extreme, Sir Isaac," Ameena said. "On your Earth, when you have had war, have not Nations aided each other?"

"Yes," he answered. "But only for their own interest—for their own defense. I cannot recall a single instance of real unselfishness. Yes, I think there were two. A few years ago there was a little Nation—"

"A little Nation!" Tubby exclaimed. "Say, maybe that's the answer! Maybe we was wrong to pass up all them little Planets between Mars and Jupiter!"

"I thought of that," Sir Isaac responded. "A small Nation or a world, I think, is more likely to be completely unselfish. I don't know why it should be so—but it seems to be. There are Ceres, Juno, Pallas—many Minor Planets—and we ignored them all." He shrugged. "You see, a little world, however willing, would be powerless to help us materially anyway—even if they wanted to. That is why I did not consider them."

The train of thought which this conversation brought to Sir Isaac worried him afterward very considerably. In drawing an analogy between individual Nations and Planets, it became perfectly clear that to ask aid of any Nation is a very different matter from going to another world. Nations on the same Planet have infinitely diversified interests interwoven. War comes. However unselfish a Nation may appear—may in fact really and sincerely in its heart feel itself to be—it cannot by the very nature of things, be wholly detached. But go to another Planet. The detachment is complete. Then—and then only—can you put it to the real test of altruism.

Thus the identical attitudes of the people of the Light Country of Mercury, and of Venus, and Jupiter, while they cannot be condoned, at least can

be understood. And following this train of thought, as Sir Isaac did that morning while he sat staring with unseeing eyes at his neglected manuscript, an additionally disturbing conclusion was inevitable.

All the Planets the voyagers had so far impounded, belonged to the Solar System. To some extent, therefore, their theoretical interests were mutual. And, if Mercury, Venus and Jupiter were willing to stand by and see the War Lords of Mars overrun the Earth, how much more likely were worlds far outside the Solar System to adopt a similar attitude? Sir Isaac pondered this, until at last he began to realize how inevitable would be their rebuff, no matter where in the Universe they went.

Noon came. Sir Isaac ate moodily, then went back to the instrument room and his gloomy reverie. Ameena put the kitchen in order with Tubby's help, after which the two young people sat in the store-room, Ameena strumming her lyre and Tubby singing with enthusiastic abandon.

It finally became too much for Sir Isaac's overwrought nerves.

"Won't you *please stop*?" he called querulously. "I can't *stand* that infernal noise when I'm thinking."

They stopped obediently; and a moment later joined Sir Isaac.

"How we makin' out perffessor?" Tubby asked timidly. "We're sorry we disturbed you—this here house is so awful quiet."

Sir Isaac was never one to hold rancor.

Speeding on at 45 Million Miles Per Second

"WE are doing very nicely. Our per second velocity now is approximately 45 million miles. At this rate we would reach Alpha Centauri in about six days. I shall, however, do much better than that—our rate of acceleration is quite satisfactory."

But Sir Isaac only shook his head and went back to his reverie.

It was a futile thing—Sir Isaac smiled cynically to himself at the thought of it. The Stars themselves would not be inhabited since they were blazing Suns. Hope only remained with their individual Planets; and to locate these Planets and land upon them would consume much more time than the meagre 51 days of grace that were left.

A very real problem of Celestial Mechanics showed Sir Isaac the mathematical impossibility of landing upon more than two or three additional Planets at the most, in such a time. The vehicle, during these many hours that Sir Isaac had remained lost in thought, had accelerated to a velocity of some two hundred million miles a second—enough to take it far beyond Alpha Centauri in a very few days—especially since the acceleration was constantly progressing. But more than twenty-four hours had been consumed in attaining this velocity; and to check it entirely, under similar conditions would require an equal length of time. But suppose Alpha Centauri had no planets! Or suppose the Planets were not inhabited? To go to the next nearest Star would require many days more—a still higher velocity—a still greater loss of time in starting and stopping. And then the actual time necessary to land upon a Planet—the slow descent through its atmosphere—the ascent, and hours afterward proceeding at a snail's pace such as they had used within the Solar System! No, it was impossible. A year

would be required to make any extended exploration—a year at the very least.

"I *will* figure it out," he muttered grimly. "The most delicate, abstruse mathematical problem ever attempted! But it *can* be solved—and I will—I *must*—solve it."

CHAPTER IX

In Which the Voyagers Plunge Into the Darkness Beyond the Milky Way, and Two Most Felicitous Events Occur Simultaneously

THE car passed between the component stars of Alpha Centauri during the early afternoon of the following day. The two gigantic blazing suns were four times our own sun in apparent diameter. Their light was intolerable to the naked eye. Even with the shades of the side windows drawn, the interior of the vehicle was disagreeably bright.

The heat was tremendous—almost stifling. All that morning the temperature had been rising, until, at lunch time the two men again appeared in their white flannels, and Ameena was back to her charming native costume.

During the morning the two stars that compose Alpha Centauri had visually separated, and Sir Isaac laid his course between them—a thing that was possible only because the vehicle's tremendous velocity precluded even these gigantic masses from drawing it aside and into them.

The actual passage between the stars was very brief, fortunately, or the voyagers would have perished in the intolerable heat. Sir Isaac estimated the stars to be some 3,600,000,000 miles apart. He professed ignorance as to what figure the earthly astronomers had set, and admitted his estimate probably was greatly in error since he had nothing to judge it by save the stars' apparent flight upward past the side windows. It was indeed, only a few seconds before they were above the vehicle and visually again drawing together.

When it was over, Sir Isaac, trembling at the keyboard, turned his white face to his companions and smiled weakly.

"I should not have tried that," he said. "It was too dangerous, attempting to pass through that little space. How I ever managed it—"

He broke off, adding:

"Well, we're past now, at all events. I did not want to slow down—but suppose—just suppose we had run too close to one of those stars—suppose we *had* collided with one of Alpha Centauri's planets?"

"Was there any planets?" asked Tubby. "I didn't see none."

"Neither did I," Sir Isaac confessed. "I did not see anything. There might have been—I do not know." He took a swallow of water from the carafe on the table, lighted a cigarette—he was smoking incessantly—and went back to the mathematics in which he was now constantly engaged.

Tubby watched him timidly for a moment. Then, encouraged by a glance from Ameena, he said, hesitatingly:

"Where we goin' next, perffessor?"

Sir Isaac looked up, frowning. "Eh? What's that?"

"I said, where we goin' next? You said this mornin' we wouldn't stop at Alpha Centauri, but you forgot to tell us why."

Sir Isaac, still working on his plans, had made a brusque statement to that effect. He had promptly immersed himself in his mathematics again, so Tubby and Ameena had thought it best to let him alone temporarily. They had spent almost the entire morning together in the little observatory upstairs, where, through the small telescope they had tried to locate the Solar System.

Sir Isaac, during the morning, had reached a definite conclusion; and now in the face of Tubby's ingratiating attitude, his austerity melted a little, and he retailed his plans.

Sir Isaac Tells His Plans

"I DID not stop at Alpha Centauri," he said, "because I calculated that the time we would lose in checking our present high velocity and starting again, would, after a very few stops, exhaust all the time at our command." He smiled in friendly fashion, and explained in detail.

"But then," protested Tubby, "if we don't never stop, how are we goin' to get any help?"

Sir Isaac hesitated. "To be quite frank with you, my friends, I have about concluded we cannot get any help."

"Oh," said Tubby.

"Oh dear," Ameena echoed faintly.

Sir Isaac continued.

"I think we can save our earth alone—through our own efforts—without any outside assistance."

Coming from such a meticulous person as Sir Isaac this was good news indeed. Tubby and the girl vociferously demanded details.

Sir Isaac raised his hand. "I have not worked it out yet. That's why I didn't want to tell you anything about it. The plan involves a tremendous, a very abstruse and delicate mathematical calculation. If I can secure complete and exact enough figures the execution of my plan will be very simple. I am working on the calculation now. I worked all last night—all this morning. It may require many days—I do not know. But if only my strength holds—"

"You go right ahead," encouraged Tubby. "We won't bother you none. And meantime—"

"In the meantime," Sir Isaac supplied, "I thought we might as well go onward." He smiled with just a touch of embarrassment. "To tell you the truth, I am very curious about these outer realms of space. I have lots of good theories—but I really *know* very little about this portion of the Universe."

"Me neither," Tubby declared liberally.

"And," Sir Isaac went on, "since we have attained this high velocity, and are each moment accelerating it, I thought we might as well utilize our spare time to—well just to satisfy our curiosity. I have a theory regarding the edge of Space—"

"Ah! The edge of Space!"

"Yes, the very ultimate edge of this Space we are traversing. If we could reach it and return with my calculation completed, and then save our Earth, it would—"

"Great!" cried Tubby.

"We can! We will!" cried the girl.

"—it would gratify me very much," Sir Isaac finished.

Thus it was arranged. Tubby and Ameena returned to the observatory—the only part of the ve-

hicle where they could sing with abandon and without fear of disturbing Sir Isaac.

Two hours later they came quietly down to indulge in afternoon tea. In the instrument room, sprawling in his chair, with his arms on the table and his head upon them in the midst of a litter of papers covered with algebraic hieroglyphics, sat Sir Isaac, fast asleep.

"Poor dear man," murmured Ameena. "He is completely worn out."

"Yeh, he's all in," agreed Tubby. "Let's get him to bed."

They awakened him gently, and ordered him up to one of the bedrooms. Like a child, he obeyed. On the stairs he roused himself sufficiently to caution Tubby.

Speed and Danger Increase Apace

"I WANT you to look ahead through the floor window at least once **every minute**," he declared. "We have very little room, even out here, at this velocity. I have several times barely avoided collisions that I haven't told you about. If we approach closer than 900,000,000 miles—or even as close as that—to any celestial body of sufficient mass to deflect us, we are lost. Will you promise?"

Tubby promised; and this time, with Ameena's assistance, he kept his word.

As Sir Isaac explained to them the following morning, the danger of collision in one way was now very great, though in another way it had lessened. They had passed Alpha Centauri at a velocity per second of something like 275,000,000 miles. This by steady acceleration, now approximated 740,000,000. Any very gigantic celestial body in front of them would deflect them aside and into it. It was this danger that they must avoid. But of course, so enormous a body would be visible an enormous distance away and so could be seen in time to be avoided.

On the other hand, there was now little danger to be apprehended from smaller bodies such as the asteroid with which they had so nearly collided back in the Solar System. Even if one of these should separate itself from the proximity of the larger worlds, its comparatively minute mass could not exert sufficient attractive force to make the slightest deflection in the course of the vehicle. For a collision to occur, therefore, one of these smaller bodies would have to lie *exactly* in the vehicle's path—a space of some forty feet which was the vehicle's width. And, as Sir Isaac remarked, any particular forty feet in these vast realms of outer Space was too small to be considered. Sir Isaac also pointed out that any asteroid would be invisible until it was only a fraction of a second away at this velocity. A collision with one was a blind chance which they could not avoid taking.

Twenty-four hours after passing Alpha Centauri the voyagers found themselves distant from the Earth some 15½ light-years. Sir Isaac left his mathematics for an hour that afternoon to point out to his friends places of interest in the Heavens.

The firmament now shone with dazzling brilliancy, though the faint stars of the Milky Way still seemed as far away as ever. The sun of the Solar System—its planets quite invisible—had dwindled to one of the faintest of all the stars in that region. Alpha Centauri, visually quite near the sun, was infinitely

brighter, but still it was surpassed by many of its fellows.

Tubby Gets a Few Comparisons

SIR ISAAC, passing from one window to another, pointed out the red stars—Antares, most deeply colored of all—Betelgeuse, Aldebaran and Arcturus. Tubby wondered if any of these stars were as large as the Sun, or whether it was only on account of their closeness they looked so much brighter. Sir Isaac laughed with genuine amusement.

"They are somewhat larger," he said ironically. "Take Betelgeuse, for instance. There's our Sun—there's Betelgeuse. Our Sun is about $15\frac{1}{2}$ light-years from here—Betelgeuse is about 150 light-years!"

"He—he must be lots bigger, then," Tubby concluded after a moment of amazement.

"He is," said Sir Isaac. "Professor Albert Michelson measured the diameter of Betelgeuse in the autumn of 1920. His figures show that star to be equal in size to 27,000,000 Suns like ours!"

Tubby was staggered. Sir Isaac went on calmly.

"The diameter of Betelgeuse is 260,000,000 miles. Let me show you how really enormous that is. You remember our trip from the Earth to Venus, and to Mercury? Well, if Betelgeuse were a hollow globe and you put our Sun suspended in its center, Mercury, Venus and the Earth would all have plenty of room to traverse their orbits inside it! Even the orbit of Mars would only be a short distance outside!"

Neither Tubby nor Ameena could think of anything to say.

"Professor Michelson found all that out by what he calls the 'Interference Method.' I won't bother you by explaining it. . . ." Sir Isaac raised his hand despairingly. "Of course Michelson deserves a lot of credit. I never had occasion to work on just that particular problem, or I would, of course, have been able to—"

"Show us somethin' else," Tubby interposed.

Sir Isaac pointed out several binaries that now were visually separated. It was all a most wonderful sight; the multiple stars—"clusters"—and the curious spiral nebulae, the still faint, far-off Milky Way. It was indeed a stupendous, awe-inspiring sight, though Tubby and Ameena were now sufficiently used to it, to be comparatively unimpressed.

For nearly a week the vehicle, with steady acceleration, dropped into Space, while Sir Isaac worked almost incessantly at his computations and Tubby and Ameena engrossed themselves in each other's companionship.

They entered the Milky Way on the seventh day after passing Alpha Centauri. Though their actual entrance into the Galactic Plane was unmarked by any visual phenomena—the firmament blazed with stars as usual—a different set of stars were now brightest, but to the non-technical observer there was no marked change.

During this week an apparent star motion had gradually increased, until now, looking down through the lower windows, the stars could be seen opening up as the vehicle dropped into them—separating themselves, passing upward, across the side windows, and closing together again overhead.

"How fast we goin' now, perfessor?" Tubby asked once.

It was at supper time. Sir Isaac hastily masti-

cated a huge mouthful of cheese sandwich and washed it down with a swallow of coffee, before replying.

"I cannot tell you in miles," he answered. "In light-years I estimated it this morning to be about $1/120$ a second. That is, $\frac{1}{2}$ light-year a minute, or about 720 a day. We are now about 3,500 light-years from the Earth.

Tubby had by this time made up his mind never to be surprised again at anything.

"That's an awful lot faster than we used to go, ain't it?" he remarked. "Around Mercury or Venus, f'r instance."

Sir Isaac's smile was condescending.

Tubby Gets Dope on Real Speed

"THE diameter of the entire Solar System, from Neptune's orbit, across the Sun, and out again to Neptune's orbit on the other side is a mean distance of 5,593,056,000 miles. We are traveling that distance now just about once every second!"

Probably no other statement of Sir Isaac's was so amazing. And, as Tubby and the girl pondered it, the immensity of this Space through which, day after day, night after night, they were plunging at this almost inconceivable rate, was made clear to them.

Sir Isaac added laughingly:

"The Solar System isn't very large. Why, that star Betelgeuse could hardly turn around in it. A mere 5,500,000,000 miles,—it's only a few times the diameter of that one star."

How Sir Isaac ever avoided the stars of the Milky Way, even with the gigantic distances separating them, he never understood. All that night, his still elusive calculation neglected, he sat at the floor window in the instrument room. From time to time he leaped to the keyboard to alter their course. It was a nerve-wracking, horrible night. But in the morning, when Tubby, and a little later, Ameena appeared, the Milky Way lay glistening above them. Below, only a few stars showed; beyond that, darkness—blank, unfathomable.

Sir Isaac greeted his friends with a wan smile; he was on the verge of physical exhaustion, but his spirit remained undaunted.

"We are beyond the stars," he said. "It is as I always thought. Even from Earth I have telescopically observed a perceptible thinning out of the Celestial bodies. We have reached the limits of our Celestial Universe on this side. We have now below us only empty Space—unless we encounter another Universe."

Sir Isaac quite evidently had his own theories as to what lay beneath them in that void of darkness. But he smilingly resisted all Tubby's efforts to make him talk about it.

Finally in desperation, Tubby exclaimed:

"We ain't got no business goin' much farther. The opposition of Mars comes off in forty-two days from 6 P.M. tonight—an' we're gettin' a fair distance away from the excitement."

Sir Isaac smiled confidently. "We shall return without a stop—quite in time, even at our present speed. That isn't worrying me. It's—"

"Your calculations?" supplied Ameena. "Your great plans of which you will tell us nothing? How are they progressing, Sir Isaac?"

His face clouded. "I have been so busy," he said somewhat anxiously. "But I'm making progress."

Now that we are beyond the stars, I will have more freedom—will redouble my efforts."

Poor Sir Isaac, for all his eagerness to work, was forced to retire immediately after breakfast for a few hours of much needed rest. They awakened him for luncheon—which he gobbled in haste—retreating at once to the instrument room, where by the light of the table electric, he became instantly immersed in his interminable figures.

Thus, in similar fashion, while the vehicle plunged onward through Space at a velocity sufficient to take it across the 5,593,056,000 mile diameter of the Solar System in very much less than one second, fifteen more days and nights of interminable voyaging went by!

Exploring Outer Space

THE Universe of which our Solar System is so minute a portion, had long since faded into invisibility. Others had been distantly sighted on both sides, and passed overnight—reduced by comparison into mere nebular regions, though each may have been as large, or larger than our own Universe.

On the fifteenth day, skirting alongside a smaller Universe—possibly no more than a thousand light-years in diameter, Sir Isaac announced that they were approaching the end of their outward voyage.

The vehicle was still dropping to that vast void of silence and darkness with a velocity now quite beyond calculation. It was a decreasing velocity, now, however, for, sometime since, Sir Isaac had begun to retard it.

Overhead, the last starry firmament was visible, though every hour with perceptibly lessening brilliance. Tubby and Ameena sat together in the observatory, watching the receding stars, and wondering how, among all these Universes, Sir Isaac would ever set his course going back, in order to reach that particular one of the Solar Systems to which they belonged.

The temperature of the vehicle was now, curiously enough, very comfortably warm—so warm indeed, that Tubby wore his white clothes and Ameena that dainty costume in which he had first seen her on Venus. This paradox of temperature—for here in outer Space it should have been insufferably cold—Sir Isaac had explained to them the evening before. Their velocity was so great, he said, that even the minute, widely separated atoms of the ether, pounding against the vehicle's base, were heating it—just as it had been heated before when passing through the atmospheres of the several planets upon which they had landed.

Sir Isaac, alone in the instrument room, worked over his figures incessantly, feverishly, all that afternoon. It was nearly five o'clock when, with a cry of triumph, he dropped his pencil and staggered to his feet.

"I've solved it! Tubby, Ameena, my friends, at last the problem is completed. We shall save our Earth now—nothing can prevent us!"

With head reeling, he groped his way out into the dim hallway and up the stairs, looking for his companions. In the starlight of the observatory he found them—Tubby lying prone with his head in Ameena's lap, she stroking his hair gently, singing softly a tender love-song of Venus.

"I've solved it!" Sir Isaac cried. "We cannot fail

now to save the Earth! My calculation is completed at last, down to the smallest decimal."

Tubby turned his head slightly; Ameena's song died away.

"Oh, is that you, professor? Come on in an' congratulate us. Ameena an' me just got engaged!"

CHAPTER X

In Which the Voyagers Reach the Inner Surface and Speedily Depart Therefrom After a Most Amazing Experience

THE silent, lonely, little vehicle plunging through the darkness of Space, a world to itself, now rang with the gay laughter of its three inhabitants. Sir Isaac had successfully completed his complex calculation, using therein every intricate device known to higher mathematics, with a verified result correct to seventeen decimals. Tubby and Ameena were engaged to be married. What stupendous events to have occur simultaneously. No wonder the little Celestial wanderer was the scene of rejoicing.

It was an evening of the gayest festivity. Sir Isaac, proud and happy as a boy, kissed the radiant Ameena, fending off Tubby who tried to stop him. Then the girl went into the kitchen and prepared the evening meal. And such a dinner it was. For two hours they sat over it, laughing and discussing their plans.

"We must hasten now," Sir Isaac said in a moment of comparative quiet. "Nothing remains but for me to show you the edge of Space, which I want very much to do. Then we must hurry back and put my plan for the downfall of Mars and his allies into operation. I fear nothing now. We cannot fail."

"You can't get back too quick for us," Tubby declared. "This here outer Space ain't no place to go lookin' for a minister in. Where we goin' to get married, Ameena? The Earth or Venus?"

The girl had not yet made her choice; and the question was left open.

The penny-ante poker game in the instrument room—a game at which Ameena had now become extremely proficient—lasted well into the night. When it was over Sir Isaac made a brief calculation and concluded that the "Edge of Space"—as, with a slight smile he still insisted on calling it—was still considerably below them. The vehicle therefore, needed no attention.

After this pleasant discovery, Ameena lingeringly parted from Tubby and retired to the upper floor. The two men made up their beds in the instrument room. Within fifteen minutes all three were fast asleep.

Evidently nothing unusual occurred during the night, for when the three voyagers awoke about ten o'clock next morning they found themselves still silently dropping into the abyss of blackness. Overhead the stars of that last Universe were still visible, though now extremely faint.

Social Life Begins

DURING a lazy breakfast the three friends fell to talking personalities.

"You got a lot of names, ain't you professor?" Tubby said.

"Quite a good many," responded Sir Isaac pleas-

antly. He was obviously pleased at the question. "I am usually known merely as Sir Isaac Swift De-Foe Wells-Verne—but I have other names—Stockton, for instance."

"What's the 'Isaac' for?" Tubby asked. "I ain't never seen that on your books."

Sir Isaac frowned. "Well, to tell you the truth, my friends, I am just a little ashamed of that. Even in my early infancy my marked scientific bent was apparent, and my grandfather insisted on my being named Isaac. He was a great admirer of Isaac Newton, you see. Of course Newton was, in a way, a brilliant man. I would have preferred Jules, or Herbert George however. I often use both those names. I think Herbert George is rather natty, don't you?"

Ameena agreed that it was.

Sir Isaac might have pursued this interesting topic indefinitely, but Tubby cut him short.

"Won't you please tell us about this here Edge of Space we're headed for?"

Sir Isaac, in view of their imminent arrival at the Edge of Space, evidently considered that the proper dramatic moment had come to tell them about it.

"I'm sorry you are not familiar with my scientific narrative about this subject," he began somewhat pompously. "However, that is immaterial. . . . In it I explained that every atom of the Universe is really a world in itself. Its interior is a void of ether, an infinitesimal core of Space, surrounded by a shell of matter. That is an atom. I do not mean the old-fashioned word atom, but the inner nucleus which the professional scientists of Earth have just managed to discover. Do you follow me?"

"Sure," declared Tubby. "An atom is like a cocoon, only with ether where the milk ought to be."

Sir Isaac beamed; Ameena regarded Tubby with admiration.

Sir Isaac's Theory Unfolds

"EXACTLY" agreed Sir Isaac. "There are electrons, of course, which Sir Ernest Rutherford most doggedly insists are particles of disembodied electricity—negative, you know—spontaneously liberated from the atoms. However, in this Golden Atom which I described, there revolved, in its central void of ether, an infinite number of minute worlds, stars, planets, comets; a complete little Universe of its own. Do you still follow me?"

His two auditors nodded somewhat dubiously.

"What's this got to do with the Edge of Space?" Tubby demanded.

"I'm coming to that. You must understand now, that just as all distances and all motions are relative one to the other, so also is size. I have brought to your imagination the golden atom containing a minute Universe in its central void of Space. That to our minds, is almost infinite smallness."

Sir Isaac hesitated impressively.

"Now, my friends, remember, size is only relative. Conceive now another atom, an almost infinitely large atom. Within this gigantic atom, revolving in its central void of ether, place a Celestial Universe—the Celestial Universe in which you and I live, the stars and planets among which we have been voyaging for many days past."

"Yes," said Tubby faintly. "An' then——"

"Then you will realize that we are soon to reach

the limits of this atomic void. We shall land upon the inner, concave surface of the atom which contains us!"

Sir Isaac's smile was triumphant.

"Is that not wholly logical that we shall land upon this inner surface shortly? But we will not stay there, or proceed further. We must return at once to our own tiny little planet. So much for facts. If you wish to imagine beyond that, I shall say that were we able enormously to increase our bodily size, we might pass through the shell of our Atom, which possibly is as thick through as it is across its central void of Space. Then we should emerge on the convex outer surface. By still further increasing our bodily dimensions, we would outgrow this Atom and find ourselves in another world, of which this larger, inconceivably large world, of which this Atom of ours may quite well be an atom of somebody's wedding ring, or the atom of a column in a King's castle, or the minute fragment of a grain of sand in a vast desert. You asked me about absolute motion. Suppose our atom is in a grain of sand of some vast desert and is now being blown in a storm—or that——"

"Never mind any more," Tubby cried. "We got the idea, ain't we Ameena?"

"It is very wonderful," the girl declared slowly. "But a little difficult to follow, just at first."

"You'll get used to it," said Sir Isaac. "Just keep on thinking about it a while. It's my own theory. I'm going to tell Sir Ernest about it because my atom is really that inner nucleus, that portion, around which his electrons revolve. So you see this theory of mine will help him out a lot. . . . Ameena, you do make very good coffee. Can I have another cup?"

When, after breakfast, they gazed down through the floor window, a very faint luminous glow seemed growing in the blackness far below them. Sir Isaac regarded it intently a moment, then with a cry of satisfaction hastened to the keyboard.

"That is light diffused throughout the atmosphere of the Inner Surface," he said, as he altered the positions of several of the keys.

"I am checking our velocity very rapidly now," he added as he straightened up. "We will arrive at our destination this evening."

His prediction was correct. All that afternoon the luminous glow beneath them grew in intensity. By supper time it gleamed like a pale phosphorescence, spreading out in all directions to the visual limits of the floor window. Shortly after supper they entered the atmosphere of the Inner Surface at an altitude which Sir Isaac calculated to be several hundred thousand miles.

It was nearly nine o'clock when Tubby, peering downward, saw what might have been the broad plateau of a mountain-top coming up out of the yellowish, luminous haze. It was a flat surface extending out of sight in three directions. But its fourth side, almost directly beneath them, ended in a sharp line with a dimly yellow abyss beside it.

"Look at the cliff," Tubby called to Sir Isaac. "You better slow up some more an' figure out where we're goin' to land."

They were then some ten thousand feet above the top of this "cliff," as Tubby called it. Sir Isaac, after a careful inspection of it which was difficult in the very dim, hazy yellow light, finally decided to de-

scend very slowly close beside its perpendicular face and thus reach the lower level of land adjacent.

They made the descent in the dim starlight in an increasing yellow glare from below a thousand feet away from the face of the precipice. The wall of rock extended in a direct line as far as they could see, as straight as though it were hewn by a rule.

At the Outer Surface

IT was a descent of some fifteen miles. Tiny points of light now showed beneath them. Through the side window of the instrument room, the dim face of the huge rocky wall slid swiftly upward, as though the vehicle were a silently dropping elevator car. Occasionally, rectangular openings in the rock wall went up past the window, openings five hundred feet long, from which a lurid glare of yellow-red light blazed with blinding force out into the night.

"Say," whispered Tubby, awe-struck. "What sort of a place is this?"

A brilliant ball of fire, seeming hardly more than a hundred feet away, came vertically up past the side window, a ball of blazing flames ten times the size of the vehicle itself. The heat from it was tremendous. From the lower window an even brighter though diffused light was streaming in; and a deafening, roaring noise filled the room.

It all happened within the space of a few seconds. Sir Isaac, who had been hovering anxiously between the windows and the keyboard, became suddenly confused. He started toward the table, then changed his mind and leaped to the side window, if falling over Ameena, who was in his path.

"Look!" shouted Tubby, above the roar. "Hey, look out, perfessor! Let's get up out of here!"

An enormous, swiftly moving black surface, completely obstructing the side window for an instant, went past close outside. Sir Isaac leaped back to the table just as the vehicle struck something soft and yielding—a glancing, sidewise blow. Tubby and Ameena were hurled to the floor. Sir Isaac, clinging desperately to the table, fumbled for the keyboard, and altered several of the keys. There was a gigantic swishing noise; the room trembled—tilted sidewise. Then silence.

Tubby raised his aching head. "Where's Ameena? Ameena! You ain't hurt?"

Her faint voice reassured him. He raised himself to a sitting position. "Oh, perfessor—you hurt? What happened? Where are we?"

They were none of them more than badly shaken up. The room was level again, vibrationless, soundless. Through the floor window shone the faint stars; out of the side window, high above, the yellow glare of the Inner Surface was fading. The vehicle had turned over, and was again dropping out into Space!

Tubby lifted Ameena to a chair and kissed her reassuringly. "'Sall right. We ain't hurt none. What happened, perfessor? What *was* all that?"

Sir Isaac did not know. For an hour they compared notes on what they had seen. It had all happened so quickly; it was so confusing, so unexpected. Their view through the little windows at near objects was so limited they found that each of them had seen things differently.

"Well, anyhow," Tubby declared with a shrug, "we landed on that there Inner Surface, an' we got

away again without gettin' smashed up. Now let's get home an' fix this Mars business. We only got twenty-six days left."

With the entire repellent force of the Inner Surface above it, and the attraction of several of the celestial universes at its base, the vehicle rapidly gained velocity. It was nearly midnight when Sir Isaac, coming out of a profound meditation, suddenly exclaimed.

"I know what happened to us on the Inner Surface! Fancy that! How could I have been so stupid?"

"What?" demanded Tubby.

Ameena, who just at that moment was preparing to retire to bed, stood poised with a bottle of liniment in her hand.

Sir Isaac said excitedly:

"The inhabitants of the Inner Surface, relative to us, must be gigantic in size. How silly of me not to have realized that!"

"Well?"

"Well," Sir Isaac continued, "that was a gigantic building alongside of which we went down—a building fifteen or twenty miles high! Those huge, yellow rectangles were its lighted windows! That ball of fire was a street light! We descended directly into a city street, and *collided, probably, with the coat-sleeve of a pedestrian!*"

CHAPTER XI

In Which the Mathematical Genius of Sir Isaac Plays Havoc with the Minor Planets, but Saves the Earth from Disaster

THE vehicle had passed within the orbit of Jupiter on its return voyage before Sir Isaac deemed it expedient to explain to his fellow voyagers his mathematical plan for the salvation of the Earth. It was the morning of the day before Mars was to be in opposition with the Earth. To be exact, just thirty-four hours remained at the moment the orbit of Jupiter was crossed.

The return trip—of a little less duration than the voyage out—had been devoid of any exciting events chiefly owing to the unflagging vigilance of Sir Isaac. His genius for astronomy—by some method which he did not see fit to explain to his friends—enabled him unerringly to find his way back to the proper Universe, and thence to the Solar System.

During these days and weeks, sleeping little, Sir Isaac had remained almost constantly at his post at the instrument room floor window, or at the table beside the keyboard, verifying over and over again, his gigantic calculations; or writing on his now very bulky manuscript. Tubby and Ameena, left thus to their own devices, passed the time pleasantly enough, singing their duets whenever Sir Isaac would let them, and always cooking the meals and washing the dishes together. The wedding had now been set to take place on the Earth, immediately upon their arrival, with a honeymoon trip to Venus.

At meal time which the three friends occupied principally with argument and with scientific dissertations from Sir Isaac, Tubby had once remarked:

"Them inhabitants of the Edge of Space must have been awful big, perfessor. Big as anybody could get. Ain't I right?"

Sir Isaac, in a manner that now was becoming quite habitual, smiled condescendingly.

"My dear fellow, those inhabitants of the Inner Surface of our Atom may be, possibly, several hundred times larger than ourselves. But, like us, they are merely denizens of an infinitesimal Atom. The inhabitants of that outer world are so much larger that their most powerful microscopes—assuming they have microscopes—would be necessary even to see our Atom itself much less see us or the planets in it!"

Within the orbit of Jupiter—they were heading for Mars and had passed a very considerable distance from Jupiter itself—Sir Isaac materially checked their velocity. The region of the Minor Planets lay ahead. It was among them that he planned to operate.

Sir Isaac Explains His Plan to Save the Earth

AFTER breakfast that morning he called Tubby and the girl into the instrument room and very quietly but solemnly announced that he was ready to explain his plan. Tubby and Ameena sat together in the huge easy chair, she perched on his lap, and hand in hand they prepared to give Sir Isaac their closest attention.

"My dear friends and fellow voyagers," Sir Isaac began, with something of the tone of a public lecturer, "we come now to the most important, most remarkable, and I may say the most awe-inspiring event of our scientific adventure around the Celestial Universe."

"I wish he did not have such long prefaces," Ameena whispered to Tubby.

"Sh! you'll make him mad," Tubby whispered back. "He don't mean nothin'. He gets that way from writin' so much."

"As you both know," Sir Isaac went on, ignoring these whispered asides, "at 6:15 P. M. tomorrow evening the Planet Mars will be at its closest point to the Earth. We anticipate then that the combined Martian and Mercurian armies will voyage to our Moon, which already they have conquered, there to prepare to attack the Earth. It is necessary, therefore, for us to prevent this migration. If we can keep the armies on Mars their small force now occupying our Moon will be powerless for offensive movement. We could even send armies from Earth to destroy them; or, at the next opposition doubtless they would return to Mars of their own volition."

"Right," Tubby agreed impatiently. "But please tell us how we're goin' to stop the Mars armies from movin' over to our Moon."

"I will," stated Sir Isaac. "But first you must understand the scientific laws governing what we are about to do. A poet once said, 'Thou canst not touch a flower without troubling of a star.' He did not mean it scientifically perhaps, but its scientific application is very pertinent. It means that if you so much as pick a flower anywhere in the Universe, you alter, by some minute fraction, the course of every star—every celestial body, no matter how distant, or how gigantic.

The Universe Delicately Balanced

I SEE you do not quite understand me. The Celestial Universe is very delicately balanced. Every force acting upon the celestial bodies has another force to counteract it. Now since every body attracts every other body directly as the mass

you will realize that a daisy growing in a field on Earth attracts Neptune or Mars just as much in proportion to its mass, as they attract the daisy. And since attraction is inversely as the square of the distance, it follows that if you pick the daisy, thus altering its position, you alter its attraction. And therefore—very minutely, of course—you disturb the movements of every body in the Universe."

"I think we understand you," Ameena said. Sir Isaac had paused, and this time Tubby had failed to make any comment. "It is really very interesting. Do go on, Sir Isaac."

Sir Isaac continued:

"Well, I propose to do just that very thing. To——"

"Pick a daisy?" Tubby put in. He glanced at Ameena for approval of this quip, but she frowned.

"To so alter the course of some very small celestial body—by using the attraction of our vehicle upon it—that a series of collisions, progressively greater in the masses of the colliding bodies, will rapidly occur among the Minor Planets."

"Oh," said Tubby, somewhat abashed. "Then what?"

"I have figured it out very carefully," declared Sir Isaac. "You may appreciate possibly the abstruseness and the delicacy of such a calculation. The collisions will climax at 5:34 P. M. tomorrow afternoon, by——"

The sentence was never finished. Past the side window, very close outside, a gleaming white object flashed! Sir Isaac, Tubby and the girl leaped to their feet in fright. A glance upward out of the side window was enough. It was that same Mercurian vehicle, hovering here between Mars and Jupiter, awaiting their return!

"Say—what the—did they try an' run into us?" Tubby gasped.

The glistening white cube was receding rapidly above them. Suddenly it turned, and as they hurried into the store-room to observe it from there, it came rushing toward them again.

Attacked by the Mercurians

IT'S runnin' into us!" Tubby cried in terror. "Hey perfessor! Let's do somethin'—let's get a-go'in' somewhere!"

Sir Isaac rushed back to the keyboard. The horrible meaning of the situation became clear. The Mercurian vehicle, manned by "suicide volunteers," was endeavoring to destroy them and itself simultaneously by a collision in Space!

Sir Isaac, his blood running cold in his veins, shook himself together, and with deliberate care depressed two of the keys. The Heavens turned over swiftly, dizzily.

Tubby, who was standing in the center of the room, clutched Ameena for their mutual support.

"Don't look at them windows!" he cautioned. "Close your eyes. Perfessor, which way we goin'? What'll I do to help? Where's them Mercurians? Are we duckin' 'em?"

Nothing could be distinguished through the windows save the rapidly shifting firmament. Sir Isaac gritted his teeth.

"That tiny asteroid!" he muttered. "We were near it, the first asteroid in my calculation."

A blinding white glare burst through the side

window; Sir Isaac, desperately pressing other keys, finally brought the Heavens to rest.

"It's—all right," he panted. "That burst of light—that—"

Through the side window a tiny blazing globe was receding above them; from none of the windows was the Mercurian vehicle to be seen.

The Enemy Annihilated

"**W**E are safe," said Sir Isaac a moment later, when they had all calmed down a little. "The Mercurians collided with that little asteroid. They are annihilated."

Sir Isaac's face was as sober as though this were personally a great misfortune to himself—which indeed it was. He added:

"That asteroid was the first in my calculation—the one on which I was to begin operations. This unforeseen collision has changed its course—the whole fabric of my calculations has been altered." Tears welled into his eyes. "I—I tried so hard to have it mathematically perfect. And now it's ruined! Now we are powerless to save our world!"

The unfortunate man was overcome for a moment. Tubby and the white faced girl sat beside him.

"You can figure it out again," Tubby said consolingly. "Try, pefessor. Maybe it ain't ruined at all."

Under the influence of Ameena's gentle fingers stroking his hair, and her soft words of courage in his ear, Sir Isaac suddenly braced up.

"I'll do it!" he cried. "Give me my pencil and paper . . . Ameena, make me some strong, black coffee. Bring it here . . . with my lunch . . . Tubby, give me my cigarettes, and let me alone. Go away. I must rectify this terrible error."

He dashed the damp locks of hair from his eyes; and while Ameena hurried into the kitchen, he lighted a cigarette, pushed Tubby away, and plunged feverishly into his ruined computation. Ten minutes later he was altering the vehicle's course and, with his array of delicate scientific instruments, was making careful observations of the asteroids present direction and rate of flight.

Tubby kept out of the instrument room. At noon, Ameena took Sir Isaac's luncheon into him on a tray. He smiled up at her, momentarily suspending his flying pencil.

"I do hope your computation isn't ruined, dear Sir Isaac," she murmured gently.

"Oh, no," he said. "In fact I am beginning to think quite the contrary." He seemed wholly cheerful. "The Mercurian vehicle colliding with my asteroid altered its course, naturally. But I am beginning to discover that the alteration is favorable to my plans rather than the reverse."

He patted her shoulder. "Thank you, Ameena . . . That stew looks delicious . . . I shall have my new calculation completed in an hour, I hope. That Mercurian collision was a blessing in disguise."

So it proved, for by two o'clock in the afternoon Sir Isaac called his friends into the instrument room and triumphantly displayed his new set of figures.

"Very good indeed," approved Tubby. "Let's get to usin' 'em. What do we do first?"

"At 3:57 P. M. this afternoon we shall approach that same asteroid," Sir Isaac announced. "Just leave everything to me. It is all quite simple now!"

Coaxing an Asteroid From Its Course

AT 3:57 P. M. exactly they were encircling the asteroid at a distance of some ten miles—speeding around it in a circular orbit as though they were its satellite. But with each revolution they paused on one side and drew away slightly, coaxing it from its path by their attraction.

It was a tiny celestial wanderer indeed—not more than three or four thousand feet in diameter Sir Isaac said—nothing but a boulder flying alone through Space.

At 4:17 P. M. the vehicle withdrew. Tubby was anxious to have something happen; but for nearly an hour nothing did. It was 4:45 P. M. when Sir Isaac pointed through the side window to another, somewhat larger asteroid approaching. With careful work at the keyboard he swooped the vehicle toward it—around it twice—and then slowly away again in the opposite direction.

"There," he murmured. "I think I have done my part correctly. The laws of Celestial Mechanics must do the rest."

He sat at the side window, watching. Tubby and Ameena saw the first asteroid far above them. The other was obviously nearing it. Both had been deflected from their normal course by Sir Isaac's skill; a collision was inevitable.

The Asteroids Collide

IT came at 5:51 P. M.—as Sir Isaac had calculated—a soundless flash, and then a new, larger celestial body, the fused mass of the other two, wavering in Space, plunging diagonally toward the Sun, and at last finding its new orbit by that delicate balancing of forces which is the marvel of Celestial Mechanics.

Sir Isaac was jubilant. He took several observations of the new asteroid.

"Perfect, my dear friends. The new orbit is identical with my calculation. There will be another collision, with a much larger planetoid, at 7:19 P. M. Let us have dinner."

"Very good idea," approved Tubby with relish.

Tubby and Ameena still had only a vague idea of how all this was to save the Earth; but they trusted Sir Isaac implicitly. Besides, they did not dare ask any advance details, which would have offended Sir Isaac's sense of the dramatic.

The second collision—another, larger flash—took place exactly at the appointed time. And all during the evening and far into the night, other collisions occurred. Each involved larger bodies—and after each, from the vehicle which followed in their train, Sir Isaac computed the orbital elements of the new celestial body.

"You had better go to sleep," he said, at two o'clock. "There will not be another until 4:35 A. M. It involves a very considerably larger body—I shall wake you up in time to see it."

He added solemnly:

"I trust this next Minor Planet is not inhabited. I do not think so, though it is over two hundred miles in diameter. I did not want to involve it—but I had to."

At 6:03 P. M. the following evening, just twelve minutes before the long-anticipated opposition of Mars with the Earth, the climax came. There had been two gigantic collisions during the day. The last one—at 2:23 P. M.—involved two bodies of almost

equal mass which approached each other from diametrically opposite directions. A head-on crash ensued. A new body, fused into a molten mass by the created heat of arrested motion, hung for an instant suspended—completely devoid of orbital velocity. Then it moved downward—slowly at first, then swiftly, with constant acceleration plunging down toward the center of mass of the Solar System—the Sun.

The vehicle followed it cautiously. Watching this enormous, fiery derelict created by the mathematical genius of Sir Isaac, it was nearly six o'clock before Tubby and Ameena grasped the true significance of what was taking place before their very eyes.

The new asteroid—five hundred miles in diameter, a white-hot core with flames hundreds of miles in height leaping from it, plunged for the Sun. But Mars also lay beneath it though slightly off to one side—Mars, now a huge, reddish, smug-looking crescent across the lower firmament.

Blazing Asteroid Plunges Toward Mars

MINUTES passed. The three watchers crouched tense at the lower window of the instrument room. The blazing asteroid plunged on. Its course for the Sun would take it half a million miles to the side of Mars! Five minutes more! The asteroid, feeling Mars' attraction as it approached, began turning gradually aside, deflected by this other attraction which at such proximity was greater than the Sun's.

Then at last Tubby understood! He gripped Ameena—breathless.

"Look! Mars is pullin' it! Look!"

It was 6:03 P. M. exactly when, with a gigantic, soundless flash, the molten asteroid collided squarely with the Planet's upper surface!

CHAPTER XII

In Which Tubby's Wonderful Gift, Revived on Earth, Brings About a Cataclysm, and His Astronomical Adventures Are Abruptly Terminated

WHAT a triumph, even for the genius of a super-mathematician! A blazing, molten mass of matter five hundred miles in diameter had fallen upon the surface of Mars at almost the very moment of its anticipated triumph over an inoffensive neighboring planet! No wonder Tubby and Ameena were overjoyed! No wonder Sir Isaac's pale, intellectual countenance could not but reflect the pride in his heart!

Tubby shook his friend's hand warmly; Ameena kissed him.

"Well," declared Tubby, "I guess that settles them Martians. Some excitement for them right now!"

"Did it kill many of them, do you think, Sir Isaac?" Ameena asked anxiously. "Women and little children—"

"I'm afraid it did," Sir Isaac said soberly. "I could not help that—the innocent must everywhere suffer for the guilty. I had to do the best I could for our own world."

He sat down, pondering. Then he added:

"I have no idea what such a collision would do or what may be the result of it to the orbit of Mars and thus to the other planets. The heat generated may have roasted every living creature on the globe. Or

perhaps not. But I rather imagine those armies will have enough to do at home without undertaking an invasion of the Earth for some time to come."

"I should guess yes," Tubby declared enthusiastically. He threw his arms around Ameena and kissed her vigorously. "Now all we got to do is hurry right home so you an' me can get married. Ain't I right, kid?"

The girl agreed that this was logical.

"I shall have you there tomorrow," said Sir Isaac. "We need not bother with the Moon—let us leave that little Martian army marooned there. We will let it alone—it cannot harm us."

"Sure," agreed Tubby. "Let it alone. Come on, let's eat and then play poker."

On this last leg of the journey, Sir Isaac insisted on going slowly. In the first place he was thoroughly exhausted and demanded twelve solid hours' sleep; and also, with Tubby and Ameena thus in continuous command, he felt it was advisable to make haste slowly. It was therefore not until 9:45 P. M. the following evening that the vehicle landed again upon the Earth from which it had departed some sixty days previously.

The Last Evening Aboard

THE last evening in the vehicle was a solemn one. Tubby and Ameena were to part from their friend and take their honeymoon trip alone in it to Venus. A hazardous voyage, doubtless! But youth and inexperience are always confident.

"You're a very wonderful man, Sir Isaac," Ameena said during that last supper.

"You sure are," Tubby confirmed. He hesitated, scratching his head. "But say, perffessor, there's one or two things about this here voyage of ours I ain't quite got clear."

Sir Isaac nodded encouragingly.

"For one thing," Tubby began. "I ain't got this gravity part very straight. Why is it when we're in this vehicle we don't personally feel all these here changes of gravity? If the gravity is cut off from under us why don't we get lighter?"

It was a stupendous bit of logical reasoning on Tubby's part. It surprised Ameena; it amazed Sir Isaac.

"Why—why—" he stammered. Then he smiled frankly.

"I really cannot explain exactly," he confessed. "The thing surprised me very much. I've been worrying over it for my manuscript. It is a fact that we do not feel any changes of gravity until we actually land upon some celestial body. But why, I cannot say. I think it's because of our velocity, the constant acceleration or changes of velocity of the vehicle. Motion and gravity are very closely related. If it's that, Einstein would know all about it. He disagrees with me on almost everything, but still he's a nice sort of chap. I think I shall have to consult him."

"I would," said Tubby. "Then there's another thing. You got this here vehicle built wrong. You got the observatory on top an' we're always goin' the other way. You never onc't used that little telescope. An' then there's—"

"Tubby!" cautioned Ameena. And, in deference to the feelings of their friend, who after all was only human and therefore liable to err, Tubby took the hint and stopped.

(Continued on page 675)

ÆPYORNIS ISLAND

By H. G. Wells

Author of "The Time Machine," "The War of the Worlds," etc.



It was like a cart-horse. I got up, and seeing he hadn't finished, I started off full tilt with my arms doubled up over my face. But he ran on those gawky legs of his faster than a racehorse, and kept landing out at me with sledgehammer kicks, and bringing his pickaxe down on the back of my head. I made for the lagoon, though I'll admit I felt small to see this blessed fossil lording it there. And my head and face were all bleeding, and—well, my body just one jelly of bruises.



HE man with the scarred face leant over the table and looked at my bundle.

"Orchids?" he asked.

"A few," I said.

"Cypripediums," he said.

"Chiefly," said I.

"Anything new? I thought not. I did these islands twenty-five—twenty-seven years ago. If you find anything new here—well, it's brand-new. I didn't leave much."

"I'm not a collector," said I.

"I was young then," he went on. "Lord! how I used to fly round." He seemed to take my measure. "I was in the East Indies two years, and in Brazil seven. Then I went to Madagascar."

"I know a few explorers by name," I said, anticipating a yarn. "Whom did you collect for?"

"Dawson's. I wonder if you've heard the name of Butcher ever?"

"Butcher—Butcher?" The name seemed vaguely present in my memory; then I recalled *Butcher v. Dawson*. "Why!" said I, "you are the man who sued them for four years' salary—got cast away on a desert island. . . ."

"Your servant," said the man with the scar, bowing. "Funny case, wasn't it? Here was me, making a little fortune on that island, doing nothing for it neither, and them quite unable to give me notice. It often used to amuse me thinking over it while I was there. I did calculations of it—big—all over the blessed atoll in ornamental figuring."

"How did it happen?" said I. "I don't rightly remember the case."

"Well. . . . You've heard of the Æpyornis?"

"Rather. Andrews was telling me of a new species he was working on only a month or so ago. Just before I sailed. They've got a thigh bone, it seems, nearly a yard long. Monster, the thing must have been!"

"I believe you," said the man with the scar. "It was a monster. Sindbad's roc was just a legend of 'em. But when did they find these bones?"

"Three or four years ago—'91, I fancy. Why?"

"Why? Because I found 'em—Lord!—it's nearly twenty years ago. If Dawson's hadn't been silly about that salary they might have made a perfect ring in 'em. . . . I couldn't help the infernal boat going adrift."

He paused. "I suppose it's the same place. A kind of swamp about ninety miles north of Antananarivo. Do you happen to know? You have to go to it along the coast by boats.

You don't happen to remember, perhaps?"

"I don't. I fancy Andrews said something about a swamp."

"It must be the same. It's on the east coast. And somehow there's something in the water that keeps things from decaying. Like creosote it smells. It reminds me of Trinidad. Did they get any more eggs? Some of the eggs I found were a foot-and-a-half long. The swamp goes circling round, you know, and cuts off this bit. It's mostly salt, too. Well. . . . What a time I had of it! I found the things quite by accident. We went for eggs, me and

two native chaps, in one of those rum canoes all tied together, and found the bones at the same time. We had a tent and provisions for four days, and we pitched on one of the firmer places. To think of it brings that odd tarry smell back even now. It's funny work. You go probing into the mud with iron rods, you know. Usually the egg gets smashed. I wonder how long it is since these Æpyornises really lived. The missionaries say the natives have legends about when they were alive, but I never heard any such stories myself.¹ But certainly those eggs we got were as fresh as if they had been new laid. Fresh! Carrying them down to the boat one of my nigger chaps dropped one on a rock and it smashed. How I lammed into the beggar! But sweet it was, as if it was new laid, not even smelly, and its mother dead these four hundred years, perhaps. Said a centipede had bit him. However, I'm getting off the straight with the story. It had taken us all day to dig into the slush and get these eggs out unbroken, and we were all covered with beastly black mud, and naturally I was cross. So far as I knew they were the only eggs that have ever been got out not even cracked. I went afterwards to see the ones they have at the Natural History Museum in London; all of them were cracked and just stuck together like a mosaic, and bits missing. Mine were perfect, and I meant to blow them when I got back. Naturally I was annoyed at the silly duffer dropping three hours' work just on account of a centipede. I hit him about rather."

THE man with the scar took out a clay pipe. I placed my pouch before him. He filled up absent-mindedly.

"How about the others? Did you get those home? I don't remember—"

"That's the queer part of the story. I had three others. Perfectly fresh eggs. Well, we put 'em in the boat, and then I went up to the tent to make some coffee, leaving my two heathens down by the beach—the one fooling about with his sting and the other helping him. It never occurred to me that the beggars would take advantage of the peculiar position I was in to pick a quarrel. But I suppose the centipede poison and the kicking I had given him had upset the one—he was always a cantankerous sort—and he persuaded the other.

"I remember I was sitting and smoking and boiling up the water over a spirit-lamp business I used to take on these expeditions. Incidentally I was admiring the swamp under the sunset. All black and blood-red it was, in streaks—a beautiful sight. And up beyond the land rose gray and hazy to the hills, and the sky behind them red, like a furnace mouth. And fifty yards behind the back of me were these blessed heathen—quite regardless of the tranquil air of things—plotting to cut off with the boat and leave me all alone with three days' provisions and a canvas tent, and nothing to drink whatsoever beyond a little

¹ No European is known to have seen a live Æpyornis, with the doubtful exception of MacAndrew, who visited Madagascar in 1745—H. G. W.

THE admirers of H. G. Wells will be particularly pleased with this story, because it is one of the very few from his pen written in a somewhat lighter vein, and yet it is a true scientific story, with an excellent scientific background. The Æpyornis bird, extinct now, is well known to science, having roamed on Madagascar ages ago. We know you will enjoy this altogether charming tale.

keg of water. I heard a kind of yelp behind me, and there they were in this canoe affair—it wasn't properly a boat—and, perhaps, twenty yards from land. I realized what was up in a moment. My gun was in the tent, and, besides, I had no bullets—only duck shot. They knew that. But I had a little revolver in my pocket, and I pulled that out as I ran down to the beach.

"Come back!" says I, flourishing it.

"They jabbered something at me, and the man that broke the egg jeered. I aimed at the other—because he was unwounded and had the paddle, and I missed. They laughed. However, I wasn't beat. I knew I had to keep cool, and I tried him again and made him jump with the whang of it. He didn't laugh that time. The third time I got his head, and over he went, and the paddle with him. It was a precious lucky shot for a revolver. I reckon it was fifty yards. He went right under. I don't know if he was shot, or simply stunned and drowned. Then I began to shout to the other chap to come back, but he huddled up in the canoe and refused to answer. So I fired out my revolver at him and never got near him.

"I felt a precious fool, I can tell you. There I was on this rotten, black beach, flat swamp all about me, and the flat sea, cold after the sunset, and just this black canoe drifting steadily out to sea. I tell you I damned Dawson's and Jamrach's and Museums and all the rest of it just to rights. I hawled to this nigger to come back, until my voice went up into a scream.

"There was nothing for it but to swim after him and take my luck with the sharks. So I opened my clasp-knife and put it in my mouth, and took off my clothes and waded in. As soon as I was in the water I lost sight of the canoe, but I aimed, as I judged, to head it off. I hoped the man in it was too bad to navigate it, and that it would keep on drifting in the same direction. Presently it came up over the horizon again to the south-westward about. The after-glow of sunset was well over now and the dim of night creeping up. The stars were coming through the blue. I swum like a champion, though my legs and arms were soon aching.

"However, I came up to him by the time the stars were fairly out. As it got darker I began to see all manner of glowing things in the water—phosphorescence, you know. At times it made me giddy. I hardly knew which was stars and which was phosphorescence, and whether I was swimming on my head or my heels. The canoe was as black as sin, and the ripple under the bows like liquid fire. I was naturally chary of clambering up into it. I was anxious to see what he was up to first. He seemed to be lying cuddled up in a lump in the bows, and the stern was all out of water. The thing kept turning round slowly as it drifted—kind of waltzing, don't you know. I went to the stern and pulled it down, expecting him to wake up. Then I began to clamber in with my knife in my hand, and ready for a rush. But he never stirred. So there I sat in the stern of the little canoe, drifting away over the calm phosphorescent sea, and with all the host of the stars above me, waiting for something to happen.

"After a long time I called him by name, but he never answered. I was too tired to take any risks by going along to him. So we sat there. I fancy I dozed once or twice. When the dawn came I saw he was as dead as a doornail and all puffed up and

purple. My three eggs and the bones were lying in the middle of the canoe, and the keg of water and some coffee and biscuits wrapped in a Cape *Argus* by his feet, and a tin of methylated spirit underneath him. There was no paddle, nor, in fact, anything except the spirit-tin that one could use as one, so I settled to drift until I was picked up. I held an inquest on him, brought in a verdict against some snake, scorpion, or centipede unknown, and sent him overboard.

"After that I had a drink of water and a few biscuits, and took a look round. I suppose a man low down as I was don't see very far; leastways, Madagascar was clean out of sight, and no trace of land at all. I saw a sail going south-westward—looked like a schooner but her hull never came up. Presently the sun got high in the sky and began to beat down upon me. Lord! it pretty near made my brains boil. I tried dipping my head in the sea, but after a while my eye fell on the Cape *Argus*, and I lay down flat in the canoe and spread this over me. Wonderful things these newspapers! I never read one through thoroughly before, but it's odd what you get up to when you're alone, as I was. I suppose I read that blessed old Cape *Argus* twenty times. The pitch in the canoe simply reeked with the heat and rose up into big blisters.

"I DRIFTED ten days," said the man with the scar. "It's a little thing in the telling, isn't it? Every day was like the last. Except in the morning and the evening I never kept a look-out even—the blaze was so infernal. I didn't see a sail after the first three days, and those I saw took no notice of me. About the sixth night a ship went by scarcely half a mile away from me, with all its lights ablaze and its ports open, looking like a big firefly. There was music aboard. I stood up and shouted and screamed at it. The second day I broached one of the *Æpyornis* eggs, scraped the shell away at the end bit by bit, and tried it, and I was glad to find it was good enough to eat. A bit flavoury—not bad, I mean—but with something of the taste of a duck's egg. There was a kind of circular patch about six inches across, on one side of the yoke, and with streaks of blood and a white mark like a ladder in it that I thought queer, but I did not understand what this meant at the time, and I wasn't inclined to be particular. The egg lasted me three days, with biscuits and a drink of water. I chewed coffee berries too—invigorating stuff. The second egg I opened about the eighth day, and it scared me."

The man with the scar paused. "Yes," he said, "developing."

"I dare say you find it hard to believe. I did, with the thing before me. There the egg had been, sunk in that cold black mud, perhaps three hundred years. But there was no mistaking it. There was the—what is it?—embryo, with its big head and curved back, and its heart beating under its throat, and the yolk shrivelled up and great membranes spreading inside of the shell and all over the yolk. Here I was hatching out the eggs of the biggest of all extinct birds, in a little canoe in the midst of the Indian Ocean. If old Dawson had known that! It was worth four years' salary. What do you think?"

"However, I had to eat that precious thing up, every bit of it, before I sighted the reef, and some

of the mouthfuls were beastly unpleasant. I left the third one alone. I held it up to the light, but the shell was too thick for me to get any notion of what might be happening inside; and though I fancied I heard blood pulsing, it might have been the rustle in my own ears like what you listen to in a seashell.

"Then came the atoll. Came out of the sunrise, as it were, suddenly, close up to me. I drifted straight towards it until I was about half a mile from shore, not more, and then the current took a turn, and I had to paddle as hard as I could with my hands and bits of the Æpyornis shell to make the place. However, I got there. It was just a common atoll about four miles round, with a few trees growing and a spring in one place, and the lagoon full of parrot-fish. I took the egg ashore and put it in a good place, well above the tide lines and in the sun, to give it all the chance I could, and pulled the canoe up safe, and loafed about prospecting. It's rum how dull an atoll is. As soon as I had found a spring all the interest seemed to vanish. When I was a kid I thought nothing could be finer or more adventurous than the Robinson Crusoe business, but that place was as monotonous as a book of sermons. I went round finding eatable things and generally thinking; but I tell you I was bored to death before the first day was out. It shows my luck—the very day I landed the weather changed. A thunderstorm went by to the north and flicked its wing over the island, and in the night there came a drencher and a howling wind slap over us. It would not have taken much, you know, to upset that canoe.

"I was sleeping under the canoe, and the egg was luckily among the sand higher up the beach, and the first thing I remember was a sound like a hundred pebbles hitting the boat at once, and a rush of water over my body. I'd been dreaming of Antananarivo, and I sat up and hollœd to Intoshi to ask her what the devil was up,

and clawed out at the chair where the matches used to be. Then I remembered where I was. There were phosphorescent waves rolling up as if they meant to eat me, and all the rest of the night as black as pitch. The air was simply yelling. The clouds seemed down on your head almost, and the rain fell as if heaven was sinking and they were baling out the waters above the firmament. One great roller came writhing at me, like a fiery serpent, and I bolted. Then I thought of the canoe and ran down to it as the water went hissing back again; but the thing had gone. I wondered about the egg then, and felt my way to it. It was all right and well out of reach of the maddest waves, so I sat down beside it and cuddled it for company. Lord! what a night that was!

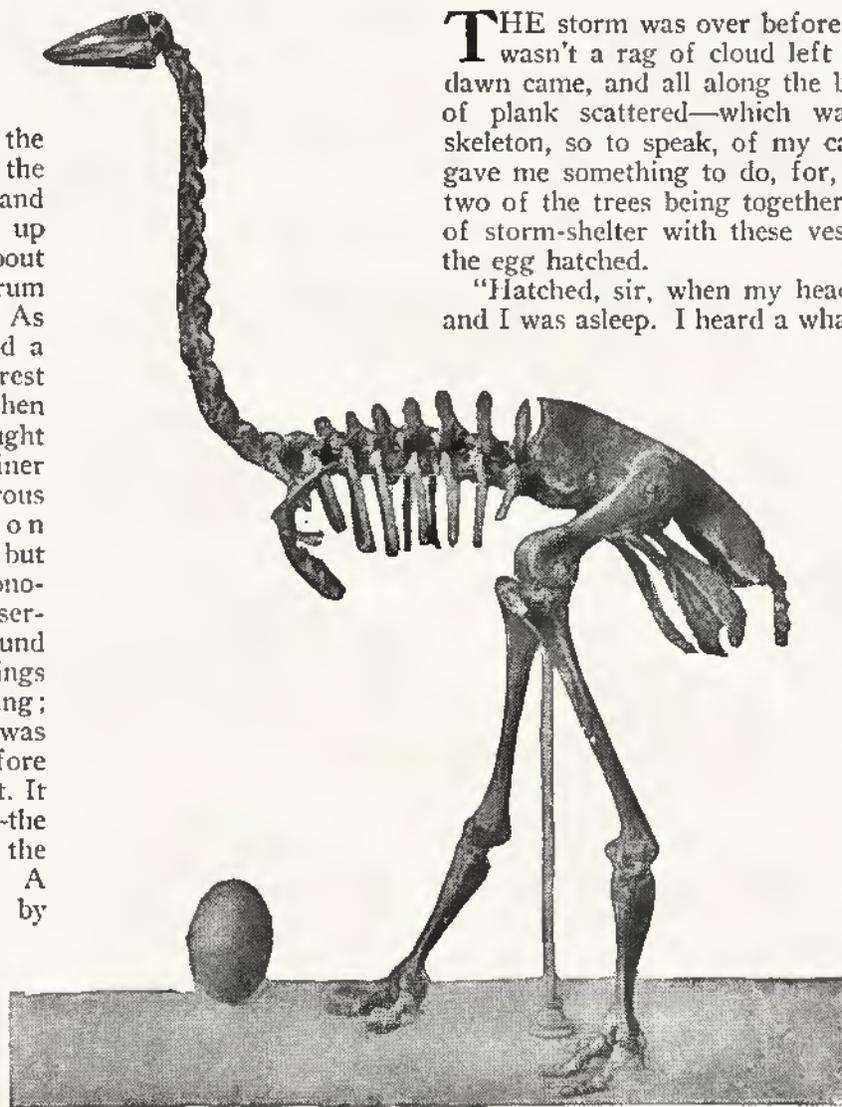
THE storm was over before the morning. There wasn't a rag of cloud left in the sky when the dawn came, and all along the beach there were bits of plank scattered—which was the disarticulated skeleton, so to speak, of my canoe. However, that gave me something to do, for, taking advantage of two of the trees being together, I rigged up a kind of storm-shelter with these vestiges. And that day the egg hatched.

"Hatched, sir, when my head was pillowed on it and I was asleep. I heard a whack and felt a jar and

sat up, and there was the end of the egg pecked out and a rum little brown head looking out at me, 'Lord!' I said, 'you're welcome'; and with a little difficulty he came out.

"He was a nice friendly little chap at first, about the size of a small hen—very much like most other young birds, only bigger. His plumage was a dirty brown to begin with, with a sort of gray scab that fell off it very soon, and scarcely feathers—a kind of downy hair. I can hardly express how pleased I was to see him. I tell you, Robinson Crusoe don't make near enough of his loneliness. But here was interesting company. He looked at me and winked his eye

from the front backwards, like a hen, and gave a chirp and began to peck about at once, as though being hatched three hundred years too late was just nothing. 'Glad to see you, Man Friday!' says I, for I had naturally settled he was to be called Man Fri-



Fossil remains of the giant bird, The Æpyornis, have been found in the island of Madagascar, which has also yielded a number of the eggs. The bird is designated as a "runner"; there is no idea that it could fly. From the ground to its head, it stands exactly $1\frac{1}{2}$ times the height of the ostrich. Curiously enough, no remains have been found anywhere, except on this island, or almost continent. They are of comparatively recent times, so it is highly probable that the living birds have been seen by man, as will be learned from Mr. Wells' footnote. So many of the bones have been found, that elaborate measurements have been possible. The height of the Æpyornis maximus, which has been reconstructed and set up in the museum of Paris, and which is shown above, is 2,680 meters, or a shade over 10 ft. 6 in. The curious thing is, that on the bones, there are found the marks of what are supposed to be crocodiles' teeth, of cutting instruments and of fire, the last two indicating the agency of man. Their eggs were sometimes over thirteen inches long, being the largest eggs known.

day, if ever he was hatched, as soon as ever I found the egg in the canoe had developed. I was a bit anxious about his feed, so I gave him a lump of raw parrot-fish at once. He took it, and opened his beak for more. I was glad of that for, under the circumstances, if he'd been at all fanciful, I should have had to eat him after all.

"You'd be surprised what an interesting bird that *Æpyornis* chick was. He followed me about from the very beginning. He used to stand by me and watch while I fished in the lagoon, and go shares in anything I caught. And he was sensible, too. There were nasty green warty things, like pickled gherkins, used to lie about on the beach, and he tried one of these and it upset him. He never even looked at any of them again.

"And he grew. You could almost see him grow. And as I was never much of a society man, his quiet, friendly ways suited me to a T. For nearly two years we were as happy as we could be on that island. I had no business worries, for I knew my salary was mounting up at Dawsons'. We would see a sail now and then, but nothing ever came near us. I amused myself, too, by decorating the island with designs worked in sea-urchins and fancy shells of various kinds. I put *ÆPYORNIS ISLAND* all round the place very nearly, in big letters, like what you see done with colored stones at railway stations in the old country, and mathematical calculations and drawings of various sorts. And I used to lie watching the blessed bird stalking round and growing, growing; and think how I could make a living out of him by showing him about if I ever got taken off. After his first moult he began to get handsome, with a crest and a blue wattle, and a lot of green feathers at the behind of him. And then I used to puzzle whether Dawsons' had any right to claim him or not. Stormy weather and in the rainy season we lay snug under the shelter I had made out of the old canoe, and I used to tell him lies about my friends at home. And after a storm we would go round the island together to see if there was any drift. It was a kind of idyll, you might say. If only I had had some tobacco it would have been simply just like heaven.

"It was about the end of the second year our little paradise went wrong. Friday was then about fourteen feet high to the bill of him, with a big, broad head like the end of a pickaxe, and two huge brown eyes with yellow rims, set together like a man's—not out of sight of each other like a hen's. His plumage was fine—none of the half-mourning style of your ostrich—more like a cassowary as far as colour and texture go. And then it was he began to cock his comb at me and give himself airs, and show signs of a nasty temper. . . .

"**A**T LAST came a time when my fishing had been rather unlucky, and he began to hang about me in a queer, meditative way. I thought he might have been eating sea-cucumbers or something, but it was really just discontent on his part. I was hungry too, and when at last I landed a fish I wanted it for myself. Tempers were short that morning on both sides. He pecked at it and grabbed it, and I gave him a whack on the head to make him leave go. And at that he went for me. Lord! . . .

"He gave me this in the face." The man indicated his scar. "Then he kicked me. It was like a cart-horse. I got up, and seeing he hadn't finished, I

started off full tilt with my arms doubled up over my face. But he ran on those gawky legs of his faster than a racehorse, and kept landing out at me with sledgehammer kicks, and bringing his pickaxe down on the back of my head. I made for the lagoon, and went in up to my neck. He stopped at the water, for he hated getting his feet wet, and began to make a shindy, something like a peacock's, only hoarser. He started strutting up and down the beach. I'll admit I felt small to see this blessed fossil lording it there. And my head and face were all bleeding, and—well, my body just one jelly of bruises.

"I decided to swim across the lagoon and leave him alone for a bit, until the affair blew over. I shinned up the tallest palm-tree, and sat there thinking of it all. I don't suppose I ever felt so hurt by anything before or since. It was the brutal ingratitude of the creature. I'd been more than a brother to him. I'd hatched him, educated him. A great gawky, out-of-date bird! And me a human being—heir of the ages and all that.

"I thought after a time he'd begin to see things in that light himself, and feel a little sorry for his behavior. I thought if I was to catch some nice little bits of fish, perhaps, and go to him presently in a casual kind of way, and offer them to him, he might do the sensible thing. It took me some time to learn how unforgiving and cantankerous an extinct bird can be. Malice!

"I won't tell you all the little devices I tried to get that bird round again. I simply can't. It makes my cheek burn with shame even now to think of the snubs and buffets I had from this infernal curiosity. I tried violence. I chucked lumps of coral at him from a safe distance, but he only swallowed them. I shied my open knife at him and almost lost it, though it was too big for him to swallow. I tried starving him out and struck fishing, but he took to picking along the beach at low water after worms, and rubbed along on that. Half my time I spent up to my neck in the lagoon, and the rest up the palm-trees. One of them was scarcely high enough, and when he caught me up it he had a regular Bank Holiday with the calves of my legs. It got unbearable. I don't know if you have ever tried sleeping up a palm tree. It gave me the most horrible nightmares. Think of the shame of it, too! Here was this extinct animal mooning about my island like a sulky duke, and me not allowed to rest the sole of my foot on the place. I used to cry with weariness and vexation. I told him straight that I didn't mean to be chased about a desert island by any damned anachronisms. I told him to go and peck a navigator of his own age. But he only snapped his beak at me. Great ugly bird, all legs and neck!

"I shouldn't like to say how long that went on altogether. I'd have killed him sooner if I'd known how. However, I hit on a way of settling him at last. It is a South American dodge. I joined all my fishing lines together with stems of seaweed and things, and made a stoutish string, perhaps twelve yards in length or more and I fastened two lumps of coral rocks to the end of this. It took me some time to do, because every now and then I had to go into the lagoon or up a tree as the fancy took me. This I whirled rapidly round my head, and then let it go at him. The first time I missed, but the next time the string caught his legs beautifully, and wrapped round them again and again. Over he went. I threw it

standing waist-deep in the lagoon, and as soon as he went down I was out of the water and sawing at his neck with my knife. . . .

"I don't like to think of that even now. I felt like a murderer while I did it, though my anger was hot against him. When I stood over him and saw him bleeding on the white sand, and his beautiful great legs and neck writhing in his last agony . . . Pah!

"With that tragedy loneliness came upon me like a curse. Good Lord! you can't imagine how I missed that bird. I sat by his corpse and sorrowed over him, and shivered as I looked round the desolate, silent reef. I thought of what a jolly little bird he had been when he was hatched, and of a thousand pleasant tricks he had played before he went wrong. I thought if I'd only wounded him I might have nursed him round into a better understanding. If I'd had any means of digging into the coral rock I'd have buried him. I felt exactly as if he was human. As it was, I couldn't think of eating him, so I put him in the lagoon, and the little fishes picked him clean. I didn't even save the feathers. Then one day a chap cruising about in a yacht had a fancy to see if my atoll still existed.

"He didn't come a moment too soon, for I was

about sick enough of the desolation of it, and only hesitating whether I should walk out into the sea and finish up the business that way, or fall back on the green things. . . .

"I sold the bones to a man named Winslow—a dealer near the British Museum, and he says he sold them to old Havers. It seems Havers didn't understand they were extra large, and it was only after his death they attracted attention. They called 'em *Æpyornis*—what was it?"

"*Æpyornis vastus*," said I. "It's funny, the very thing was mentioned to me by a friend of mine. When they found an *Æpyornis*, with a thigh a yard long, they thought they had reached the top of the scale, and called him *Æpyornis maximus*. Then some one turned up another thigh-bone four feet six or more, and that they called *Æpyornis Titan*. Then your *vastus* was found after old Havers died, in his collection, and then a *vastissimus* turned up."

"Winslow was telling me as much," said the man with the scar. "If they get any more *Æpyornises*, he reckons some scientific swell will go and burst a blood-vessel. But it was a queer thing to happen to a man; wasn't it—altogether?"

THE END.

The Metal Emperor

By A. MERRITT

Author of "The Moon Pool," "The Face in the Abyss," etc.

begins in the October issue of *SCIENCE AND INVENTION* Magazine, now on all newsstands. If you were amazed and thrilled by "The Moon Pool," you will find that "The Metal Emperor" far surpasses even the former wonderful story.

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The WINGED DOOM

By Kenneth Gilbert



"G-G-God!" stuttered The Heir in a horrified whisper, his throat working convulsively. But he kept his hands aloft. . . . He saw the gun-carriage mechanism of the death-ray, but he was unfamiliar with its operation. . . . There were, too, other implements which he did not recognize. Particularly was his attention drawn to a row of pear-shaped metal containers stowed in racks along the walls. He shot a thought-question at the nearest officer, compelling answer. What he learned was startling.



INE hundred miles an hour!

A speed almost half that of a rifle bullet, yet the torpedo-shaped plane driving along the upper air-lanes, its fin-wings out-thrust stiffly, was going that fast. As early as the first quarter of the twentieth century, airplanes had attained a speed of three hundred miles an hour with the old-style combustion engines; but now, with electric motors energized by power-transmitting radio stations, there seemed scarcely any limit to the rate at which planes could be shot through space.

Up there in the thin, rarefied atmosphere, the cold had almost a brittle, snapping quality, yet the man who sat in the control-cabin of the plane knew a sense of comfort and well-being. Air struck the curved nose of the machine and swept along the narrowing body with but little resistance, yet at such tremendous speed, this slight resistance created heat which was felt within the cabin. It was a ghostly flight and a silent one, except for the nearly inaudible humming of the powerful motors within the plane's nose. The whole of the night void, for that matter, seemed faintly beaded with this same high-pitched humming, as though the heavens were alive with a mighty swarm of bees. Now and then the twilight seemed to deepen at a focal point ahead, and a keen eye could have glimpsed the shadowy outlines of another plane. The fact was that the atmosphere was literally alive with aircraft, all darkened, and scarcely to be seen as they fled across the star-pricked sky.

The significant thing of their flight was that they were bound in one direction—East! It was the Hour of the Air, and America, after helping maintain world peace until late in the twenty-first century, had sprung aloft to resist aerial invasion from across the Atlantic, an attack that was being made without warning.

And he who was called The Kingbird, erstwhile buccaneer of the air-lanes—cleverest, most daring and most resourceful of all the free-booting falcons—had cast his lot on the side of law for once, and of his country, that the hostile death-cloud rolling up from overseas might be broken. Swifter even than the police-planes, those gray arbiters of the air, his small, clean-lined ship was shaming likewise the military craft, with their whizzing, bullet-like flight; and as for the luxurious private machines and passenger-carriers, both of which classes had been commandeered, their winging progress seemed heavy-bodied and sluggish.

As The Kingbird sat at the levers, his rather thin and colorless face more pallid than ever in the guarded light from the gyro-control which, once set, held the plane automatically to its course, he reflected that this might well be the last gamble of the many he had taken with death. Perhaps this was a good way to die. He smiled grimly at the thought that if die he did, he would have at least

once more outwitted old McLaughlin, head of the aerial police. There had to be an end to their feud some day; and this was as good a way as any.

Within the hour he had made a laughing-stock of the flying police. Almost under their eyes he had cast his net for spoils, and the haul had astonished even him. In his hands had been a military secret beyond price—no less than the formula for *coridium*, that new combination of metallic elements which had the amazing power of levitation, or nullification of gravity. Possessed of such a secret, one nation might easily dominate the world. *Coridium* would scrap every radio-driven aircraft; it could be made to wreck cities, destroy populations. A fragment of it placed beneath the greatest skyscraper, or even a mountain if that could be accomplished, would send the huge mass skyward with all the force of the revolving planet behind it. Gravity having been overcome, earth-dwellers next would be voyaging to other planets if the terrific power of *coridium* could be controlled.

The formula and the lone placque of *coridium* in existence—the placque a grayish substance sandwiched between two layers of insulating metal, which kept it subdued and intact—were the cause of this present attack by an ambitious and warlike overseas power. American chemists had compounded *coridium*, and under the international pact signed in 1987, America was obliged to share her secret with the world, that the balance of military power might be maintained and peace preserved.

And this was what America was planning to do when the placque of *coridium* and the more precious formula had been stolen by a secret agent of the predatory foreign power. To possess itself of the discovery before other nations could learn the secret, and at the same time deliver a stunning blow at

America, largest and richest nation on earth—and the most powerful potential enemy, therefore—this was the coup decided upon by the hostile power. Upon word being received that the agent had the precious secret, and was on his way home with it by airplane, the hostile warbirds of the overseas power had taken to the air, and headed for the American shore.

It was sheer chance that The Kingbird should hold

up the agent's plane, and seize the *coridium* and formula. Thereupon, the buccaneer underwent a change. The secret agent and the latter's plane were sent crashing to destruction. But instead of The Kingbird keeping the priceless booty, he swung low over McLaughlin's headquarters, and dropped it, with a curt note of defiance. Thereafter, he shaped his course to meet the enemy winging across the Atlantic.

Freebooter of the skies though he was, The Kingbird yet had a peculiar loyalty to the country which had outlawed him. His life, held cheaply enough, and the marvelously-swift machine he possessed, were in that instant dedicated to the cause of his clan.

IF any one had predicted in 1913 the surprises that the World War was to bring, he would no doubt have been laughed at. What with gas attacks, airplanes figuring for the first time in any war, cannons that bombarded Paris from a distance of 140 kilometers, tanks, submarines, and whatnot—we remember how astonishing it all was to us. But what of the next war? What surprises, what engines of destruction, and what other death-dealing instrumentalities will be used? Our new author gives us an excellent account of an invasion in the near future, and we do not believe that he has painted a too-fantastic picture. Rather, we believe that he has been moderate and that the next war, when it does come, as it surely will, sooner or later, will far outdo the imagination of this author.

YET his plane was unfitted for service as a war-craft; he possessed no weapon save a flash-pistol, which had the power to blind, harmlessly and but temporarily, any human being at which it was aimed. The enemy, he surmised, was coming equipped with all the death-dealing devices which a super-civilization had evolved since the World War early in the twentieth century. The army planes of the American flight would doubtless give a good account of themselves, but he and his tiny machine could scarcely hope to be more than sacrificed.

He realized now that he had outdistanced the American flight, and was now between the two opposing forces, virtually in No Man's Sky. Thereupon, he stilled the whirling propellers, and reversed them, braking his machine to a stop. At the same instant, the helicopters on the wings took up the task of keeping the machine aloft.

Like the dauntless little feathered flyer for which he was named, The Kingbird and his machine hung motionless in the air—perhaps fourteen thousand feet above the sea. This was his famous poise, which he used while watching for prey passing along the air-lanes beneath him.

Save for the quiet purr of the motors operating the helicopters, the night void now was a place of vast silence. In the gloom ahead nothing could be seen, nor in the rear; the advance guard of the American flight apparently having stopped at the coast-line to await the enemy.

He twisted a small brass knob on the instrument-board, and instantly, on the opaque glass screen of the television box before him, a panorama of the heavens in a wide arc was revealed. The tele-vision, a device of harmonized radio and light-waves, had the faculty of seeming to sift darkness from daylight; it intensified the weak vibrations of light-waves, making it possible to see in the dark. And what The Kingbird did see, galvanized him into action!

Across the sky ahead, like the wide-spread wings of some gigantic bird, were moving, nebulous shapes. The enemy! The watchful outposts on America's eastern shore, by means of long-distance tele-vision, had been right, then, when they suspected that the cloud of planes, rising like the first smoke of a threatened world conflagration over Europe, had a sinister portent.

The Kingbird's hands moved swiftly here and there among the controls, and he shot earthward, for the penalty of his peek by tele-vision was that it revealed him at the instant it had revealed the enemy. As he went into a steep volplane, gliding only on the resistance of air against the fin-wings, a beam of light stabbed the spot in the heavens where he had been but a moment before.

The beam swung back and forth, as though searching for him; and to his ears came a slight, hissing sound, as might be made by the swishing of a whip. Pale blue was that light-beam, with a faint yellowish tinge, like harmless, diffused moonlight; yet The Kingbird knew it for the terrible death-ray, which withered life and substance as though at the touch of a white-hot flame.

Though his eyes widened a little at thought of what would have happened to him if he had remained poised up there a few seconds longer, nevertheless rage burned in him at this exhibition of ruthlessness

by the enemy. The death-ray had long been banned by international agreement as being too barbarous; yet the enemy was using it. No doubt the hostile planes were equipped with other deadly devices more horrible than this. His plane dropped more swiftly.

Yet in that rapid descent there came to him the glimmering of a plan. The foe had seen him, yet it was doubtful if they would pause to destroy him; they were passing on to engage the American planes waiting above the sea-coast. He would strike first; one glorious blow, and then he would have joined the list of historic martyrs, which have marked each successive generation since the dawn of mankind.

Therefore he checked abruptly his earthward drop, and planed ahead on an even keel, the flight-motors whining in a high, unaccustomed key. If luck was with him, he had already passed out of the arc of television by the enemy. A half-minute later he knew that his guess was correct.

High over him in the heavens, somberly driving toward the American shore, passed the dark fleet. There were many thousands of planes, for the blended drone of their motors came down to him like the persistent diapason of a mighty pipe-organ. He dared not use his television again, for it might betray him to a scout plane winging along at a lower altitude. Yet the enemy planes were not traveling fast; rather they seemed to keep their formation in grenadier-fashion, until they met the shock-planes which the Americans had thrown out ahead of the main wall of the defense.

The Kingbird was going to the rear of the enemy, yet now he went into a breath-taking turn, doubling back in a magnificent loop that left him flying upside down, until he righted again, and began to climb. Unknown to the foe which was now ahead, he had become a pursuer; a swallow chasing a vast flock of eagles. Up and still up he went, until he reached the chill level along which the enemy moved.

Then he straightened again, and shot ahead. Gradually, the swelling volume of sound from the enemy motors began to din painfully upon his ear-drums, and he knew that he was overhauling the grim flight. Far below him, the Atlantic tossed uneasily; but he had no thought of it. At last, on the chance that the enemy would be looking ahead and not behind, he flashed on his television for a brief glimpse. What he saw, before he allowed darkness to envelop him protectingly once more, was what seemed to be the beaded girdle of a giant—a shape which appeared to stretch from horizon to horizon—being flung shoreward upon a well-massed but comparatively small phalanx of American machines. He readjusted his controls, and his motors whined with a new note, while the shell-like body of his machine became astonishingly hot under the increased pressure of the air through which it cleaved.

Seconds clicked by, with The Kingbird praying that the foe would not look back and observe him. Closer and closer he came, without slackening speed. Then he saw something which crystallized decision.

It was an unusually large and broad-winged plane well to the rear of the flight. If size counted for anything, surely this was an important machine, kept well back of the line to avoid that first shock of onslaught. For another instant he dared snap on his television, and he observed that the great machine

ahead rolled slightly as it struck an air-bump too pronounced for its gyroscopic compensators. Likewise the television revealed in that momentary roll, that the enemy monster was painted a grayish blue on its belly, as a camouflage color to blend with the neutral hue of the heavens, while its upper side was mottled with vivid designs which would make it practically invisible to any machine flying above it.

Darkness came as he snapped off the television, but now the swiftly-moving bulk ahead was visible to the unaided eye. Closer and closer his little machine swept. Now he was directly above the foe, and he slowed his speed to correspond with that of the other.

Then, gently, his lighter craft began settling. Without shock or jar it touched the sheathed upper-deck of the big plane. A faint sigh of escaping air as rubber vacuum-cups fitted to the under side of The Kingbird's plane, took hold of the bigger machine, which continued to drive on through space, all unconscious of the fact that the small adversary, like some parasitical insect, was riding with it. The motors of The Kingbird's plane continued to revolve, for he did not wish to betray himself just yet by disturbing the equilibrium of the machine below.

Out of the control-cabin he climbed, and dropped easily over the gunwale to the roof of the strange craft. He moved silently, though with precision, for now and then as he exposed himself to the rushing air, it seemed that a fierce gale tore at him, sought to wrench him loose. But in a moment he was sheltered in the lee of a cabin on the enemy machine, and his fingers groped for the knob of a door just before him.

WHAT lay on the other side of the door permitted the wildest guess he could make. Men were there, ready to slay him the instant he showed himself, perhaps; yet he dared not falter.

As he turned the knob gently and felt the lock disengage, he drew from beneath his coat the flash-pistol, with its long, oversized barrel. This was the relatively harmless weapon he always carried on his aerial forays. The Kingbird was no killer; all he desired was to insure his own safety through intimidation of his victim. Slowly he opened the door an inch; then suddenly threw back the panel. And had he conjured himself out of thin air in the center of the cabin, his appearance could have been no more startling.

There were a dozen men in the compartment; officers in all the gorgeousness of gold-braid and showy epaulets, and they were seated about a carved table secured to the deck. Or rather, they had been, for now they were on their feet, staring at him in open-mouthed amazement. Elderly men for the most part, yet with here and there an evident young fop. The cabin was perhaps thirty feet long and twenty feet wide, and at the far end of it a pilot sat at the controls, a watch-officer beside him. Ranged along its walls were mechanical devices which The Kingbird could not at that moment classify, but which suggested, in their business-like array, that this was a war-craft.

Yet it was not these which claimed The Kingbird's attention. At the moment of his entrance, the group at the table had been facing one who sat apart from them; a youngish man, slender and dark, and more brilliantly-attired than the others. Young

he was, though at first glance he seemed middle-aged; his hair was wispy and thin on top, and his rather staring eyes were marked with dark pouches which told of long dissipation. He had been speaking when The Kingbird entered; a jest, perhaps, for his mouth was now frozen in a grimace that suggested humor. But now he was on his feet with the rest of them, his full lips and weak chin trembling.

As for The Kingbird, he suddenly felt faint as the astounding audacity of the thing he had done smote him. *He had captured the plane of The Heir—the Crown Prince!*

Of all that vast and sinister fleet bound on its mission of destruction, fortune had decreed that he should board the one most precious craft of all, the plane carrying the son of The Autocrat, that stern and war-like old ruler whose grandest gesture of defiance at peace-loving humanity was this flight of death-laden craft!

MORE than that. Here, too, was the brains of the flotilla. This weakling was in full command, although no more than the puppet of the wise old councillors who surrounded him. A heaven-sent opportunity for any martyr! In one instant, The Kingbird could strike a blow that would break the spirit of the old conqueror overseas. Without a qualm, The Autocrat might see ten thousand of his subjects perish in his behalf—yet the kingdom itself was not too great a price to pay for the safety of this shivering youth who was his son. World domination would not solace the warlord, if The Heir, pampered wastrel, did not come back alive.

No word was spoken; none was needed, for these high officers were of the intellectual class to which The Kingbird himself belonged, and they scorned speech when thought-transference was so much more rapid in such a critical situation as this. A barrage of hostile, challenging questions was hurled at the interloper who had materialized from nothingness, yet who was clearly master of the scene, as he stood there, flash-pistol in hand. Masking his own thoughts so that they could read no more than he chose to convey, he shot at them one command:

"Hands up!"

The group saw the weapon The Kingbird held, and decided that it was that deadly and contraband side-arm, the ray pistol. The Heir gasped, and impulsively lifted his hands, the others hastily following suit.

For the moment, The Kingbird held trump cards. Yet at any instant, the radiophone might give the alarm to other hostile craft. It was an exigency which he had considered in planning this coup, relying upon the probability that the delicate microphone secured to the roof of the cabin would have been switched off, so that idle conversation—thought-transference being used only when speed was necessary—would not be broadcast through the ether. A moment later The Kingbird knew that his guess had been correct.

For he saw one of the pilot's hands reach for a black knob on the wall—and The Kingbird surmised that it controlled the switch to the radiophone. As the man touched the switch, The Kingbird's flash-pistol swung toward him; there was an intense white flare lasting not more than the thousandth part of a second—and the pilot staggered back, hands clapped to his eyes. One of the group of officers,

furtively reaching with his foot for a push-button beneath the table, gave a muffled cry, and dropped to the floor, as that blinding flare of the flash-pistol came once more.

"G-G-God!" stuttered The Heir in a horrified whisper, his throat working convulsively. But he kept his hands aloft.

Still The Kingbird held trumps. The plane was now pilotless; but its automatic control kept it to its course and speed. Nevertheless, the situation called for swift decision. The Kingbird's eyes roved about the cabin. He saw the gun-carriage mechanism of the death-ray, but he was unfamiliar with its operation. True, he might compel one of the prisoners to turn the ray on the enemy ships, but only a few of the craft could be thus destroyed before the others would discover what was happening, and retaliate. Too clumsy.

There were, too, other implements which he did not recognize. Particularly was his attention drawn to a row of pear-shaped metal containers stowed in racks along the walls. He shot a thought-question at the nearest officer, compelling answer. What he learned was startling.

Atomic bombs? Outlawed by nations as the death-ray had been were these fiendish contrivances, yet apparently the butchers from abroad were overlooking no weapon, however horrible, in their determination to conquer the world. Let but one of the innocent-appearing, fragile things be broken, and the object which it touched would vanish. A tall building struck by one of these bombs would disintegrate into thin air. Held in leash beneath the thin, metallic skins of these little bombs was a combination of mechanical and chemical principles which achieved the goal so earnestly sought by scientists even as far back as the early years of the twentieth century—the destruction of atoms; and in a moment of black anger, The Kingbird knew the impulse to crash one of the bombs to the deck, and wipe out not only himself, but The Heir and the latter's officers. Yet that impulse passed as quickly as it had come. A better plan occurred to him.

He would deliver one stupendous, magnificent stroke at the enemy! He would send this huge plane, laden with atomic bombs, into the midst of the hostile war-craft, to wreak what havoc it could. His mind formed the words of a command, but before he could convey it, a voice spoke hollowly within the cabin:

"Highness!"

The Kingbird jumped involuntarily, as his taut nerves twanged at the unexpectedness of it. The voice seemed to come from the roof of the cabin, where a bell-shaped horn was secured. The pilot had succeeded in connecting the radiophone after all! Someone on another of the enemy ships was calling The Heir.

"Silence!" The Kingbird hurled the telepathic command at the group. The Heir had opened his mouth to reply to the call from the radiophone; but he closed his lips again, resolutely, as the flash-pistol's muzzle was fixed ominously upon him.

"Highness!"

A GAIN came the voice; conciliating, respectful, yet with a rising inflection that indicated mild puzzlement, if not worry. But The Kingbird was

already firing telepathic questions and orders at the group in the cabin.

"You have an air-raft?" he queried them silently. Before going into action, a war-craft usually discarded the double-pontoons of thin, toughened aluminum which, charged with a highly-buoyant gas, were slung on the underside of a craft as large as this. But they had kept their air-raft, it seemed, because The Heir was on board this ship.

"Into it, then!" commanded The Kingbird. The group hesitated, looking for confirmation from their prince. "Quick!" was the telepathic order, as The Kingbird leveled the flash-pistol. The Heir made an inarticulate sound, and the officers sprang to obey. In the hands of this desperate stranger, whose eyes had the chill of ice and whose mental processes leaped ahead of theirs, they had become as children.

One of them lifted a trap-door in the deck, and then all stood back respectfully for The Heir to descend first. As the distraught prince sought to do so, The Kingbird gripped his arm.

"You stay with me!" His words showered the group with a mental barrage. "His life depends upon your quick obedience," The Kingbird told them. He could feel the arm of the royal captive shaking. Still, one of the officers demurred; but it was significant that he did not utter his complaint aloud.

"We are above the sea," said his thoughts. "We shall drown——"

"Highness!"

The voice again! Suspicion, alarm was in it. The Kingbird's features hardened. He faced the hesitant officer.

"You dare not take such a chance?" he began. "Very well, then——" The flash-pistol was turned full on the face of the crown prince.

But the first of the group had dropped through the trap-door, and his action broke the resistance of the others. The Kingbird slammed down the trapdoor, and an instant later the big plane jerked upward slightly; there was a muffled cry which ended abruptly, and The Kingbird knew that he stood alone with his royal captive.

The voice from the radiophone spoke no more, but The Kingbird, peering through an observation-port nearest him, saw that a change was taking place in the enemy fleet—the ships were slowing down, massing to right and left of the royal plane.

With no fear of The Heir, the buccaneer jumped for the controls. The big plane speeded up, overtook the enemy ships, was at the forefront of the immensely long line. And when this happened, he jammed the controls hard over.

Instantly the great machine banked sharply, swung half around and, gathering speed quickly once more, went charging at right angles at the nearest enemy machine. The Heir was pawing at The Kingbird in sudden terror, but the next moment the sky-pirate was driving him aft, and out of the cabin. Up over the gunwale of the small plane they scrambled, and The Kingbird kicked at the lever controlling the vacuum-cups which fastened his craft to the doomed ship below.

A lurch, and the little plane was free. The Kingbird, brain and muscles working at top speed, sent his machine into a volplane. Yet as they went down, with the frantic prisoner literally hanging on for his life, the buccaneer caught a glimpse of a dramatic thing taking place in the air above.

The enemy planes were striving desperately to escape from the terrible fate about to overtake them. There was no time to consider what had happened; it was merely apparent that the plane of The Heir was beyond control and, laden with its atomic bombs, was coming at them like an aroused demon. Like a flock of birds startled by a swooping hawk, they broke formation, darting this way and that.

So skilled were their aviators, that it seemed the purpose would be accomplished; but luck deserted them at the last moment. One side-slipping plane hooked a wing-tip into that of a neighbor; and other machines, driving close behind in the race with death, were forced to change course. Within the space of a second, they became a wildly disordered mass—and the careening plane of The Heir struck full in the center of them. The Kingbird saw an astonishing thing happen.

What seemed like a broken cloud obscured the spot for a moment, and then the air was clear. But where more than two score great enemy ships had been milling an instant before, there was nothing but space. There had been no flash, no sound of an explosion; nothing more than a single vaporous puff, as the atomic bombs, jarred by the collision, had been set off, consuming everything they had touched. The Kingbird shuddered, suddenly sick at the pit of his stomach.

And now consternation ran the length of the mighty rank. Nearer and nearer, the flight was approaching the American defenders; but for the moment the attackers were numbed by the thought that The Heir was gone, and with him a number of the finest war-craft. What would The Autocrat, the royal father, say and do when he learned of it? Not an officer in that vast armada who did not blanch at thought of it.

YET The Heir's death could be avenged! With his own radiophone switched on now, The Kingbird heard commands going from ship to ship, as some ranking officer took charge. Only the sudden confusion of the enemy, and his own swift drop earthward had saved The Kingbird from discovery.

Down the long line of the flight, pale beams, like ghostly fingers, crept forth, groping for victims. He saw one of these death-rays touch an American machine that was well out in front; saw it crumple, and go down, glowing at white heat. It seemed that his hopes went down with it, for surely there could be no withstanding such a terrible force as this.

Now the two forces were fairly engaged. Flickering here and there among the American machines went the hostile death-rays; but so close had the opposing squadrons come together that occasionally the enemy's death-rays caught one of its own craft. But the Americans were not escaping these deadly shafts of light. Now and then the gloom of the heavens would be lightened by the sudden glow of a stricken plane: and the machine, with its crew dead in a heat of more than seven thousand degrees Centigrade, would describe a curve earthward like a gleaming comet.

Yet of a sudden the odds of the battle clearly being carried against the defenders up to this point, swung back. As the American machines closed in, queer things began happening to the enemy. The hostile machines, driving ahead or hanging poised in air,

would abruptly hurtle down, end over end, and then crumple.

The Kingbird thrilled at sight of it. America had given her military secrets to the world as rapidly as her scientists had perfected them, yet she was not utterly destitute of defensive tactics. The Kingbird knew that he was witnessing a demonstration of the new vacuum-grenades, as yet in an experimental stage, and not fully developed to a point where their discovery would be made public. It was known that when shot from magnetic guns at close range, they created a perfect vacuum in a radius of several hundred feet from where they exploded. The sudden change from normal air pressure to a perfect vacuum, and the ensuing concussion when the air-envelope collapsed again, would be fatal to any human being. A plane, relieved suddenly of supporting air-pressure, would drop—to crumple when it again struck the wall of air as though it had smashed on a rock. Heavy detonations that came to The Kingbird's ears, as the air rushed again into the vacuum, told him that his guess was correct.

Yet there could not be many vacuum-grenades on hand; there had not been time to manufacture them in quantities. Already, The Kingbird saw, the fury of the defense was waning; once more the tide of battle was going with the invaders. Yet both sides were losing planes; wrecked machines were fairly raining out of the air, but the Americans were vastly outnumbered.

These things he saw during that fearful plunge toward earth; but now he leveled out, with some three thousand feet still to go, and swung well to one side of the danger zone, which was immediately below where the battle was going on. As he came around in a wide loop, he sensed that the supreme moment of the struggle had come; that in his hands lay the balance of power in this sanguinary conflict, and if he could use it, all debts he might owe his country would be repaid.

He shut off the flight-motors, and with helicopters going, holding the plane poised in air, he turned to the royal captive who, apparently, was near the point of collapse. But the grim intensity of The Kingbird, as he faced the prince, was like a deluge of cold water which shocked the captive back into normality. With a sort of fascinated horror, The Heir stared at the flash-pistol which the buccaneer pointed toward him.

"I give you five seconds to decide," said The Kingbird calmly. "Stop this battle, or——" and he fingered the flash-pistol suggestively. He had fallen back upon actual speech, to make his demand more emphatic, having snapped off the radiophone so that he would not be overheard.

The Heir lifted terror-stricken eyes to his captor. The prince understood what a ray-pistol did, and he believed that it was such a weapon that was now trained upon him. But—stop this battle? When his royal father had planned for years for this very thing? It was too much! He'd die first.

"Then die you shall," said The Kingbird, reading the other's thoughts. "Humanity will be the better for it. And the spawn of your dynasty dies with you." He raised the pistol until the thing pointed directly at the prince's eyes.

"First, I blind you," said The Kingbird, meaning every word of it, "and then we both die. We'll crash with the plane when it goes down, and they'll find

your body on the soil of the country you have sought to destroy. Compose your thoughts now, for they are to be your last!"

HIS own face had become strained, drawn, and he saw a like expression reflected in the face of The Heir. It was a contest between two wills—and one was strong and the other weak. Yet the prince fought against the thing; fought a fear that was seemingly at that moment greater than fear of death—the realization that he would have to face his terrible old father, and confess.

What would The Autocrat say? How would he choose between victory and his son's safety? If The Heir died, the dynasty would end—would The Autocrat choose that rather than forego triumph at this moment? Almost The Heir blubbered as he considered it.

His father loved him! Better than all else in the world. Besides, this war was not of The Heir's choosing; he had opposed it from the start. A flush of indignation swept over him as he reflected that this terrible predicament had been forced on him against his will. If his father had not been so headstrong, this would never have occurred.

Life was sweet—and more precious than a kingdom. And this sky-pirate who confronted him was determined. Ah, yes, The Heir must consider the future of his people; the dynasty must not end. Not though he must pay such a humiliating price as this.

And so resistance went out of him; and The Kingbird, reading his thoughts, snapped on the radio-phone, indicating it with a gesture. Nervously, The Heir faced the transmitter; and The Kingbird could not help smiling grimly as this scion of decadent royalty struck a pompous attitude.

"Marshals, attention!" he cried. "It is I, The Heir!"

Silence in the cabin of the little plane, while to the ears of both men came the intermittent thunders from aloft which told of the awful conflict going on. "Marshals!" cried The Heir louder, and stamped his foot impatiently, "I will have you listen to me. It is I, THE HEIR!"

The rumbling in the heavens lulled a little. The Heir's language was The Kingbird's own; thought-transference had long ago made all tongues one, for the mind speaks in universal terms. Then, suddenly, a voice boomed in the cabin:

"Highness?"

The same heavy intonations The Kingbird had heard before.

"Aye, Herenye!" cried The Heir joyfully. "It is your prince!"

"God!" came back instantly the reply, in awed tones. "Yet we saw your plane go to destruction!"

The Heir smiled in superior fashion, as though he could recount a clever exploit of his own.

"You saw the plane crash, Herenye, but I was not on board. I shall tell you the story later.

"Attention, now! This is very important. It is my wish that you cease fighting. Withdraw!"

"Highness!" Shocked surprise, disbelief were in the voice. The Heir scowled, plainly irritated.

"Dumbhead!" he cried. "You heard my command! I mean it, sir!"

"Highness! We have the enemy beaten! They are still fighting—stubborn dogs, they do not seem to know when they are whipped!—but we are rapidly

wiping them out. The unexpectedness of our attack has caught them napping. And soon we shall rain fire on their cities. I cannot believe that Highness would put aside victory when it is already within our grasp!"

The Heir fairly quivered in his rage and anxiety.

"Stupid sheep! I have told you. Is not that enough, son of a pig?"

"My orders, Marshal Herenye! You shall obey. God, man, I plead with you! It means my life. Cease fighting!" He screamed the last words.

Almost a sob came back from the old air commander.

"It shall be as you say, Highness. You are supreme in command here. But I beg of you to remember, when His Majesty, your august father, holds me to account, that I obeyed promptly, although against my will. It shall be as you say—and, thank God, you are safe!"

Silence again, and The Heir leaned weakly against a stanchion, head bowed. Then, from the receiver, came a peculiar droning sound. It began on a low note, and soared up the scale to a swelling, high-pitched crescendo. To The Kingbird's fanciful mind at that moment, it seemed like the enemy's wail of despair.

"The recall," said The Heir quietly. "You have won, sir!"

IT was chill in the upper air-lanes, and lonely, but The Kingbird was content. As he hung poised up there, he could observe the endless streams of aircraft flowing beneath him—pleasure-craft, freight and passenger-carriers, and occasionally a swift police-plane in somber gray. He remarked to himself that so far he had observed no luxurious and costly air-yacht which promised booty; on such as these he preyed, but the shock of the recent war, even though the latter had lasted but twenty-four hours, probably had yet to wear off before the over-wealthy would resume their normal ways.

Since morning he had been hanging up there in the sky, so high that he could not be observed on earth. Since sending The Heir to earth in a parachute, to be held as hostage until the final details of peace should be worked out, he had resumed his old station; there to remain, even though the radio news-services all day had been crying of his exploit, hailing him as "The Man Who Won the War." The Kingbird heard it with a grim smile, but gave little heed to it. Probably this sudden adulation of him as a hero was no more than a trick of McLaughlin's. The chief of the flying police was doubtless playing a game to get The Kingbird into his hands, to answer for a long list of offenses against society. The aerial news-service had asked that The Kingbird make himself known, to receive the homage of a grateful nation; for The Heir himself had recounted the exploit and described his captor, and old McLaughlin had supplied the identification. Nevertheless, the aerial buccaneer continued to remain shyly aloft.

Now the radio told the latest news. "Full Amnesty Promised." The Kingbird straightened up as he heard it. Even McLaughlin, with all his tricks, could scarcely go behind that offer. "Amnesty!" That meant freedom to go and come as he chose. An end to this ceaseless game of Fox and Hounds. The thought thrilled him.

At the controls once more, he went shooting earth-

ward. It had been years since he had renounced his status in law-abiding society; it would be good to claim it once more, to be what the world called an honest man. To look McLaughlin straight in the eye, and smile. Amnesty! It was worth trying, and he'd claim it.

But at that instant, he spied immediately below him a large and rich-appearing plane, moving leisurely through the air. Its refinements were such that they fairly shouted wealth. Aboard it were pleasure-seekers, doubtless, the nation's wealthy—

easy prey for such a skilled freebooter of the skies as The Kingbird. Money, jewels, valuable furnishings—there was no telling what booty the plane might give up. At sight of it, The Kingbird quivered like a hunting-dog which strikes the hot scent of game.

The next second his plane went shooting along in pursuit of the other. After all, he was a sky-pirate, and could never be anything else, until the game was played out. McLaughlin's amnesty would have to wait.

THE END

AROUND THE UNIVERSE

By Ray Cummings

(Concluded)

The Sky Travelers on Earth Again

THEY landed, after a careful reconnoiter, within a few hundred feet of where they had started. As they stepped from the vehicle to that earth upon which Ameena had never before set foot, Bill Hawkins' apple trees were in plain sight in the moonlight. Instantly Tubby remembered his wonderful gift which had brought Sir Isaac's Inter-planetary vehicle into material being. The thought of it had never crossed his mind since the first few minutes after their departure from Earth. How foolish all their perturbation over the Martian attack! Why all they need have done was come home, and Tubby could have wished that all the Martians and Mercurians would drop dead as fast as they landed!

Tubby explained all this excitedly to his friends. Sir Isaac frowned.

"I thought of that," he said. "But I could not be concerned in trickery like that. My public would not stand for it. We had a scientific problem to solve, and we solved it with science—quite reasonably and properly."

Tubby nodded acquiescence; but his eyes were sparkling as he regarded Bill Hawkins' apple orchard.

"All right, perfessor. But I'm goin' to get revenge on this guy Hawkins anyway. You do things your way—I do them my way. Come on over an' let's see them apples turn rotten."

Sir Isaac was greatly annoyed. "I beg of you not to. It is childish. To engage in such foolishness, after all our scientific adventures—"

"You did that onc't," Tubby suddenly accused. "An' when you wrote how you did it, you signed that there Wells name. I read it."

Sir Isaac flushed. "Yes, I did," he admitted, with some heat. "I did descend once to such an unplausible trick—and I've been sorry for it ever since. I've been trying to live it down. I—Tubby, you'll only bring disaster upon yourself—upon all of us. Forget that ability you have. Don't ever—"

"I ain't goin' to forget 'it," Tubby persisted

doggedly. "I wish all Bill Hawkins' apples was rottin' on the trees. I wish—"

A diabolical memory of that similar situation Sir Isaac had once conceived under his favorite "Herbert George" name came to Tubby.

Tubby's Wishing Power Gets Him Into Trouble

"I WISH the earth was revolvin' twice as fast as usual, so Bill Hawkins' house would fly off in the air," he intoned.

Ameena flung her arms about his neck; Sir Isaac gave a cry of terror. A fearful gale of wind came roaring down upon them. Stones, sticks, every manner of flying missile, whistled by.

Sir Isaac, shouting something incoherent, flung himself prone upon the ground. Tubby gripped a tree-trunk to hold himself from blowing away; Ameena clutched him in terror.

In the midst of the hurricane Bill Hawkins' house was standing firm. Suddenly madness possessed Tubby.

"I wish the Earth was revolvin' ten times as fast! I wish—"

Sir Isaac's body left the ground, hurtling into the air like a bullet. Tubby swung one arm around Ameena, and one about the tree-trunk. He felt like a balloon tugging at its leash. The wind was a cyclone. A house went sailing through the air—Bill Hawkins' house.

"Tubby! Don't, Tubby!"

The girl's appealing cry frightened Tubby. A flying billet of wood struck him viciously on the shoulder. He tried desperately to think of something to stop this horrible cataclysm.

"I wish—" he murmured. "I wish I hadn't never been able to wish nothin'. I wish I'd forget all about havin' done this. I wish—"

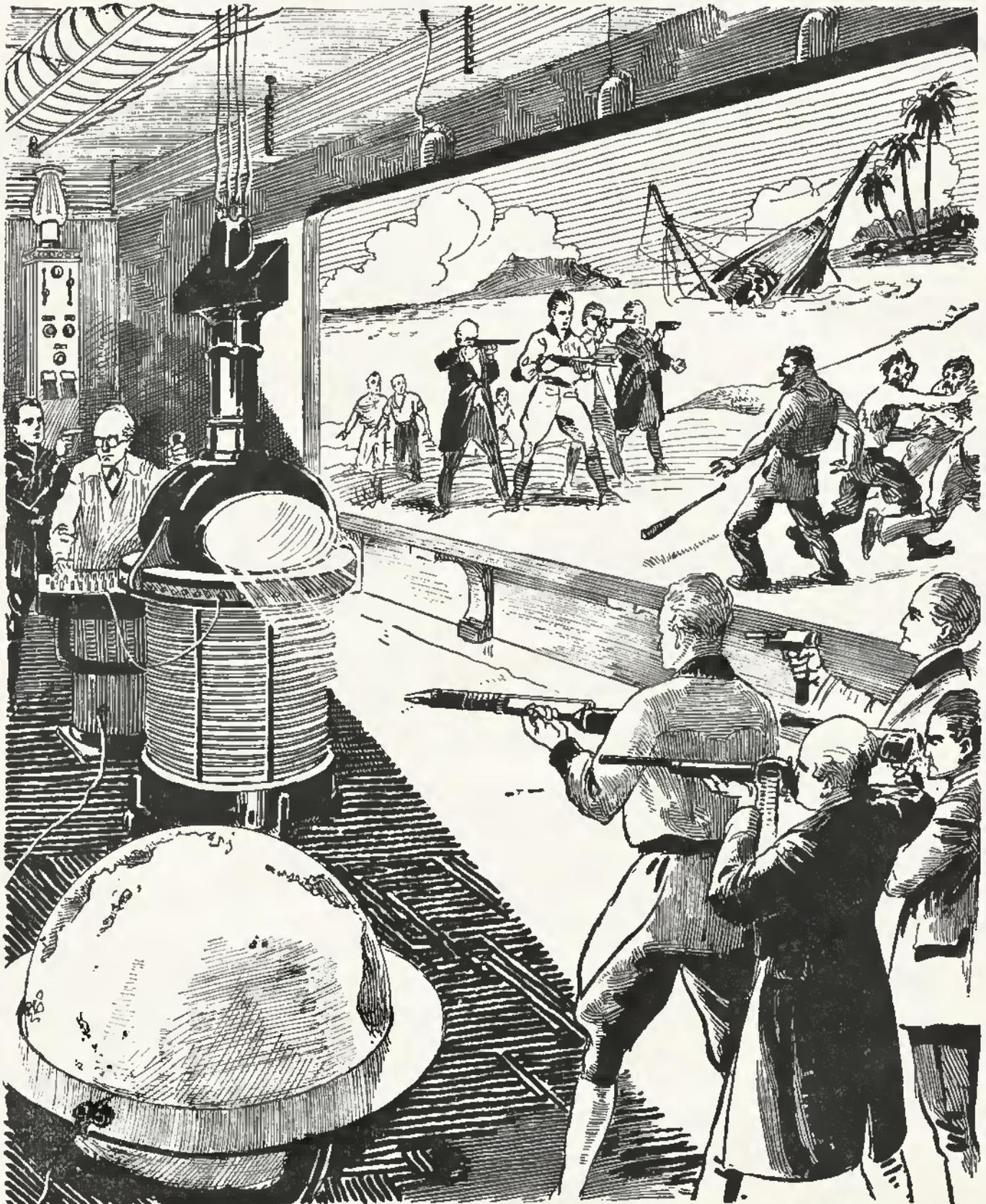
The clink of the poker chips was incessant—annoying. Tubby stared across the smoke-laden room at the three men under the circle of light. He remembered dimly that they had been arguing, and sat up abruptly.

"As I was sayin', Jake," he announced. "I got a idea that this here Edge of Space—"

THE END

TREASURES OF TANTALUS

By Garret Smith



Fleckner's magic rays swept this vast ocean from end to end, finally locating the vessel wrecked on a South Sea Island. . . . In a rage, Tom Priestley turned on the inventor and consigned his fortune to limbo. Holding his pistol at the inventor's head, he ordered him . . . to hurl our images between the refugees and the bandits and told every one to shoot and brandish weapons.

CHAPTER I

A Corner on Privacy



ROFESSOR FLECKNER'S famous coup in which he secured a corner on the privacy of the world is still a nightmare memory to most men past middle-age. It was in the opening year of the twenty-first century and proved to be a veritable reign of terror, a world-wide fear inspired by the evil genius of one man.

The world has never before known by what means the terror passed. One day the inventor capitulated without apparent reason and without explanation. To-day the younger generation, using his great invention as a matter-of-fact necessity of ordinary life, have almost forgotten that the great Fleckner ever played a rôle other than that of one of the benefactors of his race.

I was a young newspaper man then. It was my rare privilege to peer behind the scenes and witness a secret drama that ultimately swept from the stage that sordid spectacle which was for a brief time enacted with an unwilling world as audience.

I was admitted to the wings at the very opening of this dual drama. Then it was that I first met Thomas Priestley, the helpless partner in Fleckner's plot, who so unjustly shared for a time the opprobrium heaped upon the inventor. The intimate friendship between myself and Tom Priestley which began at that memorable watch night party of December 31, 1999, was life-long. From his lips I learned such part of this secret history as I did not personally witness. To him I pledged secrecy during his lifetime and that of his colleague.

But Fleckner has been dead these thirty years. Now within the present month, Tom Priestley has followed him. It is permitted me then, in my old age, to give this tale to the public in vindication of the memory of my dead friend.

Early that New Year's Eve an exclusive tip had come in to the city room of the *New York Planet*, where I was employed at the time, that the \$20,000,000 fortune of young Tom Priestley, left him by his grandfather's will a few months before was in jeopardy.

The new Federal Inheritance Law went into effect that night at midnight. By its provisions, all inheritances reverted to the State unless previous to that hour every descendant of the testator in each case should sign an agreement to the terms of the will.

The law, whose purpose was to curb the concentration of huge fortunes, was working many fantastic and dramatic results. Newspaper offices had been busy ever since the President attached his signature to the measure, combing over the titles to all conspicuous fortunes, and our columns had teemed for weeks with sensational yarns.

But up to six o'clock that evening the Priestley fortune, one of the biggest individual estates left in the country after nearly a century of heavy inheritance taxation, had been considered immune. The lawyers of the estate had exhibited to the inquisitive news-hounds a document of assent bearing the signatures of every known descendant of old Priestley.

Then came rumor declaring the Priestley lawyers had just learned that a cousin of young Tom Priestley, Maurice Fairweather, who had disappeared years before and had been reported dead, had as a matter of fact lived to marry and leave three children who were now adults and scattered over the face of the globe. As it was manifestly too late to get the signatures of these descendants of his grandfather, Tom Priestley, if the rumor proved true, would enter the twenty-first century a pauper.

I was assigned to hunt up young Priestley. He was not at home and I was sent from pillar to post on his trail, shooting up and down town in the moving subway sidewalks of Broadway and the Drive for over an hour before I located him in Professor Fleckner's laboratory beyond Getty Square.

At first I was refused admission. A vigilant young woman, the old inventor's secretary, peered at me sidewise from under a green eyeshade and declared positively that the professor was conducting an experiment before a group of his friends and must not be disturbed. I was a dashing youngster then and prided myself on having a way with the ladies. But that eye-shade baffled me. I couldn't tell whether the wearer was young or only fairly so, pretty or otherwise, impressionable or not. I made no headway until I hinted that Mr. Priestley was in danger. Then she showed sudden anxiety and an agitation that struck me at the time as not entirely impersonal. Thus encouraged I grew more determined.

The professor had a night-watch party on, and any gathering at the famous Fleckner laboratory was in itself a story of sorts. For this inventor of the deadly violet ray destroyer, which was then fatuously considered a guarantee of universal peace, had in the last year achieved renewed public notice by perfecting the first economical means of taking power direct from the atmosphere, an invention that has since eliminated the use of coal and water power. I didn't propose, therefore, to be thwarted by a female Cerberus behind a ridiculous shield of celluloid. Later I was to view that green eye-shade with much more respect, but for the moment it merely annoyed me greatly. She yielded at length and sent in my card.

The fact that Priestley responded to the importunities of a mere reporter and left even for a moment the epoch-making demonstration that was taking place in the laboratory, made Tom Priestley solid with me from then on. Further than that, he greeted me with smiling good nature when he entered the anteroom.

But this, as I learned later, was typical of Tom

THERE is no doubt that this story is one of the most absorbing scientific tales that has appeared in recent years. Suppose it were possible to construct a sort of radio television apparatus by means of which you could spy upon every one, anywhere in the world. There would be no more secrets. It would be practically impossible to carry on business, and the world would speedily become disorganized and panic would reign. This is the theme of "Treasures of Tantalus," and the well-known and famous author has made the most of the idea. Now that television has actually been accomplished, the author's idea, while of course not yet realized, is not so impossible as it may appear. Who can tell that this very thing may not come to pass in time to come? But outside of the scientific accomplishment of the story, you will find it to be a thriller of the first magnitude. There is hardly a page that does not bristle with excitement.

Priestley, always generous and courteous to a fault. I was strongly attracted to him the moment I saw him. He was about thirty years old at the time, and his tall, well-knit body was in perfect condition from constant athletic exercise at college.

Now his face, under his faint smile of greeting, showed distinct worried lines that convinced me of the truth of the rumor I had come to verify.

"Mr. Blair," he said, after studying me closely when I had handed him my card and stated my errand. "I think I can trust you. I'm going to ask your word that you will report nothing of this to your editor until I give you permission."

I hesitated, balanced between zeal for my paper and desire not to annoy this charming chap who very evidently had trouble enough at present. In the end I acquiesced.

"Your report is substantially correct," he went on, "but I have a bare hope of saving the day. If I succeed, nothing must be published at present."

He was silent for a moment as if debating with himself.

"I think, in view of your promise," he decided finally, "I will ask Professor Fleckner to admit you to the demonstration he is making inside. You will be the only newspaper man present and what you see will be of great value to you later."

He excused himself and went to consult with the professor. A moment later he returned with the old inventor's consent, on condition that again I pledge secrecy, to which I readily agreed.

What I saw that night gave me the greatest thrill of my life up to that time, though to my present readers it would be the merest every day commonplace.

A few days before Professor Fleckner had reported in confidence to some of his wealthy friends and backers that he had ready for demonstration a radio apparatus that not merely brought the human voice or any other ordinary sound from the remotest quarter of the globe, but caught the scene and projected it on a screen in front of the operator of the instrument. But a greater marvel still was the fact that the instrument needed no transmitting station. Professor Fleckner could direct the ether rays at any distant point and immediately the image of a person at that point appeared life-size on the screen in front of the operator and his conversation could be overheard as though he stood in the room. Further still, the image and voice of the operator could be projected out into space so that he seemed to appear in person a thousand miles away by the mere manipulation of a set of knobs.

So this little group, all pledged to secrecy, had assembled on that New Year's Eve to view a demonstration of the first telephonoscope.

Well do I remember my intense amazement, when, after being told to look out of the window to the sidewalk some fifty stories below and note the silent figures moving about there, I suddenly saw a section of the sidewalk on the screen beside me as though the room were on the street level and the conversation of passers-by was heard as distinctly as if we were brushing elbows with them.

It was really no more marvelous than many other inventions of the last hundred years. The first telegraph and the first telephone were as amazing in their day. The phonograph and the motion picture seemed like miracles. When men learned to tele-

phone without wires early in the Twentieth Century it seemed as though the climax had been reached. The telephonoscope which carried both voice and images and could range about at will was really only a short step farther. The wonder is that it was delayed so long.

There were some amusing episodes. I remember that a gentleman from Chicago was present and was curious to know what was going on in his home in that city from which he and his family had been absent for a week.

On the instant room after room of the Chicago house opened upon the screen. Imagine the chagrin of the Chicago man when he saw his servants holding a grand ball with half the other servants in the neighborhood as their guests. Professor Fleckner broke up the party by throwing the image of the irate householder into their midst.

But all this is commonplace to my readers and I will weary you with no more of it.

The climax and real drama of the evening came when Tom Priestley, who had been watching the demonstrations with nervous intentness, arose and told Professor Fleckner that he would back his invention to the extent of his fortune and would in addition give him personally a fee of one million dollars if he would sweep the world with his telephonoscope ray and before the stroke of midnight find and secure signatures from his three second cousins, thus saving for him the fortune left him by his grandfather.

That the professor succeeded is well known. The shadow form of Tom Priestley was hurled upon the world that night with the speed of lightning. Two of the three had been traced and, without suspecting the ghostly nature of the image that appeared before them affixed their signature to the shadow of a hastily prepared release paper, the signature taking actual form on this paper in Professor Fleckner's laboratory through the medium of a cunning photograph lens.

But it was the search for the third man that proved most baffling and incidentally shed a bright light on the key-note of the characters of both Tom Priestley and Professor Fleckner. This man had sailed on a Pacific steamer some time before and the vessel had been reported over-due.

Fleckner's magic rays swept this vast ocean from end to end, finally locating the vessel wrecked on a South Sea Island inhabited by lawless Bolshevich refugees from the rehabilitated Republic of Russia. At the moment, the outlaws were about to fall on the defenseless ship's company and destroy them.

Here Tom Priestley sprang into action. Fleckner had been experimenting with some new types of fire-arms for hunting purposes. There were several in a rack at the side of the laboratory—some loaded.

With these Priestley armed the company in the laboratory and placed them before the screen. He directed Fleckner to hurl our images between the refugees and the bandits and told every one to shoot and brandish weapons.

Here Fleckner balked. He pointed out that there was time enough before midnight to hunt out Priestley's cousin from among the refugees and secure his signature. There was no time to waste saving lives when \$20,000,000 that might be so useful to the professor was at stake.

In a rage Tom Priestley turned on the inventor

and consigned his fortune to limbo. Holding his pistol at the inventor's head he ordered him to perform the rescue regardless of consequences.

Not till the terrified bandits had been routed and the survivors of the ship's company were safe did Tom Priestley think again of his fortune. Then the clock on the laboratory wall told us it was past midnight and too late. And yet there was no sign of regret in Priestley's face as he resigned himself to the fact.

But then came his reward. Some one remembered suddenly that, owing to difference in time, it was not yet midnight out there on that Pacific Island. Again the telephonoscope searched it out and this time the third and last cousin was found and the final signature secured. Tom Priestley's fortune was saved and Professor Fleckner got the financial support that launched his great invention but involved his backer in such toils that he wished many times afterward that he had let his wealth and its burden go by the board.

All this, of course, came out afterwards when the method of obtaining the signatures was tested in the courts, as my older readers will remember. But Priestley was upheld.

I well remember my repugnance for the old inventor, after his display of what seemed mere cold-hearted avarice. I could hardly bring myself to shake hands with him when the party broke up.

But I did, and in search of something original to say by way of congratulation, my tongue blundered on these fatal words:

"Professor Fleckner, you have undoubtedly established a corner on the privacy of the world."

CHAPTER II

A Revolutionary Proposal

IN my petty vanity over an aptly coined phrase I did not at the moment grasp its full significance. That it was not lost on the old inventor, however, I realized later to my regret, when, in the light of subsequent events, I recalled the crafty gleam that suddenly flashed in his cold gray eyes and the tightening of his thin slit of a mouth.

Nevertheless I felt distinctly uncomfortable as the tall, stooping figure hung over me, his claw-like fingers grasping mine feverishly. Then he dropped my hand suddenly and rubbed the point of his sharp chin with his palm for a moment while he looked off reflectively, then wound up with a flourish of his fingers through his gray, untrimmed hair.

Then he turned back to me with a grin that showed a double row of perfect false teeth, making his sallow, smooth-shaven face look like a death's head. Yet there was for a fleeting instant a faint twinkle in the deep-set eyes under their shaggy brows. For Professor Fleckner, along with his faults, possessed the human grace of a sense of humor.

"A corner on privacy!" he cackled. "That's pretty good, young man! Pretty good!"

As a consequence, I cannot help feeling to this day a certain sense of responsibility for the suggestion that struck into the yellow streak in Fleckner's genius and for a time perverted it to grave mischief. I still believe, however, that he fully intended at that time to make only good use of his great invention.

On New Year's afternoon Tom Priestley rather reluctantly kept an appointment with Fleckner in his laboratory. They were to talk over the preliminaries of the formation of the company for the manufacture and sale of the telephonoscope.

From the moment when the old inventor had shown his willingness to abandon a group of his fellow men to the murderous band on the island in order to further his own financial interests, Priestley regretted his hasty promise to put his fortune back of a man of such character. He had never known Fleckner before, but the man's noteworthy achievements and his general reputation had led him to feel the highest respect for and confidence in the famous inventor.

Indeed, I cannot discover that the man had ever before displayed to any extent the greedy phase of his disposition. It was evidently a latent quality suddenly brought out in its barren hideousness by the prospect of undreamed-of wealth and vast power.

Priestley for the moment could not avoid a feeling of aversion for the man. But he had pledged him his support on impulse, and there was no backing out.

Professor Fleckner however, on account of the same episode of the rescue of the shipwrecked refugees, had gotten a vastly increased respect for the young millionaire, whom before then he had considered merely a rich idler with the usual flabby character of members of that class. Now he recognized in him a man of strong fiber, and generous and human impulses. He also recognized a fighter whom it would be much safer to lead than to oppose. He trimmed his sails accordingly and so cleverly prepared the way for the proposal he had in mind that the younger man's distrust weakened somewhat.

Fleckner was all smiling cordiality when he greeted his young colleague that afternoon.

"Before we get down to business," he said, "I want to explain my actions of last evening which you opposed with such credit to yourself. I'm afraid in the excitement of the moment, I appeared in a rather unfavorable light. I want to say now, though, that while we both acted on impulse, our impulses were from different angles aimed at the same end—the good of humanity. I'm glad to know I've a partner whose principles agree so thoroughly with mine. You met the supreme test, young man, when you impulsively threw away your fortune, or thought you did, to save the lives of others."

"I'm afraid I don't quite follow your comparison," Priestley replied a little stiffly.

"I mean, if I may say so, that being an older and more philosophical man, my humanitarian viewpoint was a little broader. You saw only the moment and a little group of your fellow men whose lives were in danger. I saw all humanity for generations to come whose well-being and happiness were to be promoted by this instrument of mine and to whom your wealth was to make it available."

As he spoke his face glowed and his voice rang with enthusiasm. In spite of himself, Tom Priestley was moved. He felt his prejudice weakening still further. Priestley's high-strung, emotional nature had been played upon skilfully by the wily old man.

"Let me outline the plan I have in mind," he went on. "If I had known beforehand that you would be willing to back me to the extent of your fortune, I wouldn't have invited the rest of the group who were here last night to come in on it. I prefer to deal

with you alone in view of our common purpose.

"But these other gentlemen are in on the thing, and they should be given some consideration in return for their pledge of secrecy. So I propose this—that we organize two companies, one to manufacture the instruments, in which you and I will be sole owners, and one to sell and install them together with other devices of mine, with these other men as stockholders, leaving the controlling interest in my hands.

"That will enable you and me to control absolutely the manufacture of the telephonoscopes giving no one the right to interfere or ask embarrassing questions if the instruments are not turned out as rapidly as expected."

"But can't we turn them out rapidly, once the machinery is installed?" asked Priestley, a little bewildered.

"Yes, but we won't, until we have accomplished certain benevolent missions, which I think you will agree are more important than the mere making of money."

"But I had an idea that the great benefit to mankind was to follow from the practical wiping out of distance, the abolition of travel for business reasons, the doing away with our slow and cumbersome mail service and our inadequate telephone and telegraph system," Priestley demurred.

"Eventually, yes, but first we must educate the public to its use. It means new demands on the self-restraint of humanity. For do you realize, my boy, that distance with its attendant restraints and inconveniences is not the only thing we have wiped out? We have virtually abolished secrecy."

He paused to let that startling statement sink in. Priestley gasped as its significance struck him for the first time. The younger man had not overheard my casual remark to Fleckner the previous evening. He had been so absorbed then and since in other angles of the problem that this phase had not occurred to him.

"Think of it," the inventor went on. "My telephonoscope rays pierce any wall, however thick, at any distance, day or night, record any sight, hear the slightest whisper. The darkness of night is no protection. Distance offers no immunity. A man's inmost chamber affords no guarantee that his most vital secrets will not be searched out and spread broadcast if he dares whisper them to another or places them in writing."

The young man was listening eagerly now. His alert mind was leaping far ahead of the professor's argument.

"Have you ever stopped to think what a part secrecy plays in this world of ours?" Fleckner went on, warming to his subject and pacing the floor excitedly. "If men could not have met and plotted unseen, where would have been the secret diplomacy, that breeder of international strife, which up to a half century ago kept the world bathed in blood, and now threatens again to invade the councils of our League of Nations? Think of the corruption in our internal politics, the plundering of our cities by scheming politicians, by which little groups of rascals plotting in secret were able to reach their hands into the pockets of the citizens and escape uncaught!

"Would the world ever have suffered from the oppression of predatory business combinations, if it had been impossible for secret agreements and conspiracies against business rivals to remain secret?

And think of the multitude of individual crimes, premeditated murder, robbery, blackmail, and all the other illegal acts that still keep our courts busy. Ninety per cent of these would be impossible if the perpetrator's secret preparations were at any moment likely to be laid open for all and sundry to read."

"Quite true!" Priestley assented.

"We have thought at various times in the last century we had finally curbed many of these evils," the inventor continued. "The League of Nations, we said, had finally ended war, especially since my violet-ray destroyer, the common property of all countries, has made it inevitable that another world war would practically wipe out the race. But lately there have been new bickerings among the nations. A month ago a minority section of the World Council withdrew after heated debate and went into secret session. A little later the council itself officially held an executive session for the first time in fifty years to consider the crisis, and refused to give out the news of it afterward. Secrecy again.

"We allowed big business to go on and grow in efficiency, but curbed its power by wise restraining laws in the interest of the public which well-disposed business men accepted gladly. But the evilly disposed found ways to get the best of these laws by secret agreement again. Lately these conditions have grown worse, until the labor question we thought settled long ago is again threatening trouble. We curbed the predatory politician only to find he still continues to plot in secret. We think we have solved the problem of humane and effective treatment of criminals, but secret crime still flourishes.

"In other words, secrecy is the root from which these and many other evils spring. We hold in our hands the instrument of its destruction. We can keep our own secret for the present in order that we may strike a blow at evil secrecy. We'll hunt out a number of notable examples and show them up to the world at large.

"We'll punish some of these evil-doers who have kept within the letter of the law, with that most effective weapon, publicity. We'll teach the world a dramatic object-lesson, and then when the lesson is thoroughly driven home we'll give the public an instrument for its continued enforcement. To release it sooner would be most dangerous. Do you see?"

Priestley was by now drinking in every word with eager interest. His idealistic nature was thoroughly aroused and his distrust of the scientist was lulled to sleep.

"Of course I see!" he exclaimed eagerly. "We'll pick out nest after nest of international trouble-makers, political shysters, business crooks, and ordinary criminals. We'll spy on their plans, take pictures and phonograph records of their secret meetings, and publish the results where they'll do the most good. We'll put gang after gang out of business. What enormous good we can do, and what sport!"

"You have the idea exactly," Fleckner assented.

"What a catastrophe it would be if this machine were in the hands of an unscrupulous man!" Priestley went on, suddenly struck by a new thought. "What a chance for a scoundrel to make a huge fortune by blackmail or by stock deals with inside information, or by political intrigue! It's a dangerous weapon in the wrong hands. It's all very well for

us, with benevolent purpose, to attack evil secrecy; but secrecy is only one side of the shield.

"The other side is personal privacy, a thing as legitimate and as dear to humanity as personal liberty. Think of a Peeping Tom with a telephonoscope! Imagine the state of mind of each of us when we became aware that at no time day or night could we be sure that we were not exposed to the gaze of one or more strangers!"

"Yes, the world needs an object-lesson in that phase of it also," commented the inventor.

After further discussion they drew up tentative articles of agreement and arranged to meet a lawyer on the following day and make preparations for Federal incorporation.

I saw Tom Priestley later that evening, and on a sudden impulse he took me completely into his confidence. After reporting his conversation with Professor Fleckner, he added:

"I want you to follow this closely. It will be the chance of a lifetime for you. I trust you to keep it all to yourself until the time comes to write it up. When that time does come it will make your reputation, and for us it will insure a correct and adequate report of what has taken place."

But neither of us, as we parted that evening dreamed of the tangled web into which we had been drawn and how bitterly we would repent the part we had pledged ourselves to play.

CHAPTER III

A War on Secrecy

IT was on January 2, 2000 A. D., that Professor Fleckner's famous war on secrecy was begun. It was a bitterly cold winter day, and the subway sidewalks were crowded with the throngs who avoided the open air as much as possible. Since the completion of our universal, double-decked subway system under all New York's streets ten years before, the city administration had stopped bothering to clear away snow, as the upper levels were practically abandoned in winter. For several days now they had been quite impassable.

Even the subways, however, were cold and drafty for once, and as I started for the Fleckner Laboratories, I remember a feeling of comfortable superiority at the thought that in a few minutes I would be enjoying the privilege of practically visiting any section of the city I wished, while actually still sitting in a warm and comfortable room.

I had been summoned there by Tom Priestley in a manner distinctly startling, in spite of my previous introduction to the novel method.

I had been sleeping late as usual, as is a morning newspaperman's custom. My rooms, on the inner court of the sixty-first floor of the Riverdale Apartment Hotel, were certainly inaccessible enough. I had locked my door and transom with the usual caution. The window opening on the fire-escape still remained securely fastened.

Yet I was suddenly awakened from a sound sleep by a voice at my very bedside, calling my name sharply. I sat bolt upright, instantly wide awake and staring about me in amazement. There was no one in the room. Doors and windows were apparently undisturbed.

At once I decided that I had been having an

unusually vivid dream, and lay down again in disgust after glancing at my wall clock and noting that I was due for two hours more of solid slumber.

"Blair! Blair! Wake up!" came the voice again.

I sat up once more, rubbed my eyes, and pinched myself to make sure I was really conscious. There seemed to be no doubt of that. The room looked perfectly natural, and I was absolutely alone.

Then I nearly jumped out of bed in amazement. Tom Priestley suddenly stood by my side, grinning down at me.

"You look surprised, old man," he laughed.

"Surprised!" I managed to stammer. "You nearly scared me to death! How did you manage to get in here, and where were you hiding yourself when I first woke up?"

"I'm not in here at all," was his reply. "I'm up in Professor Fleckner's laboratory, about five miles away. I'm merely giving you a little lesson in the futility of privacy since the invention of the telephonoscope. I wanted you to see how it seems to be on the other end of the instrument. I apologize duly for the intrusion, but I wanted to ask you if you could run up here in about an hour from now. We're going to try our first experiment in our war on secrecy, and we need your suggestions."

"I certainly will," I responded, jumping out of bed and grabbing at my clothes.

In the same instant, Priestley's image vanished, and I realized for the first time that I was trembling from nervous shock.

"They'll have to be careful how they work that stuff on people with weak hearts," I thought as I threw on my clothes without stopping for my bath.

Professor Fleckner greeted me cordially when I arrived. The old man was standing on a step-ladder in the center of the octagonal room in which his complicated instrument was housed, tinkering industriously with the network of wires and coils that were attached to the ceiling. Priestley sat on a high stool near him, handing him instruments.

As the old fellow turned his huge dome of a head toward me and peered at me out of his big glasses, his long legs spread apart to keep his balance and his long arms stretched to the ceiling, he reminded me of a great spider with Priestley playing the rôle of fly.

"I'm tightening things up a little," he explained, as he climbed down from his perch a moment later and tried the levers of the control-board that stood opposite the screen. "We had a little trouble with it New Year's Eve, you remember, and we can't afford to have any break this time. The instrument isn't fool-proof yet, by any means.

"We need your help, Mr. Blair," he went on. "We're going to get after our elusive criminal elements first, and Mr. Priestley tells me that as a newspaperman you have made quite a study of criminology. What is the situation in New York to-day, and where shall we start? We've had some pretty serious crimes lately, in spite of the boast of Professor Donald, our police commissioner, that all the known criminals in the country are confined on the reform farms."

"Well," I said, "what I have to tell you is partly from observation and reading and partly guesswork. I hope, though, that your marvelous instrument will give me a chance to turn my guesses into positive knowledge.

"Professor Donald is doubtless right, or practically so. We've proved in the last hundred years that the criminal is a man or woman with a defective type of mind. We stopped the foolish practise of punishing him by shutting him up in unhealthy cells for long or short terms, according to his crime, and have been separating him from normal society on our reform farms, where he earns his own living and lives as normally as possible. If he's cured, he's released. If not, he stays there for life.

"The trouble is, though, that the test of normality isn't infallible. There is a residuum of high-grade defectives, so well educated and clever, that they have not revealed their criminal bent. To that is added a group pronounced cured, who tend to slip back when under wrong influences.

"Now, the thing I've noticed for years, comparing present conditions with history, is that the thousand and one minor crimes and many more serious ones that were traced to single individuals formerly, have almost entirely disappeared, along with the old-time low-browed policeman and his club. The crimes I've studied for the last ten years have been almost entirely occasional big master-strokes, huge robberies, utterly mysterious murders, and the like. And not one of them has ever been satisfactorily solved.

"Of course, we've done away with the motives and causes of most minor crimes. Our modern economic system has largely wiped out poverty among normal people and its tendency to promote theft. The control of alcohol and drugs and the establishment of universally healthful living conditions have checked crimes of violence, and so on. But these modern crimes seem to be inspired by individuals whose identity remains hidden, but who have specific groups under their control.

"I believe that just as modern business is run in huge combinations, though properly controlled by the people through the state, modern crime has become a highly specialized enterprise united in a great trust, controlled by a little group of criminal geniuses, with perhaps one super-criminal at its head. I believe if we break into the secrecy of this criminal underworld, at any point, with the telephonoscope and trace out its ramifications, we'll unearth and destroy the whole system.

"Now, such a system must have headquarters and various rendezvous, private houses, innocent-appearing business offices, restaurants, or other unsuspected places. I don't doubt there are gambling-houses and other disorderly places still, but not even a suspicion has been lodged against any definite locality in all of twenty years. Find such a place, and we'd doubtless find it also a meeting-point for members of the crime trust.

"This isn't all guesswork. You remember the famous half confession of Roebing, the man convicted of the North Side Trust Company robbery twelve years ago. He insisted he had handed his loot intact over to some one whose very name he did not know, and that he was getting an annual salary and a small percentage of his stealings for his regular work as a safe-cracker. That's all they ever got out of him, as he died soon after conviction. Ever since, police and newspapermen have been probing for the man higher up, at whom he hinted.

"In the old days, seventy-five or even fifty years ago, when we followed the ridiculous custom of allowing well-known criminals to run at large after

one prison term had expired and no actual proof of a new crime existed, it would have been easy with your telephonoscope to run them down in their haunts, listen to their conversations with their pals, and in no time unearth a new plot and implicate the whole bunch.

"Now the known criminals are all shut up and not a place in the city is under even the vaguest suspicion of being a haunt of the unknown men who are occasionally pulling off these big jobs. So you see, we're rather up against it in getting a start."

I had been thus thinking aloud, hoping that my thoughts would lead to some practical suggestion, but I reached the end of my little string of ideas, no nearer an idea of real value than when I began. We all sat in thoughtful silence for a few minutes.

"You believe this criminal syndicate may be recruited by an occasional criminal pronounced cured and released and who has since suffered a relapse?" asked Priestley.

"Yes. I say that because Roebing, of the North Side Trust Company robbery, was such a case. The known cases have been very few in recent years, to be sure, but several graduates from Ossining Farm have been sent back, fortunately, before they had committed any serious offense. The superintendent, Dr. Zeigler, tends to be a little lax in passing on discharges. He's a little too sentimental for his job, in my opinion."

"Why not pick out some graduates from there and shadow them?" Priestley suggested.

"Fine!" I exclaimed. "That's the answer. We'll make a start by running down recent Ossining Farm releases. Can your instruments get at records such as card-files and closed books, Professor Fleckner?"

"Certainly," he replied. "I've been experimenting with that trick. It takes a nice adjustment of the rays to separate out a single page of a book, but I've become quite skilful at it."

"Let's turn it on the executive offices up at Ossining then, for some recent discharges."

Fleckner stepped to the control-board, switched on the current, and presently the northern section of Westchester Borough began flying in panorama across the screen. The rows of towering apartments with their roof-gardens and wide parkways gave way to detached suburban homes, and in a moment ended at a broad boulevard a little beyond where the historic town of Sing Sing once lay before all that region became a part of Greater New York City.

The other side of this boulevard, which ran inland several miles from the Hudson River, was lined with a high fence of steel wicker work, with sentry towers at regular intervals. Beyond lay a broad sweep of beautiful open country, parkland from which peeped attractive cottages and intensively cultivated fields. Here and there in the center of a garden lay a large building of simple, graceful architecture, one of the factories of Ossining Farms.

We were looking upon one of the most up-to-date institutions of detention in the world, a striking contrast to the grim, gray prison that once marred the landscape of the beautiful river valley near this point.

A moment later, the interior of the file-room of the executive offices lay on our screen, and while confidential clerks worked over the carefully guarded pedigrees of the institution's inmates, all unconscious of our all-seeing eyes, we were throwing on the

screen the contents of case after case until we found the section we wanted, the one which contained the folders with photographs and histories of discharged inmates. For two hours or more we pored over these pitiful tales of broken and mended lives, now and then making notes on cases that might be worth following up. Suddenly we came to the photograph of a face that was strikingly familiar. I bent over to note the name, and shouted aloud in amazement.

It was that of Judge Theron B. Tanner, one of the leading and most highly respected members of the bench in New York City.

CHAPTER IV

At the Riccadona

AFTER my first outburst of astonishment, my second thought was that I had been misled by a coincidence in name and resemblance in features. It could not be possible that one of the most respected and popular men on the Supreme Court bench could be a Farm Colony graduate. This must be some black sheep of the judge's family who bore his name and a strong family resemblance.

This record was in the special secret file of first offenders who had pleaded guilty and waived public trial. Such cases were never made public unless they proved to be chronic. Where the cure was a speedy one or the offense was shown to be a purely sporadic outbreak of a normal character under unusual stress, the term of confinement was brief and the case was glossed over to the public as a nervous breakdown for which the patient had gone to a private sanatorium for a few months.

Judge Tanner's case was recorded as one of this sporadic type.

Five years previous to this, and two years before his election to the bench, while he was still in private practise, he had misappropriated a client's funds. His partner had discovered it and reported it to the Tanner family. Confronted with his crime, he had confessed and waived trial; the family made good the loss without the client learning about it, the partnership was dissolved, and Tanner went to Ossining Farm for a year. At the end of that time he was declared free of chronic criminal impulse and released with his general reputation unimpaired.

I had become acquainted with the judge while following his campaign. Many a time I had interviewed him at the popular old Riccadona Café, in the Bronx, which long ago closed its doors before the up-town march of business. In those days, however, it was still a popular place, though the center of the city's night life was already far to the north of it, and it was here the judge dined nearly every evening and conferred with his supporters. I had then formed the habit of dining there myself and had run across the judge there only recently.

Priestley, Fleckner, and I commented briefly on this strange bit of private history, but it did not occur to us then that it would pay us to follow up the judge further, so we continued on over the records.

Presently I stopped at another familiar photographic countenance. The name, John Hammersley, meant nothing to me, and I could not recall where I'd seen the face. This man had spent five years at the colony, having developed a propensity for blackmailing. Since his release he had apparently

led a blameless life as an advertising specialist.

Still wondering where I had seen him, I scanned a dozen more photographs and then came two hauntingly familiar physiognomies in succession. Again I was at a loss to place them. Strangely enough this pair had been partners in the pawn-brokerage firm of Hanson & Gormly and had been sent up for swindling. On their release they had renewed business together. We were turning away from them when it suddenly flashed on me where I had seen them. They had occupied a table together at the Riccadona the week before and at the time I had recalled seeing them there several times previously.

"By Jove!" I exclaimed with sudden inspiration. "There may be nothing to it, but I suggest that we hunt these four men, including the judge, and also that we investigate the Riccadona. It may be only coincidence; then again the old joint may be the very hang-out we're looking for."

"Well, it gives us a tentative starting-point at least," Professor Fleckner agreed, "and it won't take long to run it down."

The telephonoscope had multiple foci so that it was possible to throw on the screen several widely separated objects at once. Priestley and I both took a hand at the control-levers under Professor Fleckner's direction and presently all four of our suspected men were thrown on the screen.

At the same moment we watched Judge Tanner charging the jury in a suit for damages against the Trans-Alaskan Monorail Company; Hammersley trying to secure a contract for motion-picture advertising of the Quebec and Overland Company's summer excursions to the North Pole; Hanson waiting on a seedy customer who was trying to pawn an old-fashioned pocket-heater for twice its value; and Gormly, at the other end of the shop, going over the afternoon mail that had just shot out of the delivery tube, and dictating replies to the clicking auto-writer at his side.

All the afternoon we watched this quartet at their various monotonous employments, but saw and heard nothing worthy of note. After court closed the judge went to his chambers, dictated a few letters which held nothing of significance, and then picked up his telephone and punched a number. He got Neil Dorgan, a corporation lawyer in One Hundred and Twenty-Fifth Street.

"How about dinner to-night at the old place?" he asked.

"Fine! Be there at six thirty," was the reply.

Then he called Assistant District Attorney J. B. Winter and made the same appointment.

About the same time Hammersley turned from his desk, thrust his feet in his automatic shoe-polisher and at the same time slipped a penny in his newspaper delivery slot, pressed the *Evening Planet* button and a moment later that paper shot into his lap. He scanned it rapidly as if in search of a particular item. He found it presently and read it with great care. It was a letter to the editor by Judge Tanner in answer to the paper's editorial criticism of him the day before for ordering the release from Ossining Farm of one Alfred Vary, a violator of the antistock gambling law, whose relatives had appealed to the courts against the Farm Colony committee's decision to restrain him for another year. The letter, which Priestley and I read over Hammersley's shoulder five miles away, defended Vary's character warmly and

declared he had been the victim of misrepresentation.

We agreed that here was a possible clue to a connection between Hammersley and the judge.

The article finished, Hammersley closed his office, entered the subway and, ten minutes later, was seated at a corner table in the Riccadona.

Meantime the pawnbrokers closed shop and a little later they, too, were entering the eating-place on which our suspicious interest now centered. They passed close to Hammersley's table on the way to their own, but if there was any sign of recognition between them we failed to note it.

The partners sat down in silence, looked over the menu and put in their orders in their table phones. The Riccadona had been one of the last restaurants in New York to abolish waiters in favor of the modern mechanical service, and we old-time patrons deplored the consequent loss of picturesqueness. The pair received their dinner presently on the little serving elevator up through the center of the table and for some time ate in silence and watched the phonic moving-picture cabaret.

"I wonder if this is to be another dull night?" remarked Gornly at last.

"I can tell you in just a second," replied Hanson, who sat facing the door.

We followed his glance and saw Judge Tanner and his party just coming in. The judge sometimes occupied a table in the general dining-room and sometimes in one of the private rooms on the second floor. To-night he and his party headed for the stairs.

"Yes," Hanson said as soon as he noted where the judge was going. "To-night's one of the nights. We'd better eat fast and get down."

And while he was speaking, Hammersley, who had been likewise watching the judge's progress, hastily swallowed his demi-tasse, dropped his dinner-check and a ten-dollar bill in the pay-chute beside the service-elevator, and, as soon as his change was shot back, arose and hurried out, one of our sets of telephonoscope rays following him.

He left the café by the main exit, turned to the left until he came to the next corner, then turned again to the left, following the cross-street to the next corner, on which stood a little cigar store. He entered this leisurely, bought a package of cigarettes, lit one, and then sauntered out by the rear entrance, which opened on the side street, through a short, narrow vestibule.

In this vestibule, Hammersley made his first suspicious move. The door from the store into the vestibule and the door to the street were both solid doors, without glass. The vestibule was lighted by day from a transom over the street door and at night by a dim ceiling light. Hammersley was for the moment alone and hidden from ordinary sight.

He closed the store door behind him, then, instead of opening the street door, stepped in the middle of the vestibule and pressed a finger against the wainscoting. A narrow panel in the wall slid back revealing a flight of steps leading down a narrow passage between concrete walls. Hammersley disappeared down these steps, sliding the panel shut back of him.

Fleckner, impelled by an inventor's curiosity, let Hammersley go for a moment while he sent the prying ray of the telephonoscope searching under the

surface of the vestibule walls to discover its mechanism.

"Ah!" he exclaimed presently. "Very neat! The panel is electrically connected with latches in the other two doors. When the panel is open the doors are locked. No one from the street or the store can get into the vestibule while one of the gang is using the passage through the panel. Perfectly safe and fool-proof scheme."

His curiosity satisfied, he turned his ray down the secret stairs and through a long passage, overtaking Hammersley before a closed door at its end, evidently far back under the block of buildings, in which stood both the innocent-appearing little tobacco shop and the Riccadona Café.

Hammersley stood with his hand on the door-knob, evidently waiting. Fleckner sent his rays beyond the door and revealed a small apartment in which another man was adjusting a long black robe, cowl and mask, completely concealing his person. In a moment he finished arraying himself, went to a door opposite the one at which Hammersley waited, and gave a peculiar rap. A small panel opened and another masked face peered out. The applicant gave a password which we failed to catch and was promptly admitted to a room from which came the hum of general conversation.

The moment the door closed a light glowed over Hammersley's head and he, too, entered the dressing-room where we noticed a great number of robes and masks hung on hooks about the walls.

"Clever arrangement!" Fleckner commented. "The whole set of doors is so connected up with wiring along the flooring that each section of the passage is locked at both ends as long as there is any pressure of feet on its floor. In that way only one person or possibly a group belonging together can go through to the main room at a time. That's so the members of the gang won't even see and identify each other. They can't get together anywhere along the line till they are disguised."

"Well, Blair, your guess was a good one," declared Priestley. "We've hit on a meeting-place of the crime trust all right and I think we're about to connect up your friend, Judge Tanner, with the outfit."

"We are about to test another part of my guess," I added. For at that moment Hanson and Gornly, whom we had kept in sight on their section of the screen, paid their bill and departed.

Priestley had been directing the rays that recorded the movements of this worthy pair, and as he followed them out we were not at all surprised to see them also arrive in the little tobacco shop, although they took the precaution to approach it by going the other way around the block. They, too, went out by way of the trick vestibule and thence through the secret panel into the passage from which presently our rays followed them, cowed, masked, and robed, into a big underground clubroom where there were a hundred or more other human enigmas lounging about in little groups.

The big room was oak-paneled with low beamed ceilings. In one end was a cheery fireplace. There were padded leather chairs and lounges, reading-tables and well-filled bookcases.

Through a broad arch at one side one caught a glimpse of a pleasant café and bar. An opposite arch led into a series of rooms in which all kinds of games of chance were in full swing. A group of

well-appointed executive offices opened off the end of the main room.

Altogether it was like peering into an elaborately appointed gentleman's club, save for the grim, funereal aspect of its strange inmates.

But our attention was suddenly turned from this remarkable scene by an exclamation from Priestley, who having directed his particular telephonoscope ray till he had seen the pair of pawnbrokers into their underground clubroom, had turned his attention again to the section of the screen on which I had kept the image of Judge Tanner. Having seen the judge closeted at a table with his cronies in the little private dining-room and engaged in desultory and inconsequential conversation, I had dropped my set of control-levers and stood studying the more interesting spectacle in the underground clubroom.

"Listen to the judge!" Priestley exclaimed. "I think he's going to give us a line on the general scheme of things!"

CHAPTER V

The Crime Trust

IT would be hard to imagine a place of more complete privacy than the little dining-room in which the judge and his two companions were closeted. It was one of a row of similar ones that opened off a corridor at the rear of the second floor and its walls were sound-proof. Its only window, blanketed with heavy draperies, opened out on an inner court, around which pyramided hundred-story buildings. Like the main room below and the numerous banquet-halls on this and other floors the service was automatic and the private diners were undisturbed by the coming and going of officious waiters.

I had not yet become enough accustomed to the prying rays of the telephonoscope to avoid a feeling of distinct repugnance against thus invading the privacy of the august judge and his companions. I still felt as though I must be standing in plain view before them.

But the conversation to which we were listening made me speedily forget my self-consciousness. We could not have selected a more opportune evening for initiation into the secrets of the crime trust. For I knew, before I had listened five minutes to the conversation around the little table, that my hypothesis had been correct.

It was a strange trio on which shone the soft radiance from the electro-luminous ceiling—the white-haired, courtly judge, his large, well-preserved figure groomed after the manner of well-bred, elderly gentlemen who have not changed their style of dress in twenty years; the grizzled lawyer, whose dark, care-worn face just now bore a particularly anxious expression, and the dapper, modish little assistant district attorney who was studying the judge's face and looking puzzled and astounded by turns. The judge had evidently just completed a statement which I had not caught.

"Do you mean to tell me that you, Judge Tanner, are one of the leaders of a band of crooks?"

The judge smiled indulgently.

"I don't like that term. It's too old-fashioned. Instead of 'crooks' let us say men and women of superior wits and unshackled minds who have learned

to live above the ordinary laws of ordinary people and to manipulate ordinary people for their own purposes. Nor would I say 'a band' but rather 'The Band,' for within the last ten years we have united all lesser bands into one big organization. Yes, I am proud to say I have for some time been one of its leaders, head of the National Secondary Council of Three, to be exact."

"But, if you are in earnest, and your honor is not given to frivolous joking, why are you telling this to me, a member of the district attorney's office, sworn to prosecute criminals? Are you putting me to a test?"

"A test that I am sure you will meet satisfactorily. I am telling you this because this Council of Three just now lacks a member and, after studying you and your methods for some time, we feel sure that you are eligible for that place and will gladly accept our offer of appointment to it. For, on a certain notable occasion shortly before you were selected for your present office, you betrayed a marked tendency, let us not say criminal tendency—we don't use that expression in our circle—rather a commendable tendency to rise above the shackles of the law."

The young man tried to look indignant, but succeeded only to look alarmed. His face paled.

"You mean the Zornow case?" he faltered. "But I was acquitted, completely exonerated. It was all a mistake. The money was found. Your honor knows that. You presided at my trial and threw the case out of court."

"Exactly," the judge nodded pleasantly. "You never knew yourself how that money was restored. I did, because I arranged it and the details were carried out by gentlemen unknown to me acting under the direction of our friend here. We knew, of course, that you were guilty, but we saw in you the making of a clever and useful associate. So we arranged to prove you innocent. We cultivated your acquaintance after that and also had our spies watch your daily movements. We arranged your appointment to the district attorney's office. We are satisfied at last and are ready to offer you a place that means wealth and influence you can never get in the ordinary channels today when humdrum people have seen to it by increasingly rigid laws that the wealth and power of their humdrum fellows shall be exceedingly limited."

The young man sat for a long time in silent, intense thought. So delicate was the phonic recorder of our instrument that we could hear his heavy, nervous breathing as though we sat at his elbow instead of being separated from him by miles of roaring city. Professor Fleckner, in a sudden whim, shifted a lever a trifle and concentrated the rays till we could plainly hear the tumultuous beating of his heart.

"Can't hide much from the telephonoscope," chuckled the inventor boyishly.

"Suppose I refuse this—this honor?" asked the young man at length.

"You are under no compulsion," the judge assured him blandly. "We neither coerce nor threaten. We know our secret is perfectly safe with you, because you owe to us your liberty, and any exposure of us would at once involve you. Moreover, the facts of your career have been so recorded that any treacherous move would automatically expose them while you could not possibly prove anything against

us and your statement would be taken by the public merely as a fantastic lie inspired by grudge. I merely tell you this, you understand, to explain our confidence in you and in no way as a threat. You are at liberty to refuse our offer and walk out unmolested if you choose. Only one man has ever refused such an offer, however. I don't think he would have made any attempt to expose us either, if he had lived. Unfortunately, he died on his way home after our meeting. It is believed he fell off the Yonkers bridge, as his body was found later in the Hudson. Very distressing!"

The oily hypocrite sighed sadly. The young man stared at him in momentary horror, then pulled himself together with an effort.

"I'll accept your strange offer," he said at length. "Evidently there's nothing else to do. I don't know that I'd refuse if I could, anyhow. Your proposal rather appeals to me, now that my first surprise is over. I suppose I have some sort of oath or agreement to go through with."

"Nothing of the sort," the judge assured him. "An oath could add nothing to the tie that holds you. I will simply outline our organization briefly and then put you in touch with your first duties.

"In the first place you will never know the name or face of another member of this organization excepting me and my friend here, unless you should some day succeed to my place as head of the committee. I know the personality of certain men who work under me and a certain three of them know me as their leader. Where they meet I don't know. Who the man or men over me are I know no more than do you."

"But you said it was a big organization!" Winter exclaimed. "How can you keep it together?"

"It's simple. That telephone there does the trick. It's a perfectly normal-looking instrument. It would even bear expert inspection. It connects with the regular wireless system of the city ordinarily. But if you'll notice, the metal ring at the base of the receiver is a little loose—looks as though it had accidentally worked loose with usage. That's intentional, however. If you twist the ring a little to the right you will find yourself on a secret wireless circuit. You will be answered by a voice which represents the organization higher up. Whose the voice is I haven't the faintest idea. May be a fellow judge or the president of my bank or the humble-looking chap who trims my hair, or some one I've never seen in my life. Nevertheless, I get all the orders for our nation-wide organization from that voice.

"Then I twist the ring to the left and am at once in touch with a lieutenant under me who transmits my orders to any section I may designate. Not much chance of any one betraying any one, is there?"

"But what is the object of it all? The amassing of wealth for the organization members, I suppose, through what, as a lawyer, I have always heretofore called theft and fraud," said Winter.

"Well," the judge demurred, "it's not quite so simple as that. We have, to be sure, a larceny section whose members specialize in all forms of forcible or fraudulent removal of wealth from its so-called legal owners, including bank robbery, forgery, a variety of swindling games and so on all the way down the various grades of defiance to law. We even have shop-lifting and pickpocket divisions.

"All these operatives work on a salary and a per-

centage of winnings paid from above. They turn over all their plunder, through secret channels, to the group above. Who is the keeper of this vast treasure thus accumulated and where it is stored neither I nor any other subordinate member of the organization has the remotest idea. We only know that this fund forms the basis of our working capital. This fund, aided by the manipulations of our secret agents who have invaded every strategic business circle in the country, controls the economic affairs of America and we hope shortly to make our power worldwide. We control the price of commodities and labor. We run the stock-market up and down at will. So you see our indirect gains both as an organization and as individuals are much greater than the direct winnings of our operatives.

"As a corollary to our business influence, we have at last acquired secret but absolute control of politics in America and after the Presidential election this coming fall, we expect, through the American delegation to the League of Nations, to hold supreme power over international affairs."

"What?" Winter demanded. "Do you mean to tell me that your organization can control a national election?"

"Absolutely. We will control the nomination for President by each of the three parties, and see to it that the man and party we choose is elected."

"But I don't understand," Winter objected. "You, your honor, though aloof from politics, as a judge should be, are known to be a stanch member of the Conservative Party. Our friend here is an active Centralist and I am a Radical, appointed as such by my Radical chief. How can we work together in a common political cause?"

"All the better for it," laughed the judge. "We will continue as before, outwardly supporting our various parties, but secretly carrying out the orders from above that will eventually elect the organization's choice."

"But which party has been chosen and who is the lucky candidate?"

"That I don't know yet," the judge replied. "I expect, though, to know immediately. I am due to call the Voice Higher Up at eight o'clock and get the decision. It's just eight now."

He stepped to the wall phone, put the receiver to his ear, and twisted the ring at its back.

"Did you reach a decision?" he asked without preliminaries.

"Yes. It's 583," came the cryptic answer out of the instrument in a hoarse, wheezy half-whisper.

That was all. The judge hung up the receiver and came back to the table, apparently satisfied.

"The answer is 583," he said.

The older lawyer nodded his satisfaction, but the younger merely looked puzzled.

"Let me explain," the judge went on. "You see, we never mention names in connection with our plots, even when we're in secret session. You will recall our discussing the names and politics of a number of prominent men last week in a purely academic way. We finally arranged them in the order of what we considered their importance in the nation and discussed the idea till I think the list and its order is fixed in your mind, is it not?"

Winter thought for a minute.

"Yes. I remember," he agreed.

"Well," the judge went on, "that was a key list.

The number 583 means that No. 5 on that list has been picked to head his party and win the election. The eighth and third will be chosen by their parties to oppose him and thereby serve our purposes."

Winter looked his amazement.

"You don't mean to tell me that those men are members of a crime trust! Why, they are the most substantial and trusted men in the country, particularly the one picked to win!"

"I don't mean to tell you anything of the sort," the judge retorted. "I've told you I don't know who my fellow members are. They don't need to be members to be manipulated by us. You were our tool before you became a member. Your worthy chief is serving us right along and I don't believe he even suspects that our organization exists, despite his vague talk about men higher up.

"What I do mean to say is that the next President of the United States, whether he knows it or not, will be the creature and agent of the greatest organization of lawbreakers the world has ever known."

CHAPTER VI

The Voice Higher Up

PROFESSOR FLECKNER turned from the screen, his face alight with excitement.

"This is big!" he exclaimed. "Bigger than we dreamed! Instead of ferreting out and exposing a lot of petty crimes we're on the trail of a world-wide conspiracy. We must trace that Voice Higher Up. When we find the man behind it we'll have control of their treasure and all their secrets. We'll hold the crime trust in the hollow of our hand."

I noted again the crafty and avaricious gleam in the old man's eyes and once more felt momentarily uneasy. But the look escaped Priestley. He was absorbed in study of the parallel pictures on the screen—Judge Tanner, Dorgan, and Winter up in the little private dining-room; and the bizarre, black-robed company in the secret clubrooms under the café's subbasement.

"Something else is happening! Watch it closely!" Priestley exclaimed.

Judge Tanner had turned back to the wall telephone. "He twisted the ring in the opposite direction this time," Priestley explained. "He's getting a subordinate on the line. I think it connects with this underground clubroom. He asked for No. 49. Can we find their telephones down there?"

Professor Fleckner shifted the levers and the various sections of the underground rendezvous slipped across the screen. In less than a minute we located a small room just off the big lounge in which there were a dozen wireless telephone-booths of the modern, absolutely sound-proof type. A black-robed, masked attendant had just taken a call. He turned to the pageophone beside his desk and announced, "No. 49 wanted on the phone." His voice was repeated all through the various rooms from the numerous little announcer-disks set in the wainscoting.

"What did I tell you?" Priestley exulted. "We already know more about one of the meeting-places of the organization than Judge Tanner himself."

One of the black-robed figures had detached itself from a group in the far corner of the lounging-room

and was coming toward the phones. In small white numerals at the top of his somber mask was stamped the number "49." Fleckner drove the rays of our instrument under the mask and revealed the face of Gormly.

He entered the booth, picked up the instrument, and whispered: "This is 49."

"This is the Council," came the voice of the judge, reduplicated in our ears, both from the little dining-room where he stood and out of the telephone-transmitter in the subbasement clubroom.

"Arrangements are complete. It's No. 583," he said. "Are your directions all transmitted and your releases ready?"

"All ready, sir," Gormly replied. "I'll fill in the numbers and get the radiograms out to-night."

"Very good. Now, I wish to speak to No. 25."

Gormly left the booth and ordered 25 paged, then retired to a small writing-room next to the telephone and sat down at a desk.

We got our third set of rays into operation again, Fleckner watching Gormly; Priestley keeping the judge and his companions on the screen, and I waiting for No. 25 to appear. I had learned how to control the instrument by now and when another dark-robed figure approached the waiting phone with the numeral "25" marked on his mask, I peeped behind that face-covering and revealed the features of Hammersley, the reformed blackmailer.

"Have you sized up the man I indicated?" asked the judge when Hammersley took up the receiver.

"Yes," he replied. "I've got his whole story and arranged for a meeting to-morrow night when I think he'll be ready for a proposition. I've closed with three other prospects this last week, too; all good men. I wish I could tell you the name of one of them. It would surprise you."

"Never mind that. The less I have to know the better. What's the news from the field?"

"I've just got in the last of the December report. We added a thousand and twenty-nine exactly during the month, four hundred and sixty-nine of them women."

"That's a good showing. Keep it up. We'll need them all for the plan we have on. No more small stuff till after next November. The treasury is full and we can concentrate on the main issue."

"That's the gang's general recruiting-agent," I exclaimed. "We're certainly getting data fast."

"Yes," declared Fleckner, "and here's a long list of the names of gang members."

He had been watching Gormly. On sitting down at the desk in the writing-room the pawnbroker had drawn a sheaf of radiogram blanks from his pocket. Fleckner had switched the camera attachment into the ray he was controlling and the messages Gormly had typewritten on the blanks before him were being photographed on a cinema film.

Each message was worded differently from the rest, a harmless appearing business communication. A blank space had been left in each, which Gormly was rapidly filling in with the key number the judge had given him, conveying to the initiated receiver of the message the names of the three chosen nominees for President of the United States. These messages were addressed to persons all over the country, who had evidently been previously informed of the plan and the part they were to play in carrying it out. They were all apparently obscure local

men—members of the crime trust in their district and acting as go-betweens for the central organization and the local leaders. I recognized no big names in national politics.

It seemed to us then with this much laid bare that we would have little trouble in locating the whole membership, including the man or men at the head, and, what loomed largest in Fleckner's mind, the vast treasure these plotters had stored away. But we had entirely discounted the brains of this precious outfit. It was as though they had divined beforehand, in some uncanny fashion, the marvelous instrument which, when they first laid out their plot, had existed only in the wizard mind of Professor Fleckner. So carefully had they guarded against all possibility of leakage of their plans that, spy on their secret meetings as we might in the following weeks, we could gather from their cryptic methods of transferring orders and submitting reports nothing that put us much farther along in unraveling the plot and getting at their real purpose than we were after the flying start made at this first session.

Nothing further of note happened that evening. Judge Tanner's party broke up immediately after he completed his secret telephoning. Gormly finished filling in his messages and gave them to a messenger to file at various wireless stations about the city. The black-robed throng in the underground club-room settled down for a night of apparently care-free gaming.

So we gave up the quest for the time being. Priestley and I departed after engaging to meet again at the laboratory early the next morning.

From that day on Judge Tanner, his two companions of that memorable conference, Winter and Dorgan, and Hammersley, Gormly and Hanson were never off our screens during their waking moments. We also kept a ray concentrated on the underground rendezvous of the gang. Still another ray was turned on a roving assignment about the country keeping tabs on the list of conspirators revealed by Gormly's messages.

To do this it was necessary for Professor Fleckner to increase the number of ray-senders on his apparatus and for each of us to learn to manipulate two rays at once. Also Miss Stimson, Fleckner's secretary, the young woman of the green eye-shade whom I had encountered on my first visit to the laboratory, was enlisted as an operative. Fleckner had the utmost confidence in her discretion. Furthermore, we agreed to make no unnecessary explanations to her regarding the revelations we turned up.

She made an admirable assistant, silent and intelligent, apparently utterly devoid of the usual feminine curiosity. She never ceased, however, to pique that mental quality in me. The green eye-shade continued to render her face utterly impersonal. Aided by her severely plain dress and treatment of her brown hair, it also lent that quality to her whole being. And her attitude toward us was in the main as impersonal as her appearance. Her momentary show of interest in Priestley's peril when I first met her was a brief exception to her habitual bearing. She paid little attention to Priestley and he seemed unaware of her existence.

With our forces thus organized, we followed our quest twenty-four hours a day. I secured a leave of absence from my paper under an arrangement with Fleckner and Priestley to pay my salary. At night

we three slept on cots in the laboratory and took turns at watch.

But though we spied on numerous secret meetings and telephone conferences in which members of the crime trust figured, we were able to get no inkling as to which of the three political parties they were supporting or what methods they were using. And so the national conventions came on one after the other.

In other days America prided herself as now in having pretty thoroughly eliminated vicious machine politics from national affairs. National conventions had long since ceased to put through cut-and-dried programs. Delegates really reflected their constituents' wishes.

Now, despite our knowledge that a nation-wide conspiracy was afoot to dictate the people's will, we could discover no departure from the principle of popular control. We found no point of contact with the crime trust. Not one of the members we had listed took any part in politics. Not one was a member of local, State, or national committees or conventions. Judge Tanner and the other two members of the Central Council, Winter and Dorgan, held no more meetings during the campaign. True, the judge dined frequently at the Riccadona as before, often in the private room with various groups of friends. There was, however, never any conversation that hinted at these companions being in the conspiracy. They discussed politics only in the most casual fashion. Judge Tanner maintained his pose of judicial aloofness from politics. He never used the wall phone again in any one's presence. Several times after a dinner-party broke up, however, he returned for a moment to the little dining-room on some pretext or other and exchanged cryptic remarks over the wall phone with the Voice Higher Up or with one of his subordinates in the secret subbasement clubroom. We could make nothing of any of these consultations.

As a matter of fact, the choice of national candidates seemed unusually obvious this season. During the preliminary campaign, the usual number of Presidential possibilities loomed up in each party, only to boil down to one obvious choice of the people in each case well before the time for formal selection.

And the men selected were citizens of such high standing, so far above reproach or suspicion that we were more than ever in the dark as to which could be the unconscious tool of the crime trust. Furthermore, the backers and counselors of each were men of equally high character.

The Conservatives led off with Henderson Livermore, a statesman of the old mid-twentieth century school, who had served with distinction as Congressman, Senator, and for three terms Governor of Oklahoma. The Conservatives had lost to the Radicals for five successive terms now. During the last two years, however, the tide had shown signs of turning toward the Conservative camp. The selection of a candidate of Livermore's caliber added to the hopes of his supporters.

Against Livermore, as the Radical candidate, was pitted Merton Penrod, of the State of Alaska, whose family had made a fortune in the gold-fields there. A large part of the estate had come to Penrod intact, thanks to his relatives, conforming to the new inheritance law by signing the papers of consent. But the heir had endeared himself to his followers by devoting his fortune to public works and living

most simply himself. He had served two terms as American delegate to the League of Nations council.

Incredible as it seemed that either of these men could be manipulated by the supercraft of Judge Tanner's organization, we felt certain that it was one of these two who had the crime trust's backing. For the third party, the Centralist, was as yet a joke in national politics. It had sprung into being as a compromise movement between the two old extreme wings sixteen years before and had never won a national election, though for the last six years it had held the balance of power in Congress.

Their candidate, Mortimer Chandler, was, however, one of the best known and most popular men in America, though he had never been in politics before. He had built up a huge farm corporation on a co-operative, profit-making basis and accumulated an immense private fortune of his own. Two years before the passing of the inheritance law he had anticipated it by turning that fortune back into the corporation, part to be divided among the holdings of the other shareholders and part to improve general rural conditions to the benefit of the country as a whole. He had not sought the nomination, but reluctantly accepted it on condition that he be required to take no strenuous part in the campaign. He was frankly looked upon as an amiable dummy to lead a forlorn hope.

Though we could get no positive evidence as to which of the two other parties had the backing of the crime trust, our reason told us it was the Conservative. That party had fought, step by step, the legislative restrictions on the accumulation of private fortunes.

What we had overheard at Judge Tanner's conference led us to believe that the crime trust, naturally, sympathized with that policy. The indications of popular reaction against undue governmental interference gave definite hope of a Conservative victory.

But early in the campaign signs developed that political calculations had gone astray. The revolt against the Radical platform, instead of swinging over to the opposite wing, tended more and more to take the middle ground of support for the Centralists. From a forlorn hope, their candidate's prospects presently became a lively possibility.

At this point our remaining doubt as to the leanings of Judge Tanner's secret organization was set at rest by the judge himself coming out in the open and taking the stump for the Conservatives on the ground of patriotic necessity. But, meantime, as it became evident that our effort to discover and thwart the plot was in vain and that the plot seemed doomed to failure, Professor Fleckner lost interest in that phase of our crusade. He concentrated his efforts more and more on an attempt to discover the identity of the Voice Higher Up and the treasure behind it.

Election night found him shut up in the workshop end of his laboratory at work on a new attachment to the telephonoscope, which he predicted would solve the mystery. He paid not the slightest attention to the election returns.

Priestley, Miss Stimson, and I, however, watched the results with intense interest. It was a close race, but by nine o'clock Chandler and the Centralists had

won by a narrow but safe margin. The crime trust, apparently, had met with defeat in its great ambition.

Being naturally curious as to how Judge Tanner would take this upsetting of his boastful prophesy, we turned the telephonoscope ray on the little dining-room at the Riccadona where the judge and four of his friends had been getting the returns. The party was just breaking up.

At this moment Professor Fleckner burst in from the workroom in great excitement.

"I've got it!" he exclaimed excitedly. "We'll be able to trace the direction of that secret telephone wave now. We're about to see the man behind the Voice Higher Up!"

The old inventor held in his hand a contraption shaped like an overgrown hornet's nest made of small, stiff wires crossing each other so as to form inch squares. In its center was a small electric coil attached to a dial at its base.

The professor set up his stepladder under the center of the overhead webbing of telephonoscope aerleons, climbed up and, with a pair of pliers, attached this contrivance to the junction point of the aerleons. He then connected the dial at its base with the telephonoscope control-board by means of an insulated wire.

"There!" he exclaimed. "That's what I call a ray-angulator. When the telephonoscope ray crosses the wave-impulse of a radio telephone or telegraph, this dial gives the angle at which the two sets of waves cross, the direction of the telephone or telegraph waves and the distance from their source to the point of intersection with our ray. In other words, we'll be able to plot two sides and the included angle of a triangle and all we'll have to do will be to send another ray from our telephonoscope across the third side of the triangle to the source of the telephone or telegraphic conversation.

"For instance, suppose our telephonoscope discovers Judge Tanner talking with the Voice Higher Up. The dials here will show us at once which direction from the judge the man behind the voice is and how far they are apart. We plot the triangle in a couple of seconds, send a second ray off in the right direction for the right distance and there you have the head of the crime trust!"

"You've got your chance right now!" Priestley broke in excitedly. "The judge's party just left the dining-room. The judge turned back saying he'd dropped a glove and has just gone to the wall phone and connected with the Big Voice."

With trembling hands, Fleckner switched on the angulator after a glance at the screen which revealed the picture Priestley had just described. He read the figures to which the dial-needles pointed, placed his compass and rules on the drawing-board, and a moment later found the direction and distance from us of the owner of the mysterious voice.

Then he adjusted a second ray-sender of the telephonoscope to that direction and distance and, placing a hand on the control-lever, turned to us dramatically.

"Prepare your minds now for anything that may follow," he warned. "For when I press this lever there will stand before us on the screen the head of the crime trust."

CHAPTER VII

Crime Enthroned

I KNOW I for one held my breath with suspense and stared like one hypnotized at Professor Fleckner's bony hand, waiting for it to press the lever that would reveal the object of our long quest. But even as he was about to move, he stopped, astonished as were the rest of us, by the scrap of dialogue we caught at that instant from the surface of the magic screen.

"My congratulations on our splendid victory!" Judge Tanner was saying in a delighted tone.

"Thanks!" came the hoarse whisper from the other end of the secret telephone circuit. "It was a great triumph. We have reached the goal we've fought toward for years. This damnable era of putty-souled reform is about to come to an end."

We stared at each other in momentary bewilderment.

"Victory!" exclaimed Priestley incredulously.

"What kind of a bluff is that?" I demanded.

"It's no bluff," Fleckner declared. "We've simply been hoodwinked by the gang. Another proof of their cleverness. They were working for the Centralists all the time, it seemed. What a joke on the righteous Mortimer Chandler! Imagine what he'd say and do if he learned that he was a mere tool of a criminal organization! I'll take keen pleasure in informing him of the fact at the proper time. Meanwhile we'll see now who's this superlative genius who leads this world-wide conspiracy in crime."

He gave the lever a twist. Then he dropped it and staggered back, his usually cold, well-controlled features preempted by a look of almost idiotic amazement. Nor were the rest of us any more self-possessed, as we stared at the figure that suddenly flashed on the screen beside Judge Tanner.

It was Mortimer Chandler, the newly elected president of our United States, and head of the crime trust!

Some moments passed before we recovered sufficiently to heed further what was being said between the judge and the President-elect. No wonder Chandler had willingly surrendered the use of his great private fortune when he was in control of the enormous treasure accumulated from the plunder of this world-wide robber-band! No wonder he could afford to disdain all the conventional methods of furthering his political ambitions which he had so artfully and cynically concealed, when he held in his hands so masterfully the hidden reins of secret unofficial government that had made a hollow mockery of popular rule!

But presently we were listening tensely again to the words of that hoarse, disguised voice.

"I cannot commend you too highly for your capable work," Chandler was saying to the judge. "I wish I might meet you in my proper person as your chief and talk with you freely face to face, but, as you know, it isn't wise. I can't even reward you in any open way, but you will be repaid amply, nevertheless."

"I am perfectly satisfied," replied Tanner humbly.

"I'll have a program to outline in a few days. Meanwhile, good night," Chandler added.

The pair of master-crooks hung up, and Judge Tanner hurried out to join his waiting party in the

café lobby. We turned our attention entirely to the President-elect.

It was hard to believe that the gravely dignified man who turned away from the telephone could be a supercriminal bent on debauching the highest office in the gift of his country. His lean, dark countenance suggested ascetic living and nobility of purpose. His rather irregular features were atoned for by a high, well-molded brow. His brown eyes were gentle but keen. He looked rather less than the forty-nine years with which newspaper write-ups credited him. His heavy black hair was as yet sprinkled only lightly with gray and his figure was straight and well-tailored as that of a boy of twenty.

He was a man whom women adored at a distance, but never trifled with; whom men followed with enthusiasm, but never slapped on the back; a human sepulcher, whited more successfully than any other I have come in contact with in my long newspaper career.

He was at present in his New York home, a fine old mansion down in the Riverdale section of the city, which he had bought several years before and in which he spent part of every winter. He had been telephoning from a little soundproof booth off his study over an innocent-looking telephone equipped like the one on the wall at the Riccadona with a secret ring switch. His secretary and his oldest son sat conversing just outside the booth all unconscious that the employer and father of whom they were so proud was directing a criminal conspiracy at their very elbows.

Chandler spent the rest of the evening with his family and his friends in his library listening to radiograms of congratulation read by his secretary and replying to numerous congratulatory telephone calls from near-by friends. We noted nothing further of interest.

After the President-elect had retired for the night, we gave ourselves over to excited discussion of this marvelous revelation. Gradually our talk simmered down to a more sober discussion and consideration of our next move.

Priestley was all for immediate and drastic action. His one thought was that the conspiracy and its head must be exposed at once. He chafed at the thought of allowing even the rest of the night to pass with a deluded nation in ignorance of the peril which he believed we were now able to avert.

"This man must never be inaugurated," he exclaimed. "We must denounce him at once. We must make a charge of criminal conspiracy first thing in the morning. I'm in favor of giving a statement to the Associated Press to-night so that all the morning papers will carry it and warn the public."

I agreed with him heartily in his purpose to prevent the inauguration, but I saw at once the peril of acting too quickly. We would be in danger of defeating our purpose completely.

"We must move more carefully than that," I warned. "Our evidence isn't complete enough yet. Such a statement coming from a clear sky to-night would appear to be nothing but a gigantic hoax. I doubt if the papers would print it. We would simply serve notice to this uncannily clever group and they'd cover their tracks completely before any investigation could be started."

"But," Priestley demurred, "we have cinema phonographic records of all we've seen and heard.

We can reproduce that first council meeting in which Judge Tanner explained the crime trust to the new members. We can lead the police to the underground clubrooms. That's tangible evidence. We have the names of a host of the conspirators. We could make a lot of them turn State's evidence."

"You forget a few things, my enthusiastic young friend," Fleckner broke in. I noted a touch of exasperation in his voice. The impetuous idealism of Priestley, I could see, grated a little on Fleckner's nerves. I think the problem of controlling his whole-hearted partner worried the old inventor even then.

"True," he went on, "we could have the underground clubrooms raided, but what would we find? Nothing but an elaborate gambling-den that would probably be empty by the time the police reached it. For this clever gang, you may depend, has not omitted any secret device for giving warning of a raid and allowing the inmates to escape. But suppose one or more of them are caught, not one knows the identity of a fellow member, excepting Hammersley, and the two pawnbrokers. There is little chance for an informer to prove anything. Not one of them, not even the judge, knows the identity of the man at the top. As for our records, any moving-picture man would testify that those could be faked. Any statement we or any informer might make would be branded as too grotesque for belief, a part of a ridiculous plot.

"No, we must be patient and gather evidence bit by bit until we can demonstrate our information absolutely, and we must demonstrate it to the general public when we do. For another thing you have forgotten is that the machinery of law and justice is in the hands of his gang. We wouldn't get far at present with court charges.

"Furthermore, the most important argument of all against undue haste is that we must locate their treasure-chest before we betray our hand and give them a chance to make away with it. When we can produce the treasure, we have tangible proof and hold them in our power.

"My plan is this. We must fight fire with fire. For the time being we must become criminals ourselves. We must outplot the plotters; outblackmail the blackmailers; outrob the robbers. In other words we must learn the secrets of the crime trust, insinuate ourselves into their councils, become the real controllers of their great organization, and then convert its evil power to the public good."

Priestley and I both looked doubtfully at the speaker, inspired for the moment by the same misgivings. Our thoughts must have been reflected in our faces. Professor Fleckner lost his temper.

"You are not quite in accord with me, my young friends," he snapped. "Let us understand each other once for all. I am glad of your counsel and your assistance. But in the last analysis, I am in control of this campaign. Remember the Priestley fortune is tied up in this thing. Let any one contest the legality of the method by which the Priestley heirs signed it over to you, friend Thomas, and all I have to do is to fail to testify properly as to the part my invention played in it. I've nothing to lose. I can make more money holding up the crime trust, if I choose, than by manufacturing telephonoscopes on a large scale. So don't try to cross me unless you two wish to be put in the light of unpleasant conspirators."

He glared at us for a moment and then his flash of temper passed as quickly as it came.

"There, there!" he exclaimed in an altered tone. "Don't take me too seriously. I'm a little crotchety to-night. But don't let your shortsighted ideals interfere with my practical methods and we'll get along all right. Now you boys run along home and sleep. I want to do some planning. I'll tell you the results in the morning."

And so, a little dazed and decidedly uncomfortable, we left him. It was evident to us at last that we were for the time being in the power of the crafty old inventor. We could only hope that, however devious his methods, his results would in the end justify our acquiescence.

CHAPTER VIII

The Crime Trust Prepares For Pay-Day

IN less than a week after we ran to cover the head of the crime trust, it seemed that Professor Fleckner's determination to locate its hidden treasure and gain control of its vast organization was about to meet with success. We had, naturally, added to our list of those whom we were keeping on our screen in the Fleckner laboratory the dignified figure of our President-elect, Chandler. Upon that criminal statesman we concentrated our chief attention.

It was on the Wednesday evening following that memorable election night. Chandler had returned in the afternoon from Havana, where he had gone for a few days recuperation from the tension of the campaign. He was dining quietly at home with his family.

In the private dining-room at the Riccadona he had met once more the Council of Three: Judge Tanner, Dorgan, the lawyer, and Assistant District Attorney Winter.

Again the three subordinate agents, Hanson and Gormly, the pawnbrokers, and Hammersley, the advertising man and recruiting agent of the trust, were present in the main dining-room. They retired to their underground rendezvous on seeing Judge Tanner pass through.

The session in the private dining-room opened with a season of mutual congratulation. Each, it seemed, had directed some important branch of the work that had so successfully won Chandler the Presidency. In what manner they had functioned we were still ignorant. Their references to details were as cryptic as ever.

But it was evident, on the other hand, that they were still in the dark as to the full significance of the election. They did not yet suspect the identity of their chief.

A remark of Winter's first betrayed that.

"I begin to understand a little," he said, "of how our organization work is carried on, but I certainly am puzzled as to how we can expect to control for our own purposes such a strong-minded, self-righteous citizen as Chandler. He's too shrewd to be hoodwinked easily and his record doesn't hold much hope that he can be bought."

"You can rest assured nothing crude will be tried," the judge assured him. "I don't know much more about the general plan in detail than you do. I have my part assigned to me; you yours; Dorgan his.

Nobody knows the plan in its entirety, but the master mind at the head who planned it all."

"His certainly is a master mind!" Winter agreed. "I'm very curious to know who he is."

"Naturally we all are," commented Dorgan dryly, "but we'll never find out."

"Also, it's most unwise to let our curiosity get active in that direction," added the judge. "We had a young man in the organization two years ago who couldn't altogether restrain his curiosity. The matter was brought to my attention. No knowing what he might not have learned, if he'd lived. He was a pretty bright chap."

"He didn't live then?" Winter asked nervously. I suppose he suddenly remembered, as I did, Tanner's tale of the other man, who had refused appointment to the council and had died on the way home.

"No, he died quite suddenly," the judge informed him. "He was taken with acute appendicitis while dining with me in this very room the evening after I learned of his indiscretion. We rushed him to Grantwood Hospital, but it was too late to operate. He died early the next morning."

Winter shuddered.

"Why, they are a gang of damnable murderers!" exclaimed Priestley, when this part of the conversation came from the screen. "We can't dally or compromise with this thing. We must smash this crime trust before any more atrocities are committed. We——"

"Attention, my boy!" Fleckner interrupted. "The judge is saying something important. We want to listen carefully."

"So to-night I expect to get in a complete report of the election expenses and transmit it to the Supreme Council," Tanner was saying. "They will set the machinery in motion and in a few days it will be pay-day."

By now we inferred that what the judge in his ignorance called the "Supreme Council" was really merely Chandler himself.

Judge Tanner turned now to the wall phone, twisted the ring for the connection with the underground club and asked for No. 123. The section of the screen with which we were covering that retreat showed presently a masked, black-robed figure approaching the phone-booth who answered to the number demanded. Peering through the mask with our ray revealed the face of a pale, blond, middle-aged man whose identity was unknown to us then. We learned by trailing him later that he was a man named Black, a minor accountant in the New York county clerk's office.

His sole function in Chandler's organization seemed to be to receive cryptic figures from the district leaders all over the country, tabulate them and report them to Judge Tanner. Apparently he performed this duty entirely in the dark as to the figures he handled, who gave him his data and to whom he reported the results. Such were the methods of the crime trust.

"Is your report complete?" asked the judge when No. 123 had taken up the receiver.

"Yes," was the reply. "It totals twenty million four hundred and seventy-five thousand."

"Good!" commented the judge and twisted the ring over, cutting off the accountant and switching on the connection with Mortimer Chandler's study. The chief was evidently expecting a call, for he had

just left the dinner-table and was entering the study when the phone buzzed.

"I have the report," announced the judge. "It's twenty million four hundred and seventy-five thousand."

"I will call you back in a few minutes," replied Chandler abruptly and switched the connection. Judge Tanner returned to his companions at the table. Chandler, meantime, had another man on his secret phone circuit.

"Good Lord!" I exclaimed. "If that figure means dollars, it's a whopper of a slush fund, as the old-time politicians called it."

Fleckner hastily switched in his direction finder and in a moment had located the chief's call in an upper apartment in a rooming-house in the Rock-away section of the city. This man, we learned later also, was chief clerk in a bond house, a quiet young fellow named Anderson, who likewise, we inferred, performed in blind, routine fashion the duty of gathering and tabulating financial reports from around the country, duplicating the work of Tanner's lieutenant Black.

"Have you your report ready?" Chandler asked.

"Yes, it's twenty million four hundred and seventy-five thousand," he responded and the chief immediately switched off with a brief word of approval and signaled Tanner again.

"The total is correct," Chandler said. "Have your man mail detailed report to No. 470."

Tanner passed these instructions back to Black, who immediately drew a large envelope from his robe, wrote on it: "Lock Box 470, General Post-Office, New York City" and dropped it in a mail-chute.

"Do you get the idea?" Professor Fleckner chuckled, turning to Priestley and me. "Our crafty criminal chief doesn't trust his followers. He has duplicate organizations working independently of each other for checking up finances. Takes no chances!"

Meantime, Chandler had switched the phone connection to a handsome apartment in the Yonkers section. "J. K. Zeebruck" was the name on the door-plate. I knew of Zeebruck as head of one of the big cotton goods jobbing houses. To find him a member of the crime trust was another of the sharp surprises to which I was being treated. Zeebruck himself answered Chandler's call.

"The report is ready," the chief announced. "It's in No. 470. Push things along as fast as possible."

"All right, sir," was Zeebruck's only comment, and Chandler disconnected.

"They don't waste any words over business," Priestley commented.

"They have learned that the human tongue is a dangerous organ," Fleckner remarked dryly.

It was not till the next forenoon that anything else happened worth mentioning. And then things began to move rapidly. We held our breaths from moment to moment, expecting each instant that the next would reveal the treasure-trove we sought.

J. K. Zeebruck was stirring at an early hour the morning after, getting his orders from Chandler. The fact that he was taking and executing orders from such a source would have caused considerable amazement, amusement as well, in New York political circles. I don't doubt that it would have jarred the phlegmatic and sardonic Mr. Zeebruck as well if

he had known the identity of his chief. Zeebruck was a life-long Conservative and had taken an active interest in the campaign delivering speeches throughout the State. He had centered his attacks on the personality of the Centralist candidate particularly after Chandler began to draw ahead of his rivals. Zeebruck made the butt of the bitterest ridicule the man he was secretly and unknowingly serving.

The cotton man's house was a short five minutes by moving sidewalk from the main New York post-office in Getty Square. It was barely eight o'clock when he unlocked Box No. 470 and took out the big envelope mailed there from the underground rendezvous of the crime trust the night before.

Thrusting the envelope into an inside pocket he returned to the subway and fifteen minutes later was closeted alone in his private office in the big warehouse just off Longacre Square.

Not till then did he open the envelope. It contained a dozen or so sheets of closely typed memoranda. While Zeebruck, in his supposed privacy, was poring over these records, Professor Fleckner was calmly making a photographic record of them for our future study.

But we had expected to find a complete financial statement of the crime trust's election expenses, the names of the recipients of the campaign funds and possibly a clue to the location of the central fund from which these moneys were to be drawn. Instead, we read, to our disappointment and bewilderment, merely a tabulated set of orders for shipment of cotton sheeting to retail dry-goods men all over the country. It had all the appearance of a routine memorandum of a day's orders for a certain line of cotton goods.

"Looks as though we were off the track," Priestley exclaimed. "Is the trust going in for some sort of a secret deal in cotton—violating the price-fixing law or something like that, do you suppose?"

"More likely code stuff," Fleckner ventured. "I still believe it has to do with the figures Chandler got from his two tabulators and that certainly had to do with campaign funds. Let's see what he does next."

But we were not yet familiar with the crime trust's wily methods. We were to learn later that this was one of the most significant and important documents ever transmitted through the organization's underground channels. Indirectly it had a far-reaching effect on the future of millions of people.

Zeebruck's next move was surprisingly matter of fact. Having satisfied himself of the contents of the document, the cotton man seemed to abandon all secrecy in the matter. He pushed a button and a clerk appeared.

"Good morning, Mr. Zeebruck, Mr. Jeffries hasn't come in yet," said the young man. "Can I do anything for you?"

"Good morning, Morse," Zeebruck answered, casually handing him the memorandum. "You'll do all right. Here's a list of orders for that new special grade K sheeting, just come in from the up-town office. See if we have any of that in yet. My recollection is we haven't. If not, send a rush order to the factory for the total amount of these orders. Have it rushed here by motor-truck. Report the matter to Mr. Jeffries and tell him to rush off these consignments as soon as the stuff's in."

He waved his hand in dismissal of the clerk and subject as well and turned to other matters.

"Takes it rather casually for a matter as important as you thought," Priestley told Fleckner. "Doesn't seem likely all his clerks are members of the crime trust. Yet that mysterious document is kicking about his office like any other order."

"Nevertheless, I'm going to watch it through," Fleckner declared stubbornly.

He was keeping the clerk with the order on the screen. The young man was running the items of the orders through an adding-machine to check up the total.

"See that figure?" Fleckner exclaimed excitedly as the clerk set down the total number of bolts of sheeting ordered.

It was twenty thousand four hundred and seventy-five.

"The big number the judge and Chandler had so much to say about was just one thousand times that. I'm going to follow that order and examine those bolts of sheeting. We are about to see how they deliver their plunder and where they keep it!"

The clerk turned to a dictagraph, slipped in a radiograph blank, and dictated the following order:

Massachusetts General Cotton Mills Company, Fall River, Massachusetts. Ship motor-truck, at quoted price, special grade K sheeting, 20,475 bolts, rush!

ZEEBRUCK COMPANY,
New York City.

A moment later the clerk drew out the blank with this order automatically typed on it, slipped it in an envelope and dropped it in the radiograph delivery-tube. He then dictated a memorandum for his chief, Jeffries, attached the list of orders to it, laid it on Jeffries's desk, and then he, too, seemed to dismiss the matter from his mind.

Fleckner had put another ray into operation and the next instant had it concentrated on that humming milling center, Fall River. A few minutes later he had located the Massachusetts General Mills and had found the shipping department.

The big order was received in the regular routine by one of the clerks who transmitted it to a warehouse man in a routine way that indicated nothing unusual. Still Fleckner doggedly followed the order until presently from a certain section of the warehouse we found bolts of cotton sheeting labeled "Special grade K," being dumped aboard big express trucks.

For a few moments we watched this very ordinary scene. Then suddenly Fleckner's crafty face lighted up with a new idea.

"I think I'll look into one of those bolts of cloth," he commented, seizing a lever that controlled the ray's intensity.

The last of the shipment was being bundled aboard the last truck by the big automatic loading machine. On one of the top bolts he concentrated the ray. The rest of the picture was crowded off the screen by the suddenly enlarged bolt of cloth that now filled the whole space.

Fleckner shifted the ray a little further and drove it through the surface of the bolt. The cloth seemed suddenly to fade away. We gasped in unison.

We were looking at a big, tightly packed bundle of bills of small denominations, a section of the crime trust's treasure.

CHAPTER IX

Free Lance Currency

"WE'VE got it!" Fleckner exclaimed. "The treasure of the crime trust!"

Swiftly he ran the ray through bolt after bolt of the fabric in the big trucks that were now speeding down the concrete highway toward New York City. They were all the same—a few wrappings of cloth in each case around a big roll of bills.

"But," I objected, "do you think this mill is the final hiding-place of the fund or just a way-station, a sort of clearing-house through which it's put into circulation section by section?"

"That I can't say just yet," the professor admitted. "It's immaterial. If this isn't the main supply we can easily trace it from here. No hurry about that. Meantime we'll follow this payment up and see what we learn. It should certainly lead us to some other important members of the trust. Trace this to its destination and then back to its source and we'll pretty well round out our knowledge of the crime trust and be able to strike where it lives."

The long line of big cotton trucks was now making ninety miles an hour, a part of the continuous stream of road traffic over the great main highway a quarter of a mile wide extending from Boston to New York through the continuous city that had been built up along the Atlantic coast in the last fifty years. In an incredibly short time the trucks were bunched in the underground delivery shed of the Zeebruck Warehouse and lightning-like electric carriers were stripping them of their cargoes.

The clerk, Jeffries, in charge of the shipment, had been notified the moment the first truck began unloading. He was now directing a shipping gang who were dividing and labeling consignments to the long list of "customers" on the memorandum-sheet Zeebruck had sent him that morning.

But while the labels for these shipments were being prepared, I made another interesting discovery. Some of the names on this list I recalled as the same as those to whom instructions had been radiographed from the underground headquarters that January night the winter before, when the decision as to Presidential nominees was first announced.

I got the copy of the list we made at that time and checked it up with this. They were identical. The man in each district who acted as go-between for the central and local organizations in giving instructions evidently acted as local paymaster as well. He was apparently the only man in each district known by name to any one in the central headquarters.

I recalled, too, that these men whom we had run down and watched with our rays were all small, general storekeepers. What more natural, then, than that they should be receiving shipments of cotton sheeting?

Before evening the out-of-town consignments were all under way by airplane express. The unpopular anti-aircraft law that had been passed by a reactionary Congress in the early part of the outgoing administration had been repealed early in the spring as a step toward winning favor in the coming campaign. Air service had now been in full swing again for over two months.

Incidentally tracing out a few of these consign-

ments to their destinations disappointed us in one sense. We added nothing to our list of known members of the trust. We did, however, fill in more completely our picture of the organization details. We found that under the establishment of each of the local storekeeper agents was an underground rendezvous, a duplicate on a smaller scale of the secret clubroom under the Riccadona and run in the same way. Hither in each case through a secret passage from the store the money-laden cotton bolts found their way, to be distributed by a black-robed and masked figure to other similarly anonymous figures.

But the method of passing on the plunder to the men higher up—to Judge Tanner and to Chandler—interested us most. This we were able to observe very satisfactorily by watching at the same time those two men and all the New York consignments of cotton. It required some lively manipulation of the rays and at that we succeeded only partially.

Both Chandler and Tanner had country homes, the former up in northern New Jersey and the latter out at the far end of Long Island. Both gentlemen ran out to their country places that evening and returned the next morning. Each carried a small grip both ways, but though we kept those grips on the screen and watched their owners minutely we caught neither collecting any money.

Both men on returning to town in the morning went directly to their offices, leaving their grips checked at the station.

Meantime among the New York City shipments of cotton bolts was a good-sized consignment to a general storekeeper in the Hastings section. No sooner had he received his instalment than he closeted himself in his office, locking the door back of him. Then he passed through a secret panel into the storeroom carrying with him two large grips. In the storeroom, he opened a concealed trap in the floor, dropped the grips down and then slid the money-laden bolts of cloth down one by one after them.

Next he descended a ladder into a spacious basement room. In a few minutes he had unrolled the false wrappings from the bolts, and packed the money in the two grips, excepting a generous package, which he thrust in his pocket. He replaced the grips in his office, then he turned to a pile of cotton-bolts of the same texture as those he had broken up. They lay in a pile in the end of the secret basement. From this pile he took the same number as he had removed from the storeroom and put them back on the storeroom shelves, presumably to avoid suspicion among the clerks. This done he closed the trap and returned to his office through the secret panel.

Presently he emerged with the two bags, remarking to his cashier as he left the store: "I'm going to run down to the station and check these grips for a friend of mine who left 'em here this morning. If any one asks for me I'll be back in an hour."

He threw the grips in his car and ran down to the Pennsylvania Station with one of them. He checked it there and slipped the check in an envelope, sealed it, and marked it with an "X." He did the same thing with the other grip at the Lackawanna Station, but this time he marked the envelope with a "Y."

Before leaving each station he stepped into a telephone-booth and called up his office ostensibly to see if any one had called him. Our first thought was that these were some more of the trick telephones and that he was phoning a code over a secret connection.

But a test with the direction finder showed the call apparently *bona fide* and answered both times by his cashier at the store.

We were so absorbed in studying what he said in the phone-booths that we failed to observe all his movements there. It was not till just before he left the booth at the Lackawanna Station that Priestley's keen eyes detected his real reason for entering it. As he hung up the instrument he pulled at the narrow panel molding at the back of the booth and a section of panel came out. He slipped the envelope marked "Y" behind it and snapped the panel back in place.

"Planted it for some one!" Priestley exclaimed. "Wonder if he left the other check in the phone-booth at the Pennsylvania?"

"Of course," Fleckner exclaimed disgustedly. "We've got to watch these sly dogs closer."

He swung a ray back to the other station, found the booth in which the storekeeper talked and examined its back. Sure enough, there was a secret removable panel there also, and behind it was the "X" envelope with the other satchel check.

"We'll keep watch of those booths," the professor decided. "I suspect that Chandler and Tanner are the boys who will call for them."

And within the next few hours his surmise proved correct. As a consequence, before dinner time that evening the head of the crime trust and his first lieutenant were each locked in his private office counting and stowing away their share of the plunder gathered by their army of confederates. And there could be no better example of the masterful skill with which this secret machinery was planned than the fact that not a man of the whole organization could have told how that money reached its destination or who received it.

Chandler locked all of his plunder in a secret wall-safe. Tanner put only half of his there. The rest he packed compactly in two broad, thin bundles and slipped them into two big hidden pockets on the inside of his coat. Then he sent for his car again and was driven to the Riccadona.

In the little private dining-room he found Dorgan and Winter waiting for him with an air of unconcealed expectancy.

"Pay-day, at last," he announced jovially as he shook hands.

He drew out his bundles of bills and handed one to each.

"Better count them," he cautioned.

While his companions were following his advice he attended to ordering the dinner. At length he looked up quizzically at Winter, who was fingering over the last of his share of bills with lingering enjoyment.

"Sure those bills are all right?" he asked.

"Suit me all right," Winter grinned back. "Crime pays better even than I thought."

"I hope you won't be disturbed when I tell you they are counterfeit."

"Not at all," Winter chuckled, complacently smoothing out the last twenty-dollar note. "I'll take all of this kind of counterfeit money I can get."

"You may well say so," Tanner agreed. "They are made of paper taken from the United States Bureau of Engraving and Printing and printed with plates stolen from it. So naturally they are perfect and beyond any power of detection by an expert."

"Do you mean that?" Winter asked, impressed now by the judge's solemnity.

"Absolutely." Winter still looked incredulous.

"He is right," Dorgan corroborated. "That is generally understood by the members of the organization, though not one of us but the head of the organization, whoever that is, and the men who do the work have any idea where the counterfeiting is done or who does it."

"But," Winter objected, "I should think wholesale thefts of paper and plates from the Bureau would make an awful public row."

"Not at all," Tanner assured him. "The poor dears in the Treasury Department don't even know anything has been stolen. You see, certain very expert gentlemen of our organization made some clever imitations of the paper and plates used by the government and from time to time as necessary they break into the place and substitute the imitation for the real. So as a matter of fact the authorized issues of government paper of small denominations are phony and our outlaw stuff is real, as far as material and print are concerned.

"Further than that, this money has genuine value with us, for it is backed dollar for dollar by the hidden plunder from our operations. Where that plunder is hidden only one man knows, but we have current statements of the amount and of the amount of paper issued against it. So within our circle this currency, which is in a technical sense counterfeit, is of as much value as authorized government paper. Thus we avoid all danger of passing around and disposing of identifiable articles such as marked or registered bills and bonds, jewelry and the like.

"In other words we have as complete and effective an underground financial system as the United States government itself."

"Clever!" Priestley exclaimed after we had grasped the meaning of this explanation on which we had spied. "Proof against any ordinary detection, too."

"Yes," grunted Fleckner in despair. "And it means that just as we think we have succeeded in finding the treasure it proves to be as far off as ever. We are like Tantalus in Hades in water up to his chin and suffering from excruciating thirst."

And the expression of greed on the old professor's face convinced me that physical thirst could be no more torturing than the emotion from which he was suffering.

"Treasures of Tantalus!" flashed into my mind and clung there partly by the fascination of alliteration and partly from its past application to the maddening search on which we were embarked.

CHAPTER X

The Larceny Section in Action

FROM now on we began gradually to find the trust operations less bewildering. By constant study of the various guarded communications between members and listening in at Judge Tanner's council meetings, we came to catch the drift of the organization's political plans and eventually to understand the code they used when discussing particularly delicate matters.

In the coming Congress, the members were divided by the trust manipulators into those who could be controlled already, those who could be relied on to favor naturally the trust proposals, and those who would oppose them from conviction and could be won

only by argument or indirect methods. As it stood, Chandler thus had a bare working majority, but had elaborate plans for increasing his margin before the session was over.

No violently revolutionary measures were contemplated at the outset. They were to begin with slight and apparently harmless revisions of the laws that had hampered the predatory business interests in recent years, inserting unsuspected jokers that would make secret violations easier and conviction more difficult. This was to be followed by a campaign of insidious propaganda that would eventually make the popular will lenient to a complete repealing of those cramping laws.

In the more narrowly criminal direction they aimed at liberalizing the laws governing the release of inmates of detention farms. They also had planned an elaborate campaign for gradually filling the courts of every degree with judges under control of the trust.

In short, the nation at large was under the complete rule of a criminal oligarchy which was about to plunder it so artfully that the complacent public would pay tribute without even realizing its exploitation. It was not till now that we realized fully the extreme difficulty of the task of exposure.

Nevertheless we were in no way daunted. Priestley pursued the task with all the zeal of a crusader of old. I found his enthusiasm contagious. What emotions were at play behind the green eyeshade of the taciturn Miss Stimson, Professor Fleckner's able and conscientious secretary, I could only guess, but I noted that she watched every move of Priestley with her shy, sidewise glance, and was quick to second any suggestion of his.

As for Fleckner himself, his demeanor became colder and more impersonal as our investigation proceeded. It was more and more evident to me at this time that his interest in the whole affair began and ended in his hope of finding the hiding place of the Treasures of Tantalus. But for a time we made no more progress in this direction.

Then, a little over a month after our last fiasco, we ran again upon a warm trail.

During one of Judge Tanner's council meetings we got the first hint that the larceny section of the crime trust was about to go into action after a long period of quiet. The judge had called up Chandler as usual to give his report and receive instructions.

"And now," came the hoarse whisper of the Voice Higher Up, "your boys below can indulge in a little fun again. We need two. No publicity this time."

"All right," the judge agreed, "the section has been working up some good prospects. I think they can do it in one job."

Chandler hung up and Tanner twisted the ring connecting with the underground rendezvous.

"Give me 72," he directed, and presently he was talking with a short, thick-set fellow whose face under the black mask might have been that of a boss plumber.

"We want two this time," the judge directed. "Can you do it in one job and no publicity?"

"I can," the other answered promptly. "I have a plant all laid. Can finish it in about two weeks."

"Very good, go at it immediately."

The judge hung up and returned to his companions at the table.

"For your information," he said to Winter, "I will

explain that two million dollars is about to be added to the organization's reserve fund out of the vaults of one of our leading banks, and the deed will be accomplished so that the chances are the officers of the bank will never discover their loss."

"But how? I don't understand!" Winter exclaimed.

"That's all I can tell you, because that's all I know," the judge replied. "That's all I want to know. Remember what I said about curiosity. If by any chance I happened to learn more than that I would be no more immune to deadly disease or a sudden accident than were the two misguided gentlemen I've told you about."

Meantime we were following the movements of No. 72, whom Tanner had just been instructing. He walked swiftly through the crowd and singled out two other black-robed, masked figures. Nos. 116 and 297, touching an elbow of each as he passed. He went on into one of the little conference-rooms off the main clubroom, and within a few minutes the two he had signalled casually joined him and closed the door.

"The big job is on," No. 72 announced. "Is the fake stuff ready?"

"I'll have it in the warehouse on twelve hours' notice," replied No. 116.

"Can you start the digging to-night?" No. 72 asked No. 297.

"Within two hours. I've kept the van there with tools and plenty of room for the dirt."

"All right, go to it," No. 72 approved. "Give No. 116 the word when the job's within twelve hours of finished."

"We can make it about Friday night," No. 297 decided as he went out.

We kept this digger gentleman on the screen and immediately began watching interesting developments.

He strolled about the main room for a few moments, now and then casually jogging an elbow of one of the company, until he had thus served secret notice on six of his fellow members. Each man summoned, withdrew unostentatiously, and presently all six were out on the street in ordinary citizens' clothes. They paid no attention to each other, but apparently departed on their various ways bound for home.

They were all well-dressed, presentable-looking young chaps, having the appearance of students or young professional men. A little later they were followed by No. 297, an older man who looked like a prosperous contractor. He proceeded to the parking plaza in front of the Riccadona, got into a high-powered limousine and turned south.

A little way down the avenue he directed the chauffeur suddenly to the curb and hailed a gentleman who was sauntering along in the same direction.

"Hello, John!" he called genially, swinging open the car door, "let me give you a lift."

"Don't care if I do; thanks," replied the other, looking up in apparent surprise and then seeming to recognize a friend.

He was one of the six helpers who had left the underground club after being nudged by No. 297.

The car turned at the next corner and swung around a block, until the owner, peering out the rear window, seemed assured that no one was following. Then they turned back into the avenue, and

a block below picked up another of the six helpers. This was repeated until the six were all aboard.

About 1. A. M. they crossed 125th Street in Seventh Avenue on the upper street level, which as usual was practically deserted at that time of night. On the southwest corner stood in those days the huge pile of the Great International Trust Company, and when the limousine swung into 124th Street, back of this building, we guessed at once that this was the robbers' objective point.

Across the street from the trust company building was the dark pyramidal pile of a storage warehouse. Next it was an old transient hotel that still clung to the down-town district. A one-story arcade automobile entrance thrust itself between the wall of the warehouse and that story of the hotel. Into this the car turned and stopped in front of the hotel entrance.

One of No. 297's helpers descended from the the car as a sleepy doorman emerged from the hotel. Simultaneously the leader and his five assistants, unseen by the doorman, alighted on the other side of the car and stood hidden by the car body. The man who had got out at the hotel entrance handed his bag to the doorman and turned to the chauffeur.

"Wait till I get some change at the desk," he said, and went in with the doorman.

The moment the hotel door closed the leader of the digger gang reached into the car again, drew out another suit-case, opened it, and revealed a small high-power blow-flame apparatus. Over the flame nozzle he placed a concealing hood of asbestos, and then, keeping in the shadow of the automobile, went over to a window of the storage warehouse that was protected by heavy steel bars set deep into the concrete wall.

Against the concrete about the end of a bar he directed the nozzle and turned on the flame. In a moment the setting of the bar was as loose as any sand. Repeating the process at the other end of the bar, he was presently able to wrench it free. By the time the man who had gone into the hotel returned with his change, three bars had been removed, the heavy window and iron shutters behind them jimmied open, and five men had crept through into the darkness beyond. No. 297 waited until the sixth man had returned from the hotel, then whistling a soft signal to him, crept into the warehouse after his men.

The outside man went around the car to the breached window, put the bars back in place, plastered some new soft concrete back about their ends with a trowel from the car's tool-box, smoothed it down, hid the marks with a little paint from a patent paint-tube, returned the tools, and after a whispered word to the chauffeur, went back into the hotel and to the room he had engaged for the night. His part of the job was evidently over. He retired immediately and was snoring five minutes later.

Meantime No. 297, within the warehouse, taking a new window lock from his tool-kit, replaced the one he had broken and concealed the marks with a paint-tube. Then the six men tiptoed silently through the great building until they heard a watchman coming on his rounds.

Concealing his men down a side passage, No. 297 hid behind a pillar to which was attached one of the automatic sentry-clocks whose button the watchman was due to punch once an hour. As the watchman

approached the clock the hidden crook drew a small spraying bulb from his pocket, held his breath, and sprayed a fine invisible vapor in the watchman's face.

At first it seemed to have no effect. The man punched the button and went on his rounds. But his steps grew slower and heavier as he went. He reached the little office where he sat between rounds, threw himself in his chair, and a moment later was sprawled over his desk fast asleep.

In less than fifteen minutes' time they had in this way put out of commission for the night the watchmen on each floor. What these fellows thought on awaking the next morning we had no means of knowing and no time to speculate regarding it. As one of the gang of crooks attended to punching the time-clock so that there would be no interruption from the district police station where the hourly reports registered, it is to be presumed that each watchman thought that he was the only derelict, and that a friendly brother watchman had discovered his plight and attended to his record. Naturally he dared ask no questions.

At any rate the moment the last watchman was asleep the diggers hurried to a big van stored with others on the main floor, drove it on one of the elevators, and descended to the sub-basement. They backed the van out of the elevator and over to a point near the front foundation wall of the building.

They worked now with the speed of careful rehearsal. No. 297 snatched from the van another blow-flame apparatus similar to that used in entering the building and burned a deep groove about a four foot square of the concrete flooring. Then a small electric crane was extended from the rear of the van and this block of flooring was lifted out and set aside.

Next a rotary electric earth and rock drill with a four-foot bore was hoisted down over this opening and attached to the light cable. From it into the van was stretched a jointed extension chute through which the detritus from the drill was dumped into the van.

When they stopped work just before daybreak the big van was nearly full of earth and ground rock, and a four-foot tunnel extended down under the foundation wall and several feet under the street toward the Trust Company building.

They stowed the apparatus out of sight in the tunnel, sealed up the opening, ran the van back to its place up-stairs, climbed in on top of the pile of earth, and after eating sandwiches from a hamper under the seat, calmly went to sleep.

About nine o'clock in the morning a driver presented himself at the warehouse office with proper credentials and took the van away. An hour later the contents were dumped in a lonely stream in the Putnam County Forest Reserve.

In the afternoon another van came in and put up for the night. As soon as the day force left, No. 297 and his five helpers emerged from the van and went to work again. To our surprise they paid no attention to the watchman. We were puzzled until we noted that the personnel of the watchmen had entirely changed. The all-powerful trust had evidently substituted its own men.

The work of boring the tunnel across the street and up under the vault of the Trust Company was completed in this way in less than the week set for the job. The day before the night appointed for the

grand coup, word was passed through the regular channels, and, on order for a special grade of cotton, a van-load of counterfeit gold and paper money wrapped in cotton bolts, to the amount of two million dollars, came down from the Fall River counterfeiting plant under the cotton mill, and was stored in the 124th Street warehouse.

That night No. 116 and a group of helpers emerged from hiding in this van, unsealed the tunnel, carried the counterfeit millions through to the Trust Company vault and substituted them for their equivalent in real money, which they brought back and stored in the van.

The next day the trust company did business as usual, its officers never dreaming that two million dollars in worthless imitation money rested in its vaults, and that some of this spurious specie passed out of its windows to customers.

Meantime, late in the afternoon, the van with its burden of real wealth rumbled across the northern city line into the Putnam County hills, headed toward the secret hiding-place of the Treasures of Tantalus.

CHAPTER XI

A Treasure Astray

MEANTIME we watched with acute interest the forging of the link by which the treasure was to pass from these outside workers, who blindly obeyed orders, to Chandler, who alone knew the final hiding-place of the trust's reserve fund. And this must be accomplished without the identity of the custodian becoming known to even the most trusted of his henchmen.

The night before the getaway from the warehouse, Judge Tanner dined in the little room at the Riccadona. He received word from No. 72 over the wall phone that all would be ready the following night, and got back from Chandler the cryptic order:

"Eleven at point twenty."

Tanner passed this back to No. 72. This we took to mean that the money would be transferred at eleven o'clock at night at a point designated as No. 20 on the secret chart of the trust.

The following afternoon Chandler and his family ran out to their country-place for the night. About nine o'clock the president-elect bade them good night.

"I've got a speech to prepare, and I'm going to work it out on a midnight tramp," he remarked as he left the room.

Mrs. Chandler laughed indulgently.

"I wonder if your father really thinks better while he's tramping or only imagines it," she remarked to her daughter.

"I don't know," the girl answered. "I should think he'd get all fagged out. He didn't get back till after three o'clock the last time he had one of his tramp sessions. I was awake with a headache that night and heard him come in."

Meanwhile Chandler, protected from the crisp air by heavy furs, was swinging rapidly along the narrow, lonely country road that skirted the high iron fence around his estate. At a point in the woodland about a mile from the entrance to the grounds, he stopped and searched the fence for a little distance with a flash-light. After a moment he reached down, found a secret spring, pressed it, and swung open a

section of the fence a dozen feet wide. He entered and dived under the thick underbrush for a few rods.

Reaching a little tree-enclosed clearing, he searched the trunks of the trees about its margin with his light and then pressed against a knot on one of them. Immediately a little clump of huckleberry bushes in the center of the clearing began to rise up from the ground supported on four small steel columns. We heard the hum of underground machinery. At the height of about six feet the platform of earth and shrubbery stopped, revealing the opening into a cavern of considerable size, lined with concrete.

"The hiding place of our 'Treasures of Tantalus!'" Priestley exclaimed.

"Oh, it can't be! It can't be!" Miss Stimson cried out, and then shrank back, abashed at her sudden vehemence.

Fleckner looked at her sharply.

"Why not?" he demanded.

"He would hardly run the risk of having it connected so closely with himself," I interposed, coming to the embarrassed girl's rescue, but a little surprised at her sudden forwardness.

"Possibly not." Fleckner conceded reluctantly, "but I'm going to find out."

He ran the telephonoscope ray all about the underground chamber, but discovered nothing except three small collapsible airplanes. He pierced the walls with the ray at all points, but everywhere it ran into solid earth.

He stopped, baffled, just as Chandler was dragging forth one of the planes.

"It's simply a place to store machines for secret flights," he decided. "He's on his way to meet the treasure van."

With the machine outside, Chandler closed the hidden hangar and dragged the plane out to the road, shutting the secret gate after him. In less than twenty minutes after he left the house he was high above the clouds, speeding at three hundred and fifty miles an hour toward the Putnam County hills into which, on another section of our screen, we were watching the treasure van advance.

A few minutes later, nearly a hundred miles from his starting point, he settled down in a country road hidden by heavy woods, only about a half a mile ahead of the oncoming van. He alighted, drew his machine off the road, and then proceeded to make a lightning change. He drew off his outer garments and hid them in the machine's cockpit. Three minutes later he stood in an ordinary freight-van driver's uniform, his complexion altered with a few touches from a make-up outfit by the aid of his flash and a small mirror, a heavy false mustache drooping over the lower part of his face, and his cap well over his eyes.

He had barely completed his transformation when the van rumbled up to within a hundred yards of where he stood. Then suddenly the engine went dead. The driver manipulated its levers and the machine back-fired sharply three times, and then after a brief interval twice more and was silent.

This, it appeared, was a signal, for Chandler answered with a single, long-drawn-out cry of a wild-cat. At that the van-driver went to the back of the van and drew out a folded airplane similar to the one in which Chandler had come, unfolded it, and the

next moment, with muffled motor and darkened lamps, soared silently into the air and away. Chandler, trundling his own plane ahead of him, was approaching the van.

"Ah!" whispered Fleckner exultantly. "He is at last about to lead us to the treasure-trove!"

I heard a sharp gasp behind me, and turning, looked squarely, for the first time, I think, into the eyes of Professor Fleckner's secretary. I remember being surprised to note that they were fine eyes, of deep violet hue.

Her green shade was awry for once, but she had forgotten it. She seemed unaware that I was looking at her. She was staring in terror at the figure of Chandler as he approached the van, and the moment when he would unwittingly become the instrument of his own undoing. She clasped and unclasped her hands convulsively.

I looked again at the screen. Chandler had reached the van and was preparing to put his plane aboard. Fleckner and Priestley stood with eyes glued on the screen, hardly breathing. It was as though they feared that the slightest sound in the laboratory half a hundred miles away might frighten the head of the crime trust from his purpose and break again the thread that was leading us to his secret. Neither of them, I am sure, had noted the girl's little byplay.

I heard a half-sob behind me. I turned toward the girl again. She stood with tears running down her face, her hands stretched out toward Fleckner imploringly. She swayed as if faint, and clutched at the control board near her for support.

"Oh, don't! Don't!" she cried hysterically.

I heard a smothered exclamation from Fleckner as he sprang for the control board. Then, for the first time, I realized that Miss Stimson, when she clutched the board, had hit and thrown over the projection-lever. I was right in the line of projection. I whirled around just in time to see my own image on the screen projected out there in the Putnam County woods beside the head of the crime trust.

He, too, had seen me and heard the girl's warning cry, for he was climbing aboard his airplane in a panic. His back was toward me when I turned, and I hoped he had not seen my face. He unfolded his wings and threw on the power in the same instant. The next instant the President-elect of these United States fled, a panic-stricken criminal, leaving two million dollars in stolen money out in that wintry woodland.

Fleckner was beside himself with rage. He stormed about the laboratory, hurling abuses on the head of the girl, who had slipped to the floor in a faint and was mercifully unable to hear. Priestley and I carried her to a lounge, and he held a bottle of restorative to her nostrils.

The moment she began to show signs of returning consciousness, Fleckner stood over her and began to redouble his abuse. Thereupon Priestley turned upon him in a cold rage. He clenched his fists threateningly.

"Not another word," he commanded. "If I hear another bit of abuse from you, old a man as you are, I'll knock you down. This poor girl has been taken with sudden illness. Do you think she did it purposely?"

Fleckner stared at him, speechless with rage, for an instant. Then he started to speak, but what he saw in the younger man's blazing eyes halted him.

He turned back to the screen without another word.

Miss Stimson opened her eyes and suddenly realized that her eyeshade no longer sheltered them. With a frightened little gesture she readjusted it. Then, after a moment she got up, apologized for making us trouble, and said she would better go home as she felt ill.

Fleckner was intently studying the screen and hardly noted her departure.

"Poor little thing!" Priestley exclaimed. "She's been overworking here lately and is nervously exhausted."

"Humph!" the professor grunted. "She might better have stayed away to-night. I'm afraid neither Chandler nor any of his gang will dare recover that treasure-van and go on. They'll not take the slightest risk of discovery. We've lost our chance of tracing the treasure-trove for the present. I'd discharge that bungling girl for what she did if she weren't so generally valuable."

Priestley glared at him, but said nothing.

For myself I was not lacking in sympathy for the young woman's distress, particularly after my glimpse into those disturbing violet eyes, but I also had misgivings about her when I recalled her agitation just before the final catastrophe. I couldn't help wondering whether the throwing on of the projection lever was altogether accidental, but I kept my suspicions to myself, and presently the events that were being pictured on the screen drove them out of my mind.

Chandler was plainly in a panic for fear of discovery. He rose straight into the air about three miles after the sudden alarm, then shot off for fifty miles or so in a direction opposite to his New Jersey place, listening constantly in his wireless detector to see if any other plane was pursuing. Finally, apparently satisfied, he swung back in a wide circle, and an hour later arrived at the secret hangar on his estate, put up his plane, removed his disguise, and a few minutes later rang the front doorbell at his house. It was then only one o'clock.

"Sorry to trouble you," he said to the sleepy servant who admitted him. "I found I'd left my keys in my other clothes."

"Good Lord!" he added, looking at his watch. "It's one o'clock!"

This we took to be for purposes of alibi.

In his room he began to pace the floor nervously. He looked worn and haggard with worry. We could imagine his predicament. He had no idea who could be the strange man who interrupted him as he was about to take possession of the treasure. He could not guess how much that man knew. Perhaps he, President-elect of the United States, was facing exposure on the morrow. He dared not go back to the van or send any of his lieutenants there. No knowing what ambush might await them.

Several times he paused in his nervous pacing and looked speculatively at the telephone. But he shook his head despairingly at last.

"Nobody I dare reach, and nothing they could do if I did," he muttered.

Apparently in this unlooked for emergency was betrayed a weak spot in the trust system. He had not dared let any one assist him in final disposal of the treasure, and no one but he now knew of his failure.

He stopped suddenly and stood with clenched fists, a look of new rage on his face.

"There's a traitor in camp!" he exclaimed aloud.

Meantime the van stood silent and unmolested on the deserted forest road. After we had watched this lifeless spectacle, and the almost equally monotonous one of Chandler futilely pacing his bedchamber for upwards of an hour, we grew weary of inaction. We were all three of us tired and irritable from excitement, disappointment and lack of sleep.

Out of this situation grew a lively wrangle between Priestley and Professor Fleckner. Priestley ventured the suggestion that we take steps to restore the stolen money to the trust company, now that the chance of its leading us to the main treasure had passed.

Fleckner sneered openly at this.

"How would you go about it without exposing our method of getting it and thus ending our hope of destroying the system, as well as exposing ourselves to its punishment?" he asked after they had disputed hotly over the ethics involved.

"This gives us pretty tangible evidence against the crime trust, doesn't it?" Priestley demanded.

"Nothing that would trap Chandler or even Tanner," Fleckner insisted.

Priestley argued this point at some length, but was fair enough to admit finally that Fleckner was right in that particular.

"We can give warning anonymously, however, through the telephonoscope," he insisted. "It's our duty to do so. Otherwise we become accessories to the crime."

There was a stubborn light in his eye. It was evident that the breach between the two men was widening rapidly. Though I sympathized with Priestley, I decided that it was unwise to take sides openly at present.

Fleckner started to speak, then hesitated and studied the other's face thoughtfully. Apparently

he recalled previous experiences with his explosively idealistic associate and decided to temporize.

"Well, we'll watch the situation a little, and if there seems to be no chance by morning of the trust picking up the treasure again, we'll try to think up a method of carrying out your idea. Meantime there's no use of all of us staying awake. This is my watch. You boys both get some sleep. I'll call you, Priestley, at five, and Blair can relieve you at seven."

We agreed to that arrangement, and Priestley and I retired to sleeping-rooms off the laboratory and lay down half undressed.

I dozed fitfully at first, but presently found myself lying awake, puzzling over Miss Stimson's strange attack of nerves, wondering if it could possibly be that she was up to anything treacherous. Suddenly a concrete suggestion occurred to me. Could it be possible that she had frightened off Chandler purposely with the intention of making away with the treasure herself with the aid of confederates? Why not?

Full of new apprehension, I jumped out of bed, and throwing on a bathrobe, went out into the laboratory.

Professor Fleckner sat in his chair by the control board, where we had left him. But fatigue and monotony had proven too much for him. His chin rested on his chest. He was sound asleep.

I glanced nervously at the screen. One-half of it still revealed Chandler pacing the floor of his bedchamber as before. On the other half was the same stretch of lonely mountain forest road. I knew it positively by the big boulder with a scrub oak growing out of its base beside which the van had halted. But there was a difference. I rubbed my eyes and looked again. Then I seized the control lever and shifted it up and down the road and through the forest for miles each way. In vain.

The van and its two million dollar treasure had vanished utterly.

END OF PART I

What Do You Know?

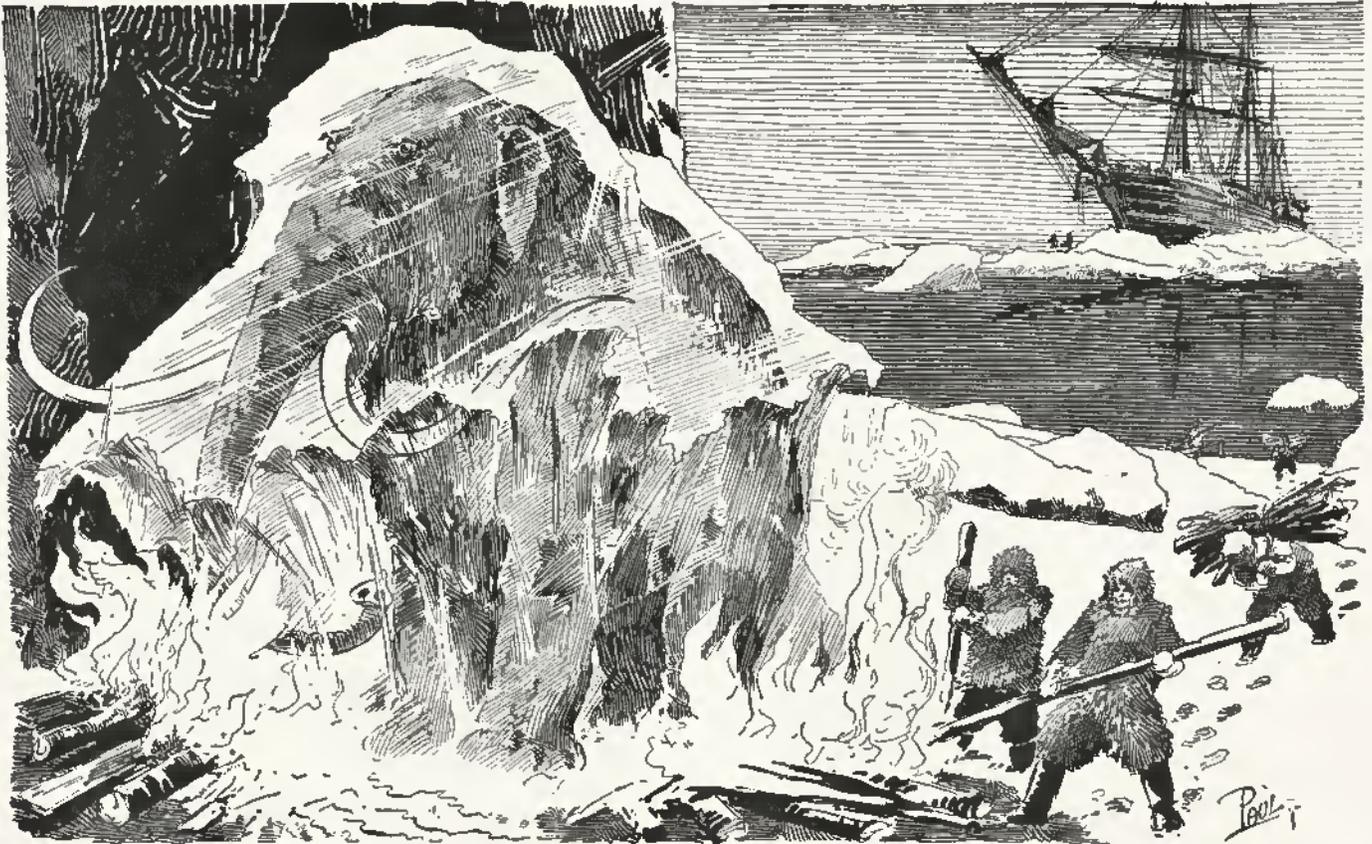
READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a textbook. Moreover, most of the stories are written in a popular vein, making it possible for any one to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions first without looking for the answer, and see how well you check up on your general knowledge.

1. What might be a logical treatment of criminals, so that they will cost society nothing for their detention? (See page 682).
2. Psychologically, is the disposition to crime chronic or sporadic? (See page 694).
3. Where is paper money printed by the government? (See page 695).
4. In what part of the world are the eggs and bones of the huge extinct bird, *Æpyornis* found? (See page 663).
5. What do you know of the *Æpyornis*? (See page 665).
6. What would you use in a closed compartment, such as a submarine cabin, to absorb the carbonic acid gas exhaled by the occupants? (See page 630).
7. How does Venus compare in mass with the Earth and how does its period of revolution, determining the length of its day, compare with that of the earth? (See page 632).
8. How does Mercury compare with the rest of the major planets in size and distance from the sun? (See page 639).
9. How long is Mercury's year? Has it day and night? (See page 639).
10. Is Mars larger or smaller than the earth? How long is its year? (See page 644).
11. What is Jupiter's diameter and volume? How long is its year? Its day? (See page 645).
12. Do you know the constitution of the rings of Saturn? What is the size of the inner ring? (See page 648).

THE PARADISE OF THE ICE WILDERNESS

By Jul. Regis



Round the fire, we stood, gazing almost in stupor at the scene and at each other. The contours of the big animal emerged more and more. The ice grew thinner and whiter. "What the— is it not a mammoth?" cried Berg in his impulsive manner.



WE were half a dozen good friends, enjoying a glass of beer at the village inn, and we had just asked the sea captain for a story.

He put down his pipe and produced two small cuttings from his pocket-book. He cleared his throat and began:

Well, I should like to refute those strange hypotheses and statements which have been produced from many quarters regarding what occurred at the bay of Chantanga east of Cape Tscheljuskin in North Siberia, during the winter of 1896-'97. It happened during the trip along the coast of North Asia, which I then made with the Swedish whaler, *The White Bear*, and the story which I am going to tell you will thus be the narrative of an eye witness to a queer occurrence in North Siberia on Christmas Eve in 1896.

For those among you who peradventure have not heard anything about the matter, I will read both these cuttings.

"December 29th, 1896. A Curious Discovery. On the morning of Christmas Day, a trapper of Russian nationality arrived at the little town of Popigaisk, near the mouth of the Chantanga in Chantanga Bay, telling the people in town and asking to be believed, that he had seen, some miles north of the town, fresh tracks of a large animal; and he was quite sure that this animal was a mastodon. If the man was right in his supposition, this means an astonishing

bit of news. Our correspondent adds that a heavy snowfall has already blotted out the tracks of the animal."

"January 9th, 1897. A Christmas Guest from the Primitive Ages? A week ago we published a short article regarding a queer discovery in unknown Siberia. It seems now as if

the discovery may be confirmed from another source. Many persons have certainly been looking for the tracks of the mastodon without result, but if we dared believe the Esquimau Amsalic, he has been close upon making a nearer acquaintance with the strange animal. He, too, had been searching for

HERE is an absorbing story that comes to us all the way from Norway. It is well known, of course, that many prehistoric mammoths have been found entirely preserved in ice in northern countries. Many of these mammoths were so well preserved that they provided excellent museum specimens. Our new author has used this as the theme of the story and has made a most fascinating tale of it. It contains excellent science and there is no question but that you will like the story.

the tracks, until dusk began to fall and with it a fine, thick snow, which made it impossible for him to proceed any further. He was about to turn back, when, in the darkness, he heard a loud cracking—like that of ice breaking up in spring, he said. The next instant heavy, clumsy feet resounded against the frozen ground and a clumsy, gigantic body of unusual shape rushed past by him so closely that he felt the rush of air. The animal had undoubtedly been frightened by something, perhaps by Amsalic himself. Since this narrative has been made public, several hunters have set out to hunt the mysterious animal."

When these articles were printed, I was frozen in with my ship and crew in the Polar Sea, but I have been told that they aroused considerable interest in certain quarters. Various ideas were debated; everyone had his own version of the matter. The most fantastic comments were published. Nevertheless, the truth seems more fantastic still.

On August 1st I sailed from Hammerfest, as captain, with my vessel, the old splendid *White Bear*, which, in spring, 1899, collided with an iceberg and sank off Archangel. The plan of the expedition was the usual one: to proceed along the north coast of Europe and Asia as long as possible, hunting for the whales and seals which are getting scarcer year by year. It was no new and untried enterprise. Already in the middle of 1800 an attempt had been made to create a regular whale traffic in those waters. Such an expedition usually stayed away a year, but proceeded in the summer as far as possible. In the winter it lay frozen in by the ice and returned the following spring with heavily-laden vessels.

We thus coasted along the shore of Kola and Kanin south of Koljugow and up towards Karuporten, a voyage which is a little longer in reality than in description. We were lucky. In three months we were able to discharge a full cargo at the company's station on Nova Semlja. Encouraged by our progress we continued eastwards, so that at the beginning of the winter we found ourselves at 114° eastern longitude in Nordenskiolds sea, after having followed about the same course as the *Vega*. Here, at the mouth of the Chantanga, we ultimately became icebound for the winter and had to prepare for an arctic winter sojourn.

The vast ice desert which surrounded us would have been irritating in its monotony if the eye had not found a fixed point in the expanse of white. Hardly fifty yards to our right was a little island, also covered with ice, from which one had a view of the narrow sound that separates the island from the mainland. The island was a mass of rock, in some parts unusually high over the water's edge, while the mountain top in its centre had a height of say three thousand feet. The island, which has no name on the chart, was christened by the crew "Hermit Island."

While the ship was being pushed out of the water by the ice, we built ourselves a winter hut on the island. Our new residence was very comfortable. The house was divided into one large and one small room. In the former resided a part of the crew and in the latter the mate, trapper Jenssen, the controller of the company, a young man, named Berg, who was much liked on board the steamer on account of his friendly and pleasant manner, and lastly myself.

The rooms were lighted and warmed by a dynamo which we had on board.

Under such circumstances it is not surprising that life is likely to be lonely and sad. And it was worst at Christmas time. We felt homesick, while we were sitting at a late breakfast, on the 24th of December on Hermit Island. Everyone of us was taken up with his own thoughts, even the controller, Berg, showed a gloomy face, and we expected no pleasant Christmas.

But if we wanted a stimulating interruption, we got it. We had not quite finished our meal when the ship's cook threw open the door and rushed in, followed by a sailor. I asked in astonishment what was the matter, but the man was so bewildered that he could not reply, and the sailor explained, instead.

"Well, captain, we have made a discovery!" he said.

Their whole appearance was one of such helpless astonishment that I followed the two men without a word. My four comrades accompanied me, of course, and our two guides led us to the foot of a cliff, where the whole of the crew was standing staring at something. Not a little inquisitive, we made our way to them through the snow. At the side of the perpendicular stone wall a compact mass of ice had been gathering through the ages. Its size and color hinted a great age. The secret which it was hiding would, however, never have been revealed, if the cook, who was a very smart fellow, had not made a fire on exactly this spot in order to get some fresh water for the kitchen. The result was astonishing. When the cook returned for more water, the fire had melted a deep hollow in the ice at the side of the cliff, and when, by chance, he cast a glance through this ice window, what he saw was sufficient to make him sit down in the snow, dumb with astonishment.

The sparkling fire continued its work, and when we arrived, the hollow was over six feet deep, making a cavity in the ice wall outside of which the fire was burning. There was nothing unusual in all this but through the clear ice wall, the contours of a big animal could be seen. Embedded in the blue ice, we saw two curved tusks, each as long as a full-grown man.

"Ohoy," exclaimed Berg, his jovial mind soon mastering the astonishment. "More fuel! We are going to melt out the poor thing!"

Wood was fetched and the fire crackled and blazed.

The flames threw red reflections in among the ice rocks, and the shadows were deep violet and farther away blue. Above us the stars were sparkling and bright northern lights fluttered over half the sky. The intense heat caused the icy water to rush around our feet, but, while the undermost layers of wood hissed and sputtered and smoked in the snow-water, the uppermost flamed briskly, fed with dry bushes, which in more protected places had carried on a hopeless fight against the arctic cold. Round the fire all the crew of *The White Bear* were standing, gazing almost in stupor, at the scene and at each other. The contours of the big animal emerged more and more. The ice grew thinner and whiter. All at once a little black spot appeared. It grew bigger, and a brown-grey, hairy hide was bared.

"What the—is it not a mammoth?" cried Berg in his impulsive manner.

So it was. My men wished to cut out the animal with their axes, but I forbade it, fearing to injure the

body. The ice melted slowly away, and finally the colossus stood free, under an arched roof of dripping ice. The shapeless beast measured about eleven feet in height and twelve feet in length—the trunk was longer than the tallest man among the crew. The second mate, who always boasted of his knowledge, remarked that such discoveries had been made before in several places in Siberia and that the ice hermetically sealed and preserved the dead body and saved it from decay, as the cold hindered the activity of the decaying organism. The flesh of the animal before us was, therefore, as fresh as if it had lived yesterday and not several thousand years ago. In order to confirm his word, the man inserted his knife in the animal's side—and behold—some drops of blood squirted out of the cut! At this sight, several of the fellows paled and I, too, grew more than astonished. This blood, that I saw dripping before my eyes, had been coursing through the veins of the animal during the primeval ages!

The crew, however, had brought more wood and the red flames from the fire threw a weird shining reflection on the thousand or more years old ice wall.

This scene in the darkness of the frozen expanses of the Polar Sea at Christmas time was so like a saga, that we hardly should have been astonished if the big animal body had awakened to life and stepped out among us. The hide was steaming, and the hairy trunk shook. Berg was polishing his nose loudly—would the mastodon lift its trunk in a thundering answer?

In eager curiosity the ship's mate was running about the animal, fingering it, measuring it and all the while holding a short scientific lecture to us others who were regarding the wonder in silence.

But this animal? Did not the legs shake under it? Did it not slowly alter its position? What would happen now?

Frozen and hungry, but not less interested, we waited breathlessly for the continuation of the adventure. And it came, though it took time.

When the fire had been fighting the thousand year old ice for some hours the colossus from antiquity began to stagger, and with a noise which shook the ground, the gigantic animal fell heavily on one side, extinguishing the flames as if he had blown out a candle. But simultaneously something else happened. Just where the colossus had been standing beside the wall of the cliff, we discovered a vault and within this we saw . . .

Several years have now passed since this event happened, but still I can hardly describe what we heard and saw when the thousand year old ice-field revealed its secret to us. During the whole of a long winter we had only seen ice, ice in every conceivable formation.

The monotony of the white and solitary ice-fields that stretched to the horizon had almost killed us. We had lost all hope of a change. I do not know whether you will understand me, but the mere prospect of an adventure of such unexpected proportions as this quite bewildered us.

Before our eyes there opened a rocky passage, covered with bleached skulls and skeletons, the bones of animals. These were creatures from hoary antiquity, which had guarded the secret! Above us loomed the heavy rock formations of the mountain, in their shadow hiding a world-startling mystery. For already from without we could see that the pass-

age led into the depths of darkened caverns, into a system of passages and caves.

"Forward boys—follow your leader!" cried Berg and stormed into the darkness.

"Wait—a lantern!" I cried.

"Not necessary—it is already lighter here!" His answer sounded hollow, as if it had come from a mine.

We stood bewildered, not believing our eyes or ears. Finally four others and myself penetrated into the passage. From a distance, Berg called to us. The echoes changed each of his words to a rattling volley of musketry.

It was a low irregular vault, half dark for about a thousand yards ahead and filled by violently scattered rocks which in some places only gave space enough to creep through. The cleft finally widened into a high vaulted grotto, which lost itself in twilight in all directions—a silent and sinister place, whose inhabitants had been dumb for generations. Everywhere these bones! Eloquent, even if dumb evidences of races that perished long ago! A cold, dry air of decay and death filled our nostrils, yet the place was not uncanny or even sinister. The ground was covered with gorgeously shaped plants, many of which were luminous or strangely colored. There were ferns of a height that seemed enormous to us—unknown kinds of trees, flowers in subdued tints, mostly pale red, some with white stripes. It was a radiance of pale and clear colors that was delightful. While we were devouring the scene with our eyes, Berg joined us. Some yards farther on we were stopped by a murmuring sound. A watercourse slowly sought its way between the stones. And on its margins we found big bleached human bones. I took one of the grinning skulls in my hand. It stared at me with its empty eye cavities as if it were saying:

"Solve my secret, if you can!"

But where did this vegetation come from, this rich verdure in the midst of the ice wilderness? After having followed the watercourse for a while, we found the explanation. It stopped suddenly at the foot of a wall of rock, where a whirlpool was in action. I dipped my hand in the water. It was warm. A subterranean spring then—and further away—very, very high up—a faint light was visible. There must be an opening.

The mate declared that we were standing on a volcanic crater bottom in what had been a fire-vomiting mountain, extinct long ago.

It was a paradise we had discovered, a paradise of twilight and solitude, it is true, but a pleasure garden compared with the cold expanses which outside stretched in all directions. We balanced ourselves on the stones and crossed over the watercourse and walked up the opposite shore, which sloped up from the water. Arrived at the top we found before us a large expanse, whose borders were lost in the darkness on all sides. Here and there phosphoric fungus growths spread a pale light over the bed rock. I sniffed the air.

"Queer," I remarked. "It seems to me as if . . ."

"It smelt of stables, yes," Berg interrupted me with a snort.

"And hundreds of them," added the mate emphatically.

Berg set up an hallooing. The echo replied with a hollow roar that startled us.

"What a mighty echo," remarked Berg, a trifle pale. After it had died away, a sinister silence fell over the cavern. We did not move.

"Down there, where the earth is softer . . ." the mate muttered in a perplexed voice.

"What?" I exclaimed.

He pointed along the shore.

"Do you not see the earth is full of footprints?"

"By Jove!" exclaimed Berg. "Footprints of the mammoth!"

"Or of a still bigger animal," the mate continued. "Some are old and dried up. Some were made later. Some were made today!"

He spoke the last sentence in such bewilderment, that we all drew nearer. All at once it seemed darker and uncannier about us than ever before.

"Hm," said Berg with a voice which he tried to make steady. "For my part I am turning back."

"Yes, let us go back!" I repeated.

At the same instant the echo was heard before us again, though we had only spoken in whisperings. Out of the darkness came a roar, strong as the tramp of doom, and uttered at short intervals. It was heard again and again, followed by a sound as if a sledgehammer were regularly being thrown against the earth. My hair seemed to rise on my head and I lifted my arms, for I thought that the mountain was going to fall over me.

Something panted and stamped among the rocks, something roared and rumbled. Without a sound the mate held up his hand and pointed.

I followed his glance.

"Great Heaven!" I whispered.

There—between some gigantic ferns stood a comrade to the prehistoric animal we had just melted out of the ice, but living and, it seemed, of quite a different kind. The legs were those of an elephant, the body large and the throat thick and covered with long, straggling, red bristles. The head was enormous and finished almost abruptly with a large, broad mouth. The tail, which was furiously whipping the leaves of the giant ferns, was long, resembling that of a lizard.

The giant lizard, or whatever I am to call the thing, set up a hissing sound and approached us.

There was no mistake about it; its eyes were staring at us! It looked at us with a greediness which unrolled a perspective of horrible views for our inner sight.

For a moment we stared at each other, the animal from antiquity and the men from the Swedish whaler, *The White Bear*. Then the mate set off at top speed over stock and stone towards the entrance of the passage, followed closely by the rest of us. One of us cried out, but I do not think it was I.

We were running for life, and after us came a roll like thunder, when four heavy feet stamped against the bottom of the crater and the panting animal voice rose and fell. I sent up a silent prayer to the great Someone, that we might be permitted to get outside ere those feet. . . .

The mate was running like a madman before me, to my left Berg, behind us the others and lastly the animal. In this order we entered the passage.

As it was very narrow and hardly would permit an animal of such dimensions to pass through it, we felt pretty safe here, but we didn't think of that. We imagined that the beast was close on our heels and on we ran. We used up the last remnant of air in our lungs to reach the entrance. But the cold had already begun to close it, and we had hard work to break it open again. Without a snowstorm raged, and it was a white death that confronted us. When we had worked halfway out to the ship, a man with a lighted but snowed-over lantern, met us. The North wind had raised its mighty voice, and the ice was already jamming *The White Bear*. For two weeks we worked day and night to save the ship. When we finally succeeded, we had drifted so far out that we dared not risk another attempt to reach the Hermit Island.

The ice wilderness up there still hides a sealed-up paradise. But by all top-lanterns and yard-arms, I am in no hurry to penetrate into that hidden region a second time.

THE END

"Discussions," this Month, Begins on Page 706)

Readers' Vote of Preference

Stories I Like

- (1)
- (2)
- (3)

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- (1)
- (2)

Remarks

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Discussions

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

SUGGESTIONS FOR AUTHORS

Editor, AMAZING STORIES:

I am sending you a clipping from the Palo Alto "Times" which I thought might interest you because of its connection with the "Plattner Story."

This is also an excellent opportunity to tell you how much I have enjoyed your magazine: I have read every story in it since its inception and liked most of them. The only thing which I do not enjoy is the critical attitude of the majority of the letters in your discussion department. Why should anyone expect super-scientific accuracy from an author of fiction? No one is going to use *AMAZING STORIES* as a text-book. Besides, it is entertaining, after enjoying a story to go over it, and see how many errors one can find. I got twenty-two from "The Green Splotches" and about that many from several others. At that, you might be rendering a service if, in each issue, you included a short article on some scientific subject by an expert on that subject. They might treat with such things as hyperspace, the penetrating radiation, possibilities and impossibilities in inter-planetary travel, the principle of relativity, and radio-activity. There are many other interesting and fairly modern scientific developments which would serve as topics. This same modern science is moving faster than many people suppose. For example, in 1920 there were six undiscovered elements, but now there is only one, and anyone who wants to write a story with the discovery of a new element in it had better hurry. It's a great pity, too, for there is so much romance in the unknown, as in stories like the "Chemical Magnet" and Stewart Edward White's "The Mystery." This last element is number eighty-seven in the periodic table. Unless it furnishes an exception to the system, its properties are something as follows: It is radio-active, and is also the most active of the alkali metals. It has the largest atomic volume of any element, and since this means that its component protons and electrons are farther apart than those of the elements on each side of it, the energy changes of radio-activity are smaller in it than in any other radio-active element. Now that is truly unfortunate for the scientific writer, who has the habit of making his new elements more potent than anything hitherto known. Apropos of recent scientific developments, couldn't you gently hint in an editorial that the wave theory of light has been discredited for a long time and that it fails to explain three classes of phenomena? None of your writers seem to have heard of this yet. Thanking you for reading this, I am

Allen Lucy,
Palo Alto, Calif.

[We have received so much favorable comment that we are almost ashamed to publish more of it, but this letter, while it is so friendly, really gives some good suggestions to our authors. As regards the wave theory of light, it would be well to remember that Sir Isaac Newton held to the old corpuscular theory and that the exponents of the new theory were sometimes quite irritated in their discussions. The wars of the Plutonians and Neptunians in the older days of Geology were almost furious. So we hope that some of our writers will take some suggestions from this interesting letter because the difficulty in giving stories which our readers like often depends upon the plot, which is not always easy to find. Below we publish the clipping from the Palo Alto "Times" to which our correspondent refers.—Editor]

CHILD'S INTERNAL ORGANS RE- VERSED, INQUEST REVEALS

An unusual case in which the organs of the body were transposed, those belonging on the right side being on the left and vice versa, came to light last night when an inquest was held into the death of Charles Grim Minor, 18 months' old Palo Alto baby, who died suddenly several days ago.

The heart and stomach were on the right side and the liver on the left.

Verdict of death from glandular disorders, with heart conditions as a contributing cause, was returned.



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Do you remember how the tales of pirate gold used to fire your imagination and make you want to sail the uncharted seas in search of treasure and adventure? And then you would regret that such things were no longer done. But that is a mistake. They *are* done—today and everyday—not on desert islands, but in the chemical laboratories throughout your own country. Quietly, systematically, the chemist works. His work is difficult, but more adventurous than the blood-curdling deeds of the Spanish Main. Instead of meeting an early and violent death on some forgotten shore, he gathers wealth and honor through his invaluable contributions to humanity. Alfred Nobel, the Swedish chemist who invented dynamite, made so many millions that the income alone from his bequests provides five \$40,000 prizes every year for the advancement of science and peace. C. M. Hall, the chemist who discovered how to manufacture aluminum made millions through this discovery. F. G. Cottrell, who devised a valuable process for recovering the waste from flue gases, James Gayley, who showed how to save enormous losses in steel manufacture, L. H. Baekeland, who invented Bakelite—these are only a few of the men to whom fortunes have come through their chemical achievements.

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I wish to express my appreciation of your prompt reply to my letter and to the recommendation to the General Electric Co. I intend to start the student engineering course at the works. This is somewhat along electrical lines, but the fact that I had a recommendation from a reliable school no doubt had considerable influence in helping me to secure the job.—H. VAN BENTHUYSEN.

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I use your lessons constantly as I find it more thorough than most text books I can secure.—WM. H. THIBBS.

Thanking you for your lessons, which I find not only clear and concise, but wonderfully interesting. I am—ROBT. H. TRAYLOR.

I received employment in the Consolidated Gas Co. I appreciate very much the good service of the school when a recommendation was asked for.—JOH. DECKER.

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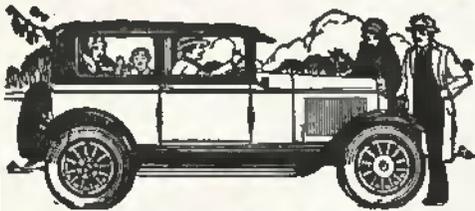
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A LETTER FROM THE ANTIPODES

Editor, AMAZING STORIES:

I suppose that you will be surprised to receive a letter from this distant part of the world but I can assure you, that your magazine is eagerly awaited each month.

I think that the paper fills a place long vacant in current literature. I am afraid that I cannot offer much criticism as I think all the stories are excellent, but I would like to say a few words concerning "The Moon Pool" by Merritt. In that story, after the disappearance of Throckmartin, Dr. Goodwin goes to Melbourne to get help to rescue him. Your author evidently forgets that such a place as Sydney exists, yet that city is 500 miles closer to Papua than Melbourne, and is also much larger and modern, with a much greater population. Apart from that, however, I think the story is splendid, something absolutely different. It will be a far "tomorrow" however before that story is "cold fact." I would like you to impress upon the author of the "Visitation," Mr. Wates, that the capital of New South Wales is Sydney, not Sidney. Apart from that very important (?) point I think that the story was excellent and embodied the very spirit of the competition.

While thinking of the many "amazing" stories I have read, I remembered one by the late English author, Sir Rider Haggard. This was entitled "When the Earth Shook," and was a genuine thriller, besides being scientific. It would be a very suitable story for your paper.

Well I will not waste any more of your valuable time by asking you to read any more of my views and opinions, so I will close with best wishes for the continued success of your paper.

John Cooke,
Queenscliff Manly, N. S. W., Australia.

[This letter has a special interest coming from Australia. When Colonel Lindbergh or some of his friends start an Airplane mail line to New South Wales, perhaps he will carry some AMAZING STORIES to our correspondents.]

Seriously speaking, we have enjoyed this breezy letter and we are sure that Mr. Merritt will be interested in the geographic notes on Australia and her rather distant neighbors in the Southern Pacific.—EDITOR.]

THE YOUNG MEN'S SCIENCE CLUB

Editor, AMAZING STORIES:

I am a young man 19 years old and deeply interested in science.

I have just finished reading a letter in "Discussions," about forming a Young Men's Science Club, and that all men interested in science and who are between 18 and 23 years old are invited to join, provided they live in and around New Jersey. Not so bad for them, but how about us who live across the continent and elsewhere? Not so good.

I believe it would be a wiser thing if an International Science Club was formed and all interested in science, from 18 to 25 years of age could join. (Yes, it would have to be correspondence.)

A president would be elected and members could communicate with each other and the president on questions of science new and old. Also they could exchange scientific notes on certain experiments they have tried, etc., etc.

All interested in forming the International Science Club please communicate with me, and if enough are interested it will be possible to organize such a club.

Your magazine (AMAZING STORIES) is the best on the stands, and all the stories are interesting, some more so than others. The only improvements that can be made is to enlarge it and add a department of Scientific Information.

Thanking you in advance, I remain—to the growth of scientific knowledge,

Holger E. Lindgren,
Olympia, Wash.



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[The suggestion contained in this letter is a really meritorious one, and such an excellent one from all points of view, that the editors should like to back it up with their fullest power. Mr. Lindgren has started something, and now let's see if we can help him to bring it to a realization. We would therefore ask all those of our readers who are interested in such a plan to address their letters, with suggestions, and comments, to the Young Men's Science Club, in care of AMAZING STORIES, 230 Fifth Avenue, New York City. If a sufficient number of letters are received, and the correspondents show their willingness to become members of such a club for the consideration of a small fee, AMAZING STORIES hereby pledges itself to become the official organ of the new club. AMAZING STORIES very likely could set apart a page every month for the news of the Club, and would be instrumental in lending its support to this worthy cause.

As we have noted elsewhere an English contemporary in a sense belongs to its contributors.

Now let's see what our readers can do. A report of the findings will be printed in the earliest possible issue.—EDITOR.]

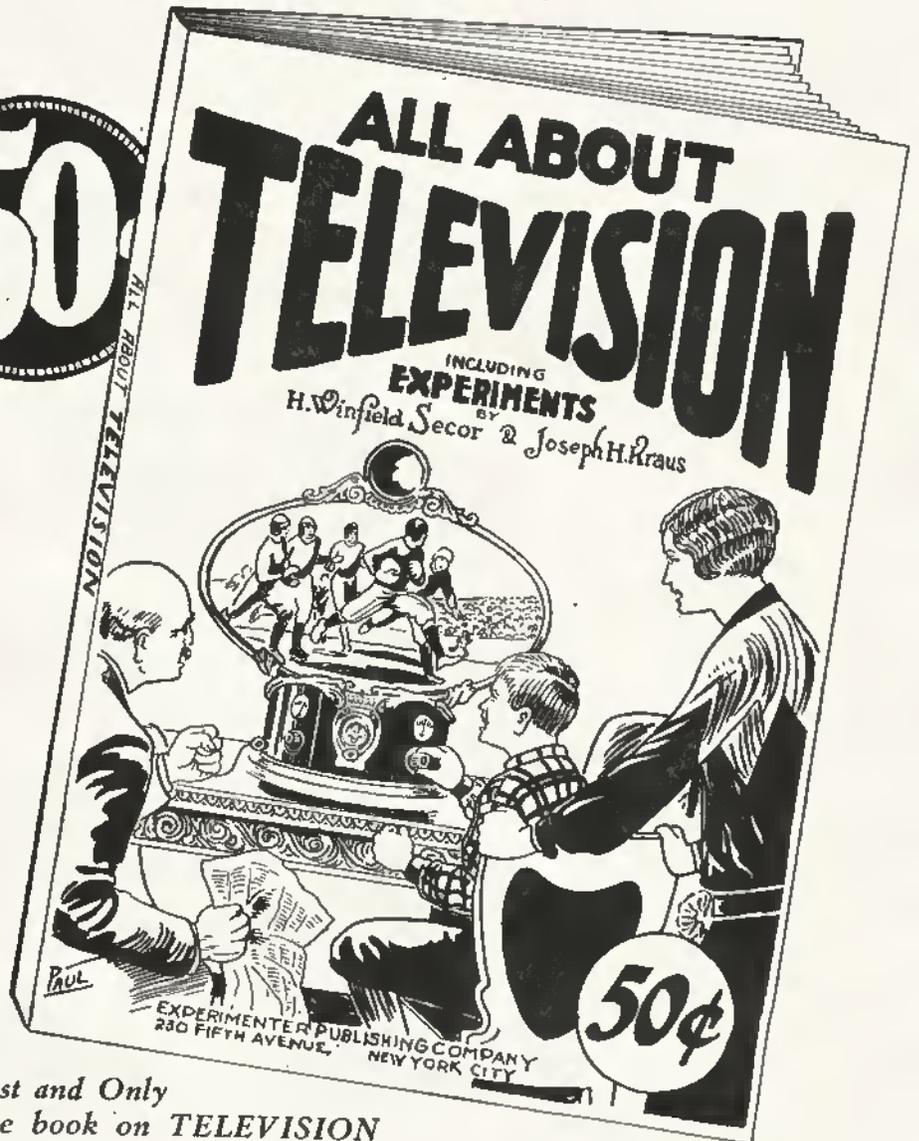
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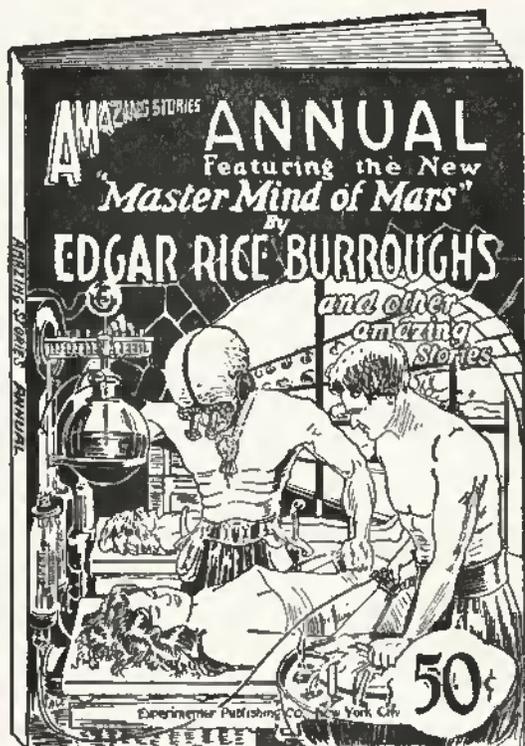
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WHAT A LIBRARIAN THINKS

Editor, AMAZING STORIES:

May I, as a librarian of 30 years' dealing with books in both the Old World and the New, testify how much I value the broad-minded attitude of AMAZING STORIES management?

Nothing is so refreshing as Mr. Gernsback's outlook upon the possibilities of the universe, as expressed both in his selection of stories to suit so many classes of readers; and also in those very admirable editorials in which he so determinedly holds the door of possibility open, in the face of all the dry-as-dust professors who decry the possibility of life and intelligence on other worlds—those insufferably conceited folks who like to think that they are the only intelligent beings in all God's wide universe.

That to my mind is the great big service to humanity's progress which AMAZING STORIES is rendering, a service the value of which is simply incalculable and will be more fully recognized and appreciated in the future than it can be yet.

To me it is simply marvelous, the way clever scientists who can make star observations to the tiniest fraction of a degree, are yet actively hostile to the ideas of the man who tries to reason out what those observations may mean. An observer, brilliant in his accuracy, yet decries another's work and even sometimes throws doubt upon the honesty of his recorded observations. And an astronomer gazing through the obscure atmosphere of a smoky day at Mars can't see any canals there, and throws a slur upon the work of another observer who looks at Mars through the crystal-clear air of Italy or Arizona from a mountain top. This specially applies to observations of planets.

Further: a good observer's work is often best interpreted by someone else, as when Lowell's fine observations of Venus were better interpreted by Housden (an English astronomer of lesser fame) than Lowell could interpret them himself. Always there is the methodical plodding observer, and the man of vision. Rarely, the two are combined, as in the case of the late Richard Proctor, Percival Lowell and W. H. Pickering, but oh, how rarely!

Five years ago, when delivering a course of free lectures on astronomy at a public library in England, of which I had charge, I became strongly impressed with the probability of life on Mercury, and Venus as well as Mars, and also—following up the suggestions of Richard Proctor—of life on the great satellites of Jupiter, Saturn, Uranus and Neptune. Considering these planets and their physical condition it became more and more evident that there is every likelihood that their "moons," several of which are as big as Mercury, are, or have been, inhabited.

Any lingering religious prejudice in favor of the idea that this little earth is the hub of the universe denies this thrilling possibility, which is not even without some visible evidence, in the case of both Mercury and Ganymede. Of this more anon.

Another class of your stories, those which deal with possible changed life conditions on Earth such as the "Red Dust," are very pregnant with rich suggestion, and the free play of such speculations helps us a lot in correctly diagnosing the physical conditions now obtaining on other planets.

William G. Hale,
 Seattle, Washington.

[This letter coming from a professional librarian, one familiar with the details of his profession in Europe and America, has a special technical value. The writer evidently feels as the editor of AMAZING STORIES has felt, that too many scientists make their work as dry as dust, but lately such men as Millikan, Mills and their co-workers have made the elusive electron and ether waves as interesting as any novel.—EDITOR.]

"A FALL FROM GRACE"

Editor, AMAZING STORIES:

However much I may have wished to criticize a story, or to expend praise or censure on editorial practice and policy, I have, in the past, refrained from entering the "Discussion Department" of any publication of any sort. Most persons who contribute to them seem to me plain morons. This my first fall from grace, is a "thank you letter" to AMAZING STORIES.

I was first attracted to your magazine by the fantastic cover design showing the strange people of the story "In the Abyss." I purchased it in fear and trembling lest some friend see me buying "cheap fiction." One issue convinced me of my error. I saw at once that for the most part the stories you use are by excellent, competent, even classic authors.

The remark of a friend to whom I introduced the magazine prompts this letter. He said that for him it was growing stale, he was surfeited with interplanetary stories. I feel that he is the one to be criticized. Naturally some stories please us more than others, and if we read for entertainment alone every type of story will soon become dry, for after all there are only a very small number of possible plots, while tons of paper and bottles of ink are used each year in developing them.

For me AMAZING STORIES brings once a month an answer to the question "What shall I read or study next?"

It has sent me to a surprising number of places where knowledge is stored—to archeology and ancient religions, to geology, anthropology, and embryology, to physics, to astronomy and optics, to the Bible, and to Jules Verne in the original.



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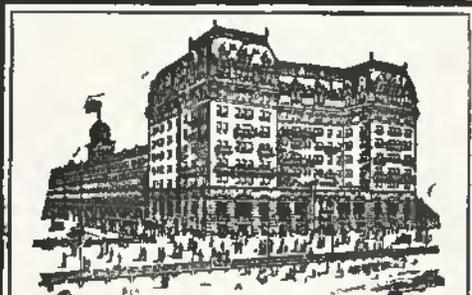
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SEE PAGE 712

For this priceless treasure-trove I thank the authors and the editor of this unusual magazine.

I notice that your readers are nominating their favorites for publication. Since I am here I may as well propose two of my own. First that gray headed granddaddy of scientification, one of the world's greatest books and one written primarily for popular scientific instruction—Camille Flammarion's "Urania," second a work of intense fascination though some of its science is slightly antiquated, "The Coming Race" by Lord Lytton.

In one thing only has AMAZING STORIES failed me. As soon as I have a nice comfortable opinion on the "Fourth Dimension" it comes along with a story that seems perfectly foolish yet succeeds in tossing my poor little opinion back into the Limbo of Doubt.

It is not so much success I wish you as that you may turn some truly brilliant and fertile mind, as you have my humble one, into rivers of knowledge that it might otherwise never have explored and thus assist in giving to the world a genius.

Catherine M. Moran.
Pittsburg, Penn.

[This title "a fall from grace," we borrow from Miss Moran's own letter. Our readers may not realize that the Editors need encouragement. They are addressing an immense audience, whose faces they never see. Miss Moran seems to combine a good criticism of our work along with her appreciation which certainly is most gratifying. The forming of a nice comfortable opinion of the fourth dimension is no easy task. Theodore Roosevelt's unknown river was in South America. We fear our correspondent has found hers in our AMAZING STORIES.—EDITOR.]

AMAZING STORIES AS A PUBLIC EDUCATOR

Editor, AMAZING STORIES:

From the time AMAZING STORIES made its debut, I have been a rabid and enthusiastic reader of your excellent magazine. As yet, I have never missed an issue and only a physical incapability could compel me to. The unlimited amount of pleasure derived from its pages, are beyond compensation and the free-minded owe you a debt of gratitude as a public educator. Your selections are varied, interesting and based on cold scientific logic, barring minor discrepancies. My whole-hearted approval, commendation and good wishes go to you for your remarkably fine work. Continue along the lines you are now pursuing and, I feel assured, your magazine will outrival all others in circulation, as it already does in literature.

Perhaps, I have been a trifle flowery but I also have a criticism to make. Why do these skeptical and scientifically disposed critics continue to waste your valuable time, picking scientific flaws in the various stories? Some of the amateur experts' opinions really serve as a comic sequel after a night of interesting reading. If they would only stop to realize, that some of their most indisputable data is merely hypothesis, the criticisms might be more lenient. Especially in the cases of your reprints. Unfortunately, the authors of the days gone by did not possess the vastly superior knowledge of a few of your readers, but considering the circumstances, they did fairly well.

I certainly was pleased to see H. G. Wells' "War of the Worlds." Having read it years ago, it is an extreme pleasure to refresh my memory. I would also enjoy seeing Sir Thomas More's "Utopia," Rider Haggard's "She," "The Wanderer's Necktie" and others would meet with general approval, I believe. You can't publish sufficient reprints to satisfy me. Corelli's "Romance of Two Worlds" would be a fitting addition.

Of the new generation of writers, I'll award the laurels to E. R. Burroughs. Being a confirmed revolutionist, his "Land That Time Forgot" captured my fancy. Although he does not follow the stipulated evolutionary lines, the injections of his personal theory add zest to the story. It is a far greater piece than the "Lost World" which attracted such attention. All of the contest stories were really good and I'd like to hear from a few of the prize winners again. There was unlimited talent unearthed, so it's up to you to develop it.

Well, I guess I've unburdened myself enough for one evening. Giving you many thanks for hours of enjoyable pastime and wishing everlasting success to your illustrious magazine and the personnel that made it possible.

C. P. Prescott,
New York, N. Y.

[It is interesting to find our correspondent, in pronouncing our magazine an educator, picking flaws in fictional stories, which may be regarded as a waste of energy because they are fiction and imaginative. If considerable scope is not given to the writer; if he is held down to bases of actual fact, not only would the pages be dry, but the element of prophecy which appears when the imagination is properly used, would be missing. Imagination is a great aid to science. If we study the wonderful work done by our American physicists, we will find very evident, the part which imagination has played in the investigations. Science has two sides—the amusing and entertaining one which directly stimulates the imagination, and the drier and more mathematical division which the average reader is inclined to consider forbidding, but which is not really so. But if our readers will take the point of view that our desire is to be scientific and interesting at once they will realize what we want for our magazine.—EDITOR.]

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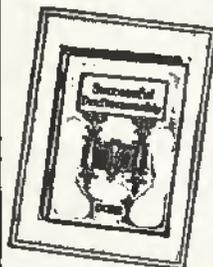
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**SUGGESTIONS FOR THE DISCUSSION
COLUMNS**

Editor, AMAZING STORIES:
My June issue of AMAZING STORIES arrived late, so I have just finished reading "The Moon Pool." This is the best story I have ever read, bar none. Mr. Merritt is certainly "the master of scientific-fiction." He has an ingenious treatment of the plot which is much like Edgar Rice Burroughs'. And he evidently is a mythologist of no mean ability. By all means, keep his stories running forever. H. G. Wells is very good, but, somehow or other, you can't get entire enjoyment out of a story, which is written with dates back in the nineteenth century. And here's a tip to present scientific-fiction authors—date your stories far enough ahead so they won't grow to have this flaw.

I read an interesting letter in your Discussions for June, written by T. J. D., of Cleveland, Ohio. In this he mentioned something to which I believe you should give serious consideration. He suggested that "Discussions" assume a pro and con argument department. I wish to give this idea my heartiest support. Of course, letters in compliment of AMAZING STORIES and the stories it contains would not be cut off, but there is no reason why Discussions can not boldly be a department for argument among the readers (friendly, of course). And, because of the impossibility of printing all the arguments you receive, I see no objection to publishing the full addresses of all correspondents so that they may carry on their arguments outside of the magazine.

Besides giving real personal enjoyment to the readers this should prove to be an advertising scheme of no mean import. It would bind the readers of AMAZING STORIES in closer ties, among themselves, rather than entirely through the magazine. And, with a friendly group of readers, bound to each other, personally, what better advertisement can you wish?

One letter could be published in AMAZING STORIES' Discussions, in answer to one previously sent in. Then, I believe, the two debaters should carry their arguments outside the magazine, and address each other personally, leaving room in Discussions for others. I believe that the original letter of criticism and the first disagreement letter would prove sufficient to fill up the department every month, for I am sure that people who appreciate scientific-fiction will like to argue—I do.

And now a few more details of this idea. Writers of disagreement letters should carefully state just which letter they are answering, and the Editor should head it—"Answer to—'s in the — issue." It might not be a bad idea to number all letters in each month's issue, for certainly readers of Discussions would like to refer back to the original of the argument.

Come on now, readers—if you like this idea, tell the Editor about it, and I'm sure he'll comply!
Earle B. Brown,
Newburyport, Mass.

[We would be very glad to have our readers take up this idea which our correspondent has enunciated in his letter. A very old time English magazine, which is in active circulation at the present day, has exactly this feature, as perhaps the most important, and certainly, most interesting part of its contents. We remember that the correspondents sometimes alluded to the paper in their letters as "Ours," feeling as if the magazine was really their property. One of the great objects of these columns of the Discussion Section is to bring our readers closer to us and to be told by them whether our work is good or bad, and if bad, to give us suggestions for improving it. If the ideas of our correspondent could be successfully carried out, it would be in line with the wishes of others of our correspondents who have expressed practically the same idea, in another way.—EDITOR.]

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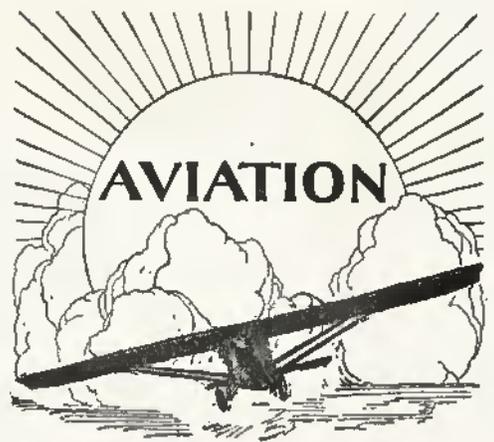
Editor, AMAZING STORIES:
I have been reading AMAZING STORIES ever since the first magazine was published and I have been watching for the stories in this contest very impatiently, and I most sincerely believe that the "Visitation" is worthy of the first prize but not so with the second prize winner. There is a grave flaw in it. The globe which lifts the ship, according to the writer, is supposed to be a miniature world. On the contrary anyone could see that it is something made by intelligent beings. Don't you think that it would have been better for the writer to have said that it was some kind of a flying machine sent by the beautiful women of Mars to bring back that shipload of men? But on the whole it is a very good story.

My friends all say that they like the illustrations as they are now. But in the near future will you not print some more of those stories beside prize winners and those that received honorable mention? I am sure there are many fantastic tales there.

If you wonder why I did not use the coupon, this is why; I am saving those books for people who visit me to read. I often read them over again. They are one of the finest collection of books I have in my possession. I do not wish to spoil them by cutting, as there is a story on the back.

But as to my friends, they all buy AMAZING STORIES and here you have our hearty thanks. We hope your book never fails; but we know it won't.

Herbert I. Pickett,
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One day he had a violent altercation with a colonel of the infantry about a plan which the former was elaborating.

"The eagle which you wear on your head has eaten your brain," exclaimed the exasperated colonel of the infantry.

Then, Colonel Pastorelli answered very calmly:

"That's lucky for him. If the eagle were on your head, he would have starved to death."

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ONE day a learned doctor told his patient that he had to submit to a very serious operation.

"Is it dangerous?" inquired the patient.

"Not for the patient, as we put him to sleep. But it is a very painful operation for the doctor."

"How's that?"

"We suffer from anxiety. Just think! It succeeds only once out of a hundred times."

THE BIG SHOT



—J'ai une un livre!
—Et tu ne l'as pas lu?
—Il était trop petit.
—Pour le lire?
—Non pour le toucher!

"I saw a hare!"
"And you didn't kill it?"
"It was too small."
"To kill it?"
"No, to hit it!"

THE ONLY OBJECTION



—Et le mariage? Vous aimez le mariage?
—Bien sûr, j'aime le mariage, mais c'est le mari qui me gêne.

"And what do you think of marriage? Do you like it?"
"Of course, I think it's great! But it's the husband that annoys me."

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THE great Italian composer, Verdi, was extremely modest. He hated the indigest, and fled precipitously from those who wished to interview him.

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Verdi thought it over for a moment, and then answered gently:

"The most notorious event in my life was my birth, in 1813. Since then nothing has happened which deserves to be called important."

ISN'T IT THE LI IT?



—Qu'est-ce que c'est que ce portrait de femme-là?

—C'est une femme que j'ai connue autrefois.
—Alors, c'est ça, tu me trompais déjà avant de me connaître!

"What's this woman's picture doing here?"
"That's a girl I used to know."

"So, that's it! You were untrue to me even before you met me!"

Bravery

THE old maid—"Oh! That was a wonderful charity bazaar we had, and I had such a good time. Can you imagine, the Mayor gave me five dollars for one kiss!"

The young man—"The Mayor is a very courageous man. He does everything for charity."

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A DEPARTMENT OF INFORMATION

Editor, AMAZING STORIES:
Now let me talk about my magazine! Mr. Paul is a genius. Illustrations for the "War of the Worlds" (which I have seen illustrated in a French edition), "Beyond the Pole," "Eggs of Lake Tanganyika" and "The Crystal Egg" were wonderful in detail and conception.

Great stories that made me jump were "The Man who saved the Earth," "The Infinite Vision." In "The Runaway Skyscraper" I did not quite understand a building disappearing in "Time" through a physical flaw of the earth.

Murray Leinster's "Mad Planet" and its Sequel are a wonderful description of Insect life and dawn of Intelligence in the Human Brain. The "Land that Time Forgot" was very good.

As for H. G. Wells I like his plots and scientific ideas but all is overwhelmed by unnecessary details that delay the action. But for me as a No. 1 author is A. Merritt. "The Moon Pool" is simply stupendous. Please give us the Metal Monster. Ray Cummings will be welcomed by me.

As I have been reading this type of stories for 15 years it takes a good story to interest me and let me say that since the beginning, I have no complaints to make except about "The Island of Doctor Moreau" which, "although good" was out of place in your magazine.

Could I suggest that you print the following:
1. "Les Hommes Frénétiques" by Henri Perchon.

2. "Le Monde de L'Alène," by Cmdt. de Wailly.
3. "Le Grand Cataclysme," by H. d'Alorge.

No. 1 deals with World History a couple of thousand years from now, and what a story it is.

No. 2 is of about the same type as "The Moon Pool" but a different plot and different science which is also new.

No. 3 is in the same style as No. 1 only giving different science and wholly possible also.

May I suggest also a new department in which you would give us the cold truth about certain scientific theories such as fourth dimension, atonic laws, etc.?

At last I will finish my letter by telling you that if you drop this magazine you will certainly deprive lots of people of much of their intellectual comfort. I am sure though you'll never do it.

Next month I'll write again, (but shorter), I want to knock some of the critics that babble in your discussions (before they knock me).

Hector Gratton,
Montreal, Que.

[We are very glad that you appreciate the ingenuity and originality of Mr. Paul. He seems to have established himself as our readers' favorite, in the illustration of our stories. You mention Murray Leinster's "The Mad Planet," with its sequel, "The Red Dust." These two stories have produced a great impression upon us and we hope to have more. The "unnecessary detail" which plays so prominent a part in Mr. Wells' depictions, add an aspect of truth, which makes his fiction the more impressive. He is accepted as one of the modern classics and it would seem a great pity for any change to develop in his style of writing. We have the French stories, which you suggest on our list, but it may be some time before we reach them. The new department which you suggest hardly comes within the scope of a fiction magazine. Our part is to make our readers get their imaginations to work, for imagination as we have stated from time to time, is a very important element in scientific development and work. In our other magazines, such as SCIENCE & INVENTION, our readers will find science, as such, treated and illustrated with a view to giving a popular presentation of the latest developments. We may venture to say that we appreciate your desire to knock some of our more appreciate your desire to knock some critics.—EDITOR.]

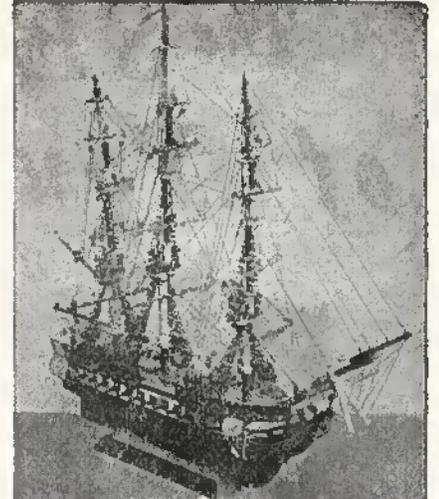
THE "TWICE A MONTH" IDEA

Editor, AMAZING STORIES:
I wish to offer a few words of general criticism. I enjoy AMAZING STORIES very much and I have read every copy eagerly. In fact, I have kept all the back copies and often look them over. The only thing I didn't like about the first number was that there were two stories reprinted from SCIENCE AND INVENTION. Now I believe that the majority of those who subscribed to AMAZING STORIES when it first came out were, at the time, subscribers to SCIENCE AND INVENTION also, since it was in this magazine that AMAZING STORIES was advertised. Undoubtedly they, like myself, had read those stories before. I wish to make the same criticism now. I noticed in the August number of AMAZING STORIES that you were going to publish Ray Cummings' "Around the Universe." Some time ago this was run in SCIENCE AND INVENTION. Probably at this time there are many of your subscribers who have not read that story, but nevertheless I think it is a mistake to publish stories in AMAZING STORIES which have appeared in a sister magazine (such as SCIENCE AND INVENTION is).

Although I have liked some stories better than others, I will not say which ones, for I think it is a matter of one's personal likes and dislikes. Anyway, "Variety is the spice of life."

About the "twice-a-month" idea, I really think it isn't a good idea for the reason that the inevitable price of five dollars a year is too much to pay for a magazine, however fine. Many of your readers are, I have no doubt, rather young and five dollars is a lot of money to them. Even in the average home, five dollars a year for a magazine is a lot.

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Size: 30" high; 32" long; 10" wide

Another great victory has been won by Old Ironsides and she will be saved for posterity

While the Frigate Constitution is in dry-dock undergoing rehabilitation the World's Largest Manufacturer of Ship Models has produced a model of the historic ship in knock-down form. The parts are cut-to-fit and ready-to-assemble. So simple is the plan that

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You need not know anything about ship building to assemble one of these models. As a matter of fact if you have never seen a ship you can put the model of the Constitution together in a few hours by following our diagrams and instruction sheet, which is so written that a school boy can understand it. All you need is a small hammer. The parts are numbered on the diagram to make the process even more simple. As long as you can understand such instructions as these (actually taken from assembling chart that is included with every model of the Constitution) you cannot fail: "Take No. 57, place it in front end of No. 56 and tap lightly with hammer. Next take No. 58 and place it up against No. 57 and tap with hammer to bring it into place."

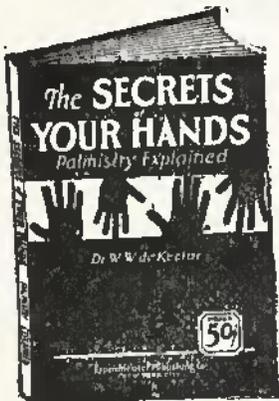
Easy? Nothing simpler. The instructions are just like that from beginning to end. Do this and that—and before you realize it a beautiful model has grown before your eyes. The model of the Constitution is exact in every detail. The hull, masts, spars, cannons, anchors and rigging correspond to those on the original ship in every way. After you have completed building one of our models from the \$6.98 kit you will be so well satisfied that you would not take \$50.00 or even \$100.00 for the model.

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Don't Miss **FRENCH HUMOR!**
SEE PAGE 714

When I saw the suggestion in the "Discussions" column that in one issue of the semi-monthly magazine there should be printed a complete novel while in the other short stories only should be printed the thought occurred to me that you might likewise split up the subscription. For instance, "Subscription Plan A" would send one all the short-story numbers, coming out on the first of the month, say; while "Subscription Plan B" would send one all the complete-novel numbers, coming out on the 15th of the month, and "Subscription Plan C" would send one both numbers each month. In this way, if someone could not afford the five dollars a year, he might give up either the novels or the short stories and pay the same subscription price as at present.

Another suggestion—one, though, that has been voiced before: I think it would make your magazine very much nicer if it were printed on better paper—something like SCIENCE AND INVENTION. Of course, it would be much thinner but I have an idea the circulation of the magazine would increase because of its better appearance. Now it resembles somewhat the cheaper (in quality, I mean) magazines one sees on the newsstands. If the quality of paper were changed, could not the magazine be bound as the *Literary Digest* is now? Perhaps the saving in postage would help defray the expense.

And by the way, I like the illustrations very much. They are very fine and make the stories a great deal clearer.

These several suggestions are the result of a year-and-a-half's reading of AMAZING STORIES. I give them in the best spirit possible and I hope that the magazine will continue for many years to give enjoyment to its readers.

And now if our honorable and much-esteemed editor has perused this thrilling narrative as far as this, I bid him an affectionate good-by and I thank him for his time; otherwise I solemnly command and enjoin the janitor to deposit this literary masterpiece carefully and with due reverence in Ye Royal Furnace.

Raymond Jaureguy,
Tacoma, Wash.

P. S.: I get as much "kick" out of the "Discussions" pages as I do out of the stories themselves.
R. J.

[Some of the suggestions of our correspondent are quite ingenious, but the trouble with them, as with many similar ones, is that they are not practical. Out of a gross circulation of 150,000 copies of AMAZING STORIES, there are only about 5,350 subscribers. AMAZING STORIES, then, is primarily a newsstand publication. If every one of our present newsstand readers could be induced to subscribe for one year in advance, many of the magazine's troubles would be solved. But we know this is manifestly impossible, because most people, somehow, feel that they would rather buy the magazine as it comes out on the newsstand than pay \$2.50 a year in advance.

Another difficulty of the plan is that it is impossible to foretell how many possible readers there would be for the complete novel issue, and how many for the magazine in its present shape. We should like to have some comment on this from our readers.

As to printing the magazine on better paper, we ultimately will do this as soon as the magazine has been placed on a paying basis, and enjoys a larger advertising revenue. Our readers will have noticed, however, by this time, that the paper of AMAZING STORIES has kept on getting better.—EDITOR.]

OUR QUESTIONNAIRE

Editor, AMAZING STORIES:

In your AUGUST edition of AMAZING STORIES, I came upon a questionnaire which almost immediately gave me an idea: that of keeping a note-book of scientific notes from AMAZING STORIES. This questionnaire made the selection of notes very easy, as it contained the most valuable questions. Of course, the "answers" of the questions are not quite sufficient for a note-book, but if you will follow up the paragraph or paragraphs with which the question is connected, it gives you a very valuable source of information. From now on, and from my old editions of AMAZING STORIES, I intend to make a note-book. I hope to see the questionnaire in all following editions as it is not necessary to break your train of thoughts on a particular story to jot down your notes. The paragraphs on atoms and colloids in the story "The Shadow on the Spark," were particularly valuable.

As a whole, AMAZING STORIES is a very valuable form of reading. I favor more illustrations and I also think that if your magazine was "explained" more fully in advertisements, your sales would be greater. Many people seem to think that AMAZING STORIES is a magazine of blood-curdling stories such as those of which nightmares are made.

I would like to see more Burroughs and Jules Verne stories in A. S. The "Moon Pool" was full of action and color. It was a very worthy story, and more stories like it will be, I am sure, welcomed by most A. S. readers.

Hoping for more illustrations and a semi-monthly printing.

P. A. Simrow,
Los Angeles, Calif.

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LUCKY READERS

Editor, AMAZING STORIES:
I have been much interested in the idea of issuing AMAZING STORIES twice a month. It has been suggested as a possibility almost ever since the magazine first came out. It is now a year and a half since the first issue, and still it is merely a possibility. The "Different Story" editorial in the August Issue, surely was a surprise to me. It told why it was not a semi-monthly publication.

Now the readers of AMAZING STORIES ought to wake up to the fact that they are lucky that it is published even once a month. We readers of AMAZING STORIES should get down to business if we want it published twice a month. Instead of talking of its possibility, let's do what will make it a semi-monthly publication. Let each reader get one more friend to buy AMAZING STORIES at the news stands or subscribe with the company. If each one did that, I wager we will have it within four months as a semi-monthly book. We would then have about 250,000 readers. That would take care of the circulation part of it. Then the increased circulation would naturally attract advertisers. If this was carried out, AMAZING STORIES would soon be a flourishing magazine. And it would be nothing for the individual, but of great help to the magazine. We all want AMAZING STORIES twice a month, so—**Let's Go!!!**

I hope you will give this letter space in your wonderful magazine, because if it fulfills its purpose, it might serve as an impetus to make AMAZING STORIES a semi-monthly.

Yours for a bigger, better, and semi-monthly AMAZING STORIES.
John J. Kelly, Jr.,
St. Paul, Minn.

[The point of view of our correspondent is that our readers are lucky because AMAZING STORIES is published once a month. It is a good way to put a pleasant comment and we are glad to feel that you are in the ranks of those who wish the two issues every month. The principal trouble is the increased cost which will be incurred by our readers, if we make this change. This difficulty has already been noted as will be found through the correspondence column. A letter published elsewhere contains a good suggestion.—EDITOR.]

A YOUNG AND FRIENDLY CRITIC

Editor, AMAZING STORIES:
The fact that I am only fifteen years old does not prevent me from praising your interesting and instructive magazine, AMAZING STORIES, to which I subscribe.

One of my most important subjects at High School last year was Science, which seemed hard to most of my classmates, but came easy to me because I subscribed to AMAZING STORIES!

Yes, I have surprised my science teacher dozens of times with statements which seemed to him impossible to come from one so young as myself and especially so because this was my first year of Science! The explanation may be obtained by pointing to AMAZING STORIES.

I welcome the Questionnaire heartily, because it will be another great aid to my Science studies. The most interesting stories in your magazine, to me, are interplanetary stories and chemical stories. Astronomy holds a peculiar fascination for me and stories of such in "our magazine" I always read, knowing more clearly about the details of the subject than before I read them.

"The War of the Worlds" was a very good story, and the "Retreat to Mars" was excellent. I have absolutely no criticism to make against AMAZING STORIES, except that it is not a Semi-Monthly.

Frederick W. Weihe,
Leesburg, Fla.

[Our critic falls within the class to whom our editorial is devoted. We are interested especially in his comments on the questionnaire. This is a bit of specialization in which the editor has taken the greatest interest. And while it seems not a very extensive affair, it has certainly required some thought to carry it out. Although the direct answer to some of the questions may not be found in the text of the stories, at least the core of the matter is there and our readers can carry out the inquiry to its full responsiveness.—EDITOR.]

THE FIFTH DAY OF THE MONTH

Editor, AMAZING STORIES:
I have been a somewhat diligent reader of AMAZING STORIES ever since the second copy, and the only way I can express my appreciation is by saying that you have one of the most instructive and interesting magazines on the newsstands. Around the fifth of the month I am extremely anxious to delve into your magazine's most interesting mysteries.

Although I am only thirteen years old AMAZING STORIES has inspired me with an unquenchable thirst for science. Proceed with your good work and be sure and publish some of Ray Cumming's most interesting books.

Ever the AMAZING STORIES' most ardent admirer.
Howard M. Blake,
Wollaston, Mass.

[Another young reader writes himself down as an ardent admirer of AMAZING STORIES. There is no more merciless critic than a young one, so that praise from the young is of special value in our eyes. We hope we shall continue to please our younger readers.—EDITOR.]



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PICTURES IN COLOR

Editor, AMAZING STORIES:

I am alarmed to find that AMAZING STORIES is not yet on a paying basis. I feel that this magazine fills a real need. I believe that it will increase the public interest in scientific topics, develop our country's scientific imagination, and increase the well-known American power of invention.

I have just read "The War of the Worlds," in the August issue. It is truly an amazing story—it is amazing that an account so interesting and life-like should not be literal truth. But I found "The Ultra-Elixir of Life" ridiculously impossible.

Few of my friends will read AMAZING STORIES. They say that they do not want to be amazed—that it is a cheap magazine—that such intellectual acrobatics are unhealthy—that the stories are too fantastic. While I admit that there is some justification, it is mostly blind prejudice. They look upon the stories as mere sensational thrillers, not as imaginative searchlights penetrating into the black void of the unknown that surrounds our narrow sphere of knowledge.

It would improve the magazine, from my point of view, if you would introduce a frontispiece of coated paper, bearing on each side an illustration lithographed in color. Each of the two stories illustrated would begin on the page opposite its respective picture, the first one being continued to the back of the book. The increased cost could be met by reducing the other illustrations. It requires considerable effort to visualize a new machine or a strange creature from words alone, and a good picture vastly increases the clearness of the mental perceptions of such a thing, so it would still be desirable to have at least a half-page illustration for stories involving such. This suggestion may be worthless, but I think most of your readers would approve it.

May AMAZING STORIES live long and flourish!

John S. Williamson,
Elida, New Mexico.

One of our critics pronounced "The War of the Worlds" "totten," not a very elegant term, but certainly expressive. One of our correspondents, which letter is published in another column. Here we have another critic who considers it an Amazing Story, feeling that it reads like literal truth. Evidently, an author cannot please everybody. And this very admirer of "The War of the Worlds" reads "The Ultra-Elixir of Life" ridiculously impossible. It is evident that it is all we can do to strike a good average and the results of our work certainly show that we are doing this.

A colored frontispiece on coated paper, would increase the total cost of the magazine some 25 per cent, which would really be a tremendous expense, whereas the cost of the present illustrations is nominal.—EDITOR.]

HUMOR IN AMAZING STORIES, CONSTRUCTIVE CRITICISM

Editor, AMAZING STORIES:

Judging from the editorial comments appended to the letters appearing in the "Discussions" department, constructive criticism is always welcome. Therefore, I feel that I am not unduly presumptuous in offering my opinion of a certain type of fiction which has recently appeared in AMAZING STORIES.

I refer to the so-called "humorous" effusions of E. D. Skinner and H. H. Simmons. Mr. Skinner, as yet, has offended but once; and so we will dismiss him from consideration with a gentle admonition to "go and sin no more." But Mr. Simmons's case is different. Were the concoction of allegedly humorous scientific fiction punishable by law, I am sure that this author would be sent up for life, while you, Mr. Editor, would no doubt be sentenced to ten years at hard labor as a wilful accomplice to the crime.

In all seriousness, though, I would advise you, in behalf of myself and a number of friends who are steady readers of AMAZING STORIES, to omit in the future all stories even remotely similar to the brand turned out by Messrs. Skinner and Simmons. They simply do not belong in a magazine like AMAZING STORIES.

Mind you, I am not against *real* humor—such as appears at times in "The Master Mind of Mars" by Edgar Rice Burroughs, when the author pokes fun at the Martian religion and incidentally takes a good-natured "dig" at terrestrial theology. That kind of humor I can appreciate; and since it is entirely subordinated to the plot of the story, it makes very acceptable reading. But to base a whole series of stories on the antics of a hare-brained inventor, is a little too much for the discriminating reader.

In conclusion, I wish to add that with the exception of the above-mentioned fault I consider AMAZING STORIES my ideal magazine. It is the outstanding periodical of its kind, and it should find little difficulty in maintaining its supremacy while there are intelligent, thoughtful readers who desire real literature with the thrill of science.

Earl G. Sarason,
New York, N. Y.

[Many readers have greatly admired and enjoyed the particular stories which you object to and we are inclined to take the view that your criticism is not really constructive, as you term it. So will not our indulgent correspondent take the point of view that what pleases one reader, will not please another? And these comical stories to which he objects, have been a great treat to many.—EDITOR.]

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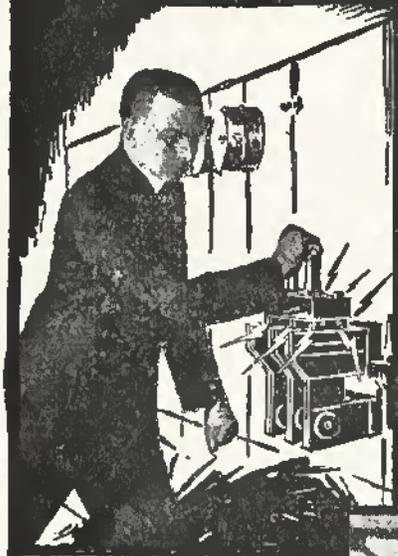
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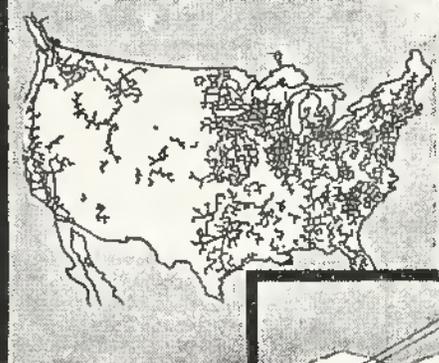
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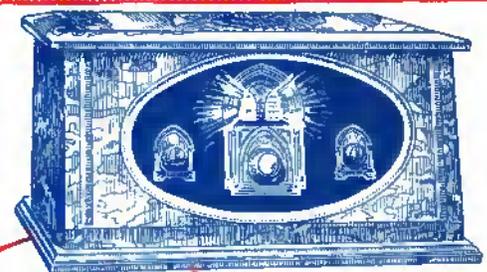
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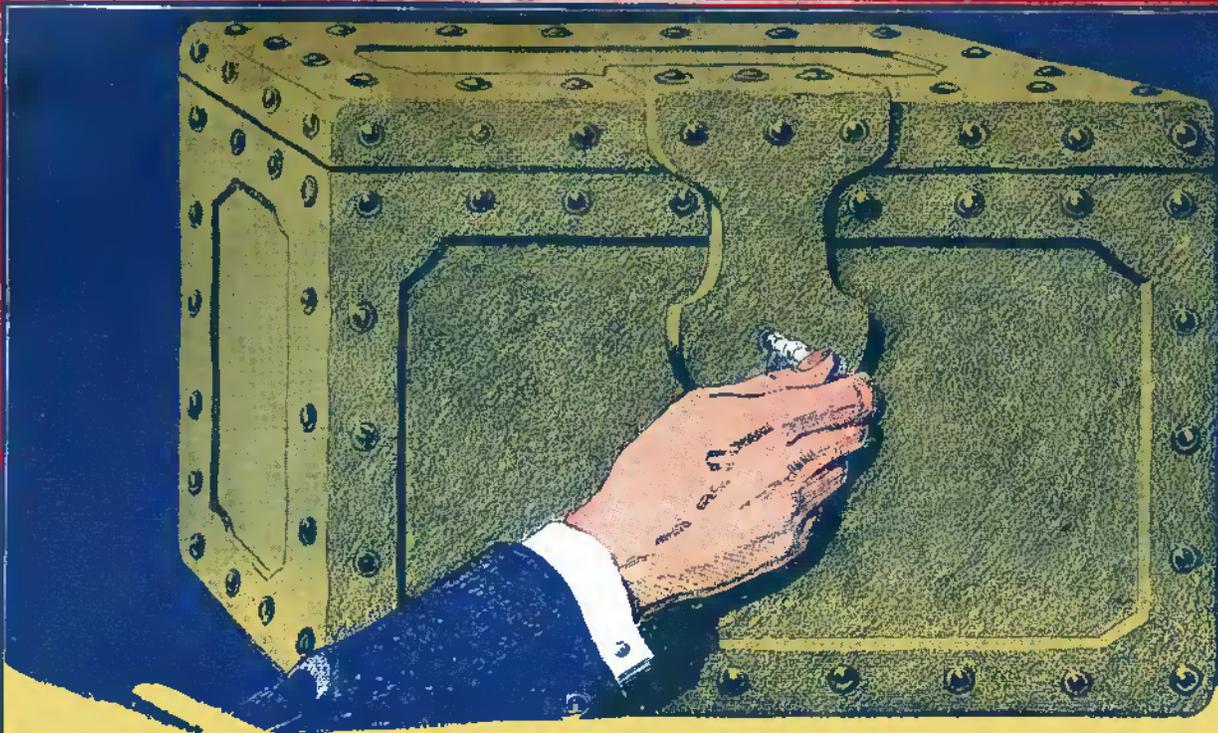
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