

# MANA GOLZARI

INVENTION: AUTOMATIC PLANKTON UV REFLECTOR  
AGE: 18 (INVENTOR AT AGE 15)

HOME: OSPREY, FLORIDA  
SCHOOL: PINE VIEW SCHOOL

MANA GOLZARI WAS BORN IN IRAN. SHE WAS THREE-YEARS-OLD WHEN THE AYATOLLAH KHOMENI TOOK CONTROL OF THE COUNTRY, CAUSING HARDSHIPS FOR MANY OF ITS CITIZENS.



MANA'S FATHER HIRED SMUGGLERS TO HELP THEM ESCAPE FROM IRAN. FIRST BY JEEPS AND THEN BY CAMELS, THEY FLED ACROSS THE DESERT INTO PAKISTAN.



THE GOLZARI FAMILY FINALLY MADE THEIR WAY TO THE UNITED STATES TO BEGIN A NEW LIFE IN FLORIDA. LIVING NEAR THE COAST, MANA QUICKLY DEVELOPED A LOVE FOR THE OCEAN.

IN 6TH GRADE, MANA LEARNED THAT THE DEPLETING OZONE LAYER WAS DESTROYING THE OCEAN'S PLANKTON WHICH PRODUCES OVER 90% OF EARTH'S OXYGEN.

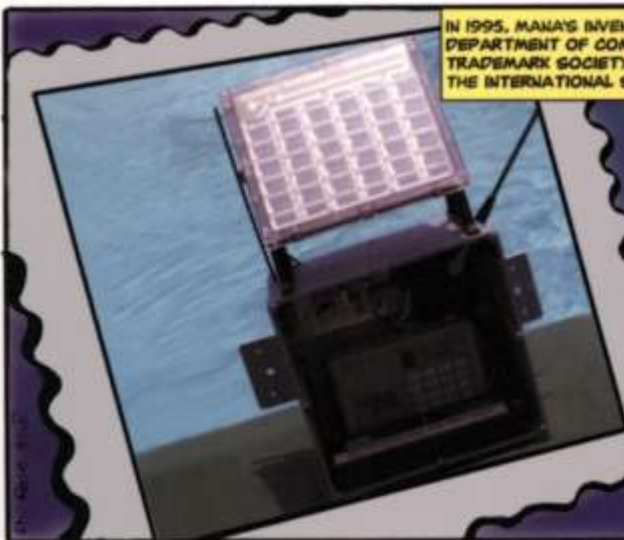


OVER THE NEXT SEVEN YEARS SHE INVENTED THE AUTOMATIC PLANKTON UV REFLECTOR.



THIS DEVICE MONITORS THE PH LEVELS OF THE WATER AND THE DAMAGING ULTRA-VIOLET RAYS OF THE SUN, THEN RELEASES THE RIGHT AMOUNT OF CHEMICALS TO PROTECT THE PLANKTON WHEN NECESSARY.

IN 1995, MANA'S INVENTION WON THE US DEPARTMENT OF COMMERCE PATENT & TRADEMARK SOCIETY COMPETITION AT THE INTERNATIONAL SCIENCE FAIR.



MANA WILL ATTEND HARVARD WHERE SHE PLANS TO MAJOR IN BIOLOGY AND WOMEN'S STUDIES.

ART: PHIL ROSE

STORY: L. GRANT LUTON

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# IAN HAGEMANN

INVENTION: PORTABLE VISION FIELD ANALYZER HOME: GREAT FALLS, VA AND PARIS, FRANCE  
AGE: 17 SCHOOL: THOMAS JEFFERSON H.S. FOR SCIENCE AND TECHNOLOGY

IAN HAGEMANN WASTED NO TIME BEGINNING HIS CAREER AS AN INVENTOR. BEFORE HE WAS TWO-YEARS-OLD HE MADE HIMSELF A NEW PAIR OF SHOES OUT OF PLASTIC TUBES.



AT AN EARLY AGE HE BEGAN TO READ EVERYTHING HE COULD GET HIS HANDS ON. HE ALSO LOVED ROCKS AND MODEL ROCKETRY.



IAN'S FAMILY LIVED IN PARIS FOR SEVERAL YEARS WHERE HE LEARNED TO SPEAK FRENCH FLUENTLY.

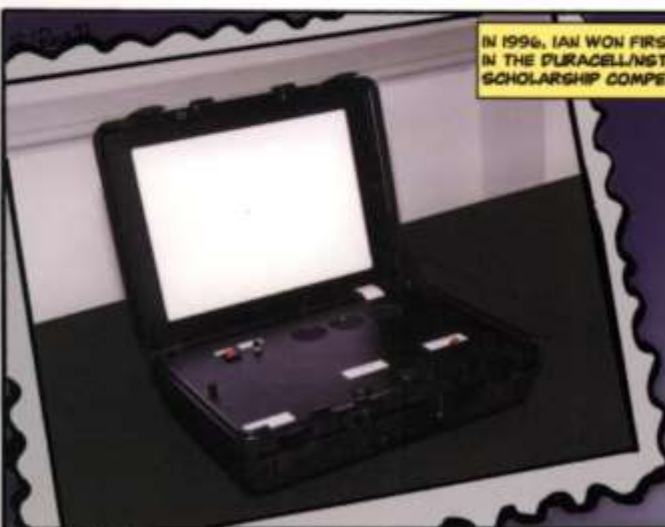


DURING HIS SENIOR YEAR AT THOMAS JEFFERSON HIGH SCHOOL, IAN INVENTED THE PORTABLE VISION FIELD ANALYZER (OR PVFA) AS A SCIENCE PROJECT.

THE PVFA ANALYZES THE EYE TO DETECT GLAUCOMA, STROKES, TUMORS OF THE BRAIN, AND OTHER NEUROLOGICAL DISORDERS ACCURATELY AND QUICKLY.



OTHER MACHINES DOING THE SAME JOB ARE THE SIZE OF REFRIGERATORS AND COST NEARLY \$20,000.



IN 1996, IAN WON FIRST PLACE IN THE PLURACELL/NSA SCHOLARSHIP COMPETITION.



IAN HAS FINISHED HIS FIRST YEAR AT PRINCETON WHERE HE PLANS TO MAJOR IN CHEMISTRY. HE ALSO WORKS PART TIME AS AN EMERGENCY MEDICAL TECHNICIAN.

ART: PHIL ROSE

STORY: L. GRANT LUTON

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# GREG TSENG

INVENTION: FIBER OPTIC EVANESCENT WAVE ION SENSOR WITH INTERCHANGEABLE PROBES  
AGE: 16  
HOME: MCLEAN, VA  
SCHOOL: THOMAS JEFFERSON H.S. FOR SCIENCE AND TECHNOLOGY



GREG TSENG HAS ALWAYS LOVED NUMBERS. BY THE TIME HE WAS ELEVEN MONTHS OLD, HE COULD COUNT FROM 1 TO 8, AND HE KNEW HIS MULTIPLICATION TABLES BY THE TIME HE WAS IN KINDERGARTEN.

WHEN GREG WAS 13, HE FINISHED 9TH PLACE IN THE NATIONAL MATH COUNTS – A NATIONAL MATHEMATICS COMPETITION.



WHEN GREG WAS NOT PLAYING WITH NUMBERS, HE WAS PLAYING HIS PIANO OR CELLO...



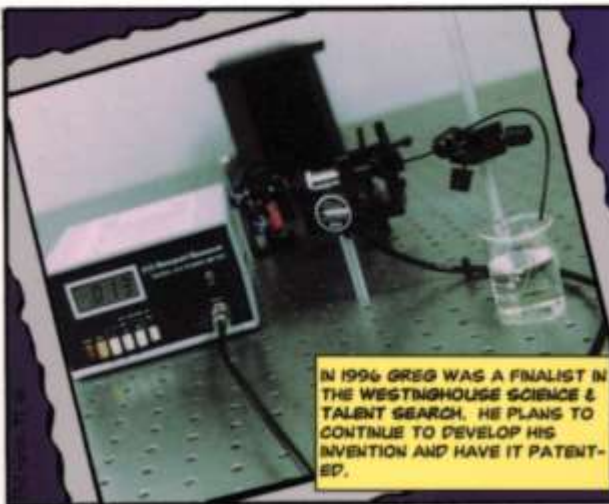
...AND WHEN HE WAS NOT COMPETING IN MATHEMATICS, HE WAS COMPETING ON THE TENNIS OR THE BASKETBALL COURT.



DURING A VISIT TO THE NAVAL RESEARCH LAB, A SCIENTIST SUGGESTED THAT GREG DEVELOP A DEVICE THAT COULD ACCURATELY ANALYZE CHEMICAL SOLUTIONS TO DETERMINE THEIR CONTENTS.



USING FIBER OPTIC CABLE AND LIGHT SENSORS TO CONNECT A LASER TO A COMPUTER, GREG INVENTED A DEVICE THAT AUTOMATICALLY ANALYZES THE ION CONCENTRATIONS OF CHEMICAL SOLUTIONS AND ORGANIC TISSUES.



IN 1996 GREG WAS A FINALIST IN THE WESTINGHOUSE SCIENCE & TALENT SEARCH. HE PLANS TO CONTINUE TO DEVELOP HIS INVENTION AND HAVE IT PATENTED.



WHEN GREG GRADUATES FROM HIGH SCHOOL, HE PLANS TO ATTEND HARVARD WHERE HE WILL STUDY PHYSICS AND MATHEMATICS.

ART: PHIL ROSE

STORY: L. GRANT LUTON

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# DOROTHY WEISS

INVENTION: THE SAFE STEPPER HOME: ALBANY, NY  
AGE: 17 (INVENTOR AT AGE 12) SCHOOL: ALBANY H.S.

DOROTHY IS A MULTI-TALENTED YOUNG LADY WHO STARTED READING AT THE AGE OF TWO...



...AND INVENTING AT THE AGE OF FIVE. FRUSTRATED AT GETTING PEANUT BUTTER OUT OF A JAR, SHE DESIGNED A PACKAGE THAT DISPENSES PEANUT BUTTER LIKE TOOTH PASTE.



SHE ALSO LOVES MUSIC AND PLAYS THE FLUTE, PICCOLO, VIOLIN, SAXOPHONE, PIANO, AND IS NOW LEARNING GUITAR.

WHEN DOROTHY WAS 12, HER GRANDMOTHER SUFFERED A HIP FRACTURE.



AS SHE RECUPERATED, THE DOCTOR WARNED HER NOT TO PUT TOO MUCH WEIGHT ON HER HIP. THIS GAVE DOROTHY AN IDEA.

SHE INVENTED THE SAFE STEPPER, A SHOE INSOLE WHICH GETS OFF AN ALARM IF MORE THAN A PRESCRIBED AMOUNT OF WEIGHT IS PLACED ON IT.



IN 1996, THE SAFE STEPPER WON THE THOMAS EDISON/MAX MCGRAW SCHOLARSHIP COMPETITION.



AFTER GRADUATION, DOROTHY PLANS TO ATTEND HARVARD WHERE HER BIGGEST PROBLEM WILL BE DECIDING WHETHER TO MAJOR IN BIOMEDICAL ENGINEERING, TV JOURNALISM, LAW, OR LINGUISTICS.

ART: PHIL ROSE

STORY: L. GRANT LUTON

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# DAN WEITZ

INVENTION: ENHANCED MAGNETIC CONFINEMENT OF NUCLEAR FUSION  
 AGE: 17  
 HOME: MORRISTOWN, NJ  
 SCHOOL: MORRISTOWN H.S.



DAN WEITZ SPENT MOST OF HIS EARLY YEARS TRYING TO TAKE THINGS APART TO SEE HOW THEY WORKED.



BUT SINCE THE AGE OF 11, DAN HAS BEEN TRYING TO PUT CERTAIN THINGS TOGETHER...ATOMS, TO BE PRECISE.



DAN'S 6TH GRADE TEACHER TOOK HIS CLASS ON A VISIT TO THE PRINCETON PLASMA PHYSICS LABORATORY TO LEARN ABOUT NUCLEAR FUSION...

...THE POWER SOURCE THAT FUELS THE STARS.



NUCLEAR FUSION PRODUCES ELECTRICITY WITHOUT ANY RADIATION, POLLUTION, WASTE, OR DANGER TO PEOPLE.

FUSION USES MAGNETIC FIELDS TO HEAT GASES TO MORE THAN 300,000,000° C SO THAT THEY ACHIEVE A "PLASMA" STATE. THIS PLASMA IS SO HOT THAT IT MUST BE CONTAINED IN A "MAGNETIC BOTTLE" - A MAGNETIC FIELD THAT HOLDS THE PLASMA IN MID-AIR.



THE PROBLEM HAS BEEN TO KEEP THE PLASMA FROM BREAKING OUT OF THE "MAGNETIC BOTTLE".

DAN INVENTED SOFTWARE AND HARDWARE THAT CONSTANTLY MONITORS THE STRENGTH AND GRAVITY OF THE "BOTTLE", CALCULATES THE BEST MAGNETIC FIELD FOR HOLDING THE PLASMA, AND CONSTANTLY ADJUSTS THE SHAPE OF THE "BOTTLE" ACCORDINGLY.



HIS PROGRAM EVEN LEARNS FROM ITS OWN MISTAKES!

IN 1996, DAN'S INVENTION (WEIGHING OVER ONE-THOUSAND-POUNDS) WON THE INTERNATIONAL SCIENCE & ENGINEERING FAIR, THE WESTINGHOUSE SCIENCE & TALENT SEARCH, AND THE JUNIOR SCIENCE & HUMANITIES SYMPOSIUM.



DAN WEITZ (DUBBED "STARMAN" AND "PLASMA BOY" BY HIS FRIENDS) ATTENDS PRINCETON WHERE HE PLANS TO STUDY BIOCHEMISTRY.

ART: PHIL ROGE

STORY: L. GRANT LUTON

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