Futurism

THE
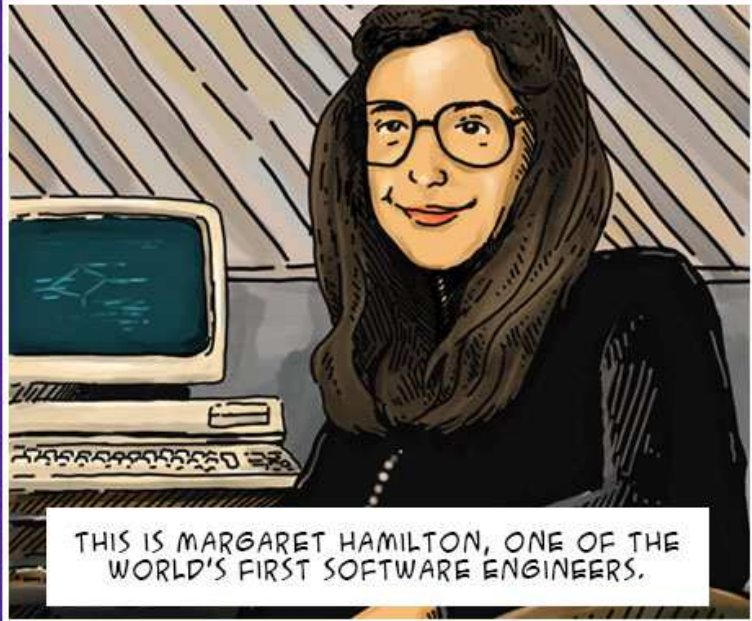# *Woman*
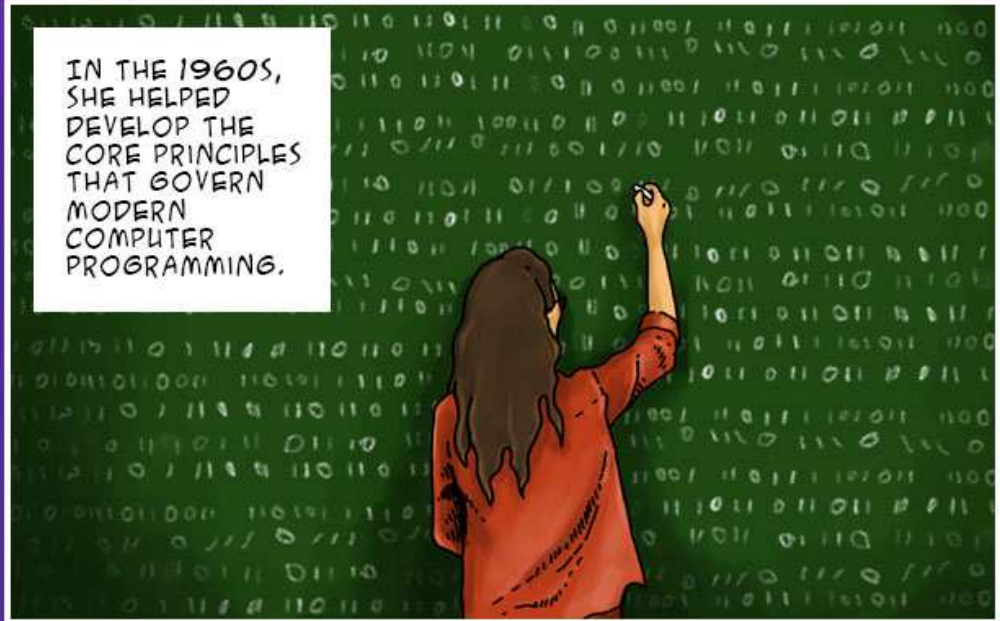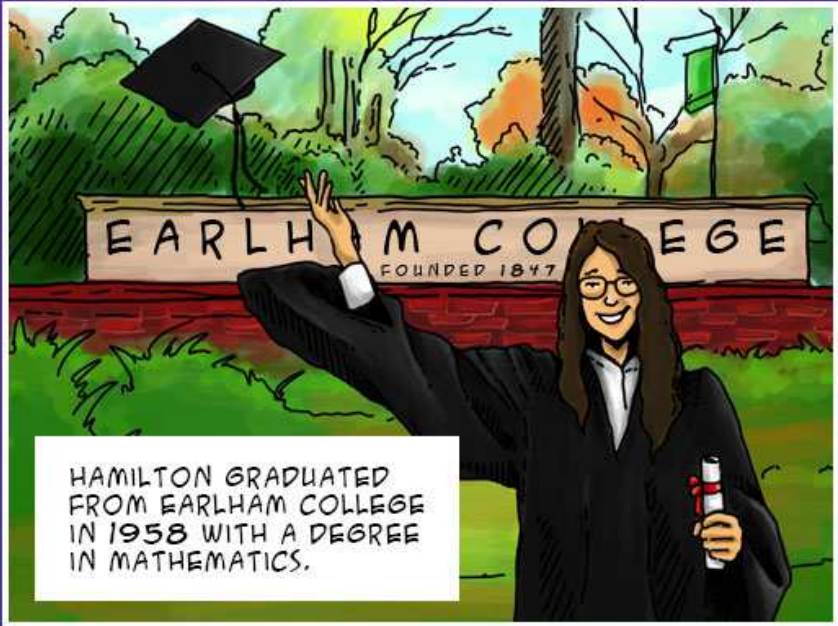## WHO PUT MEN ON THE
Moon

Written by Luke Kingma

THIS IS MARGARET HAMILTON, ONE OF THE WORLD'S FIRST SOFTWARE ENGINEERS.

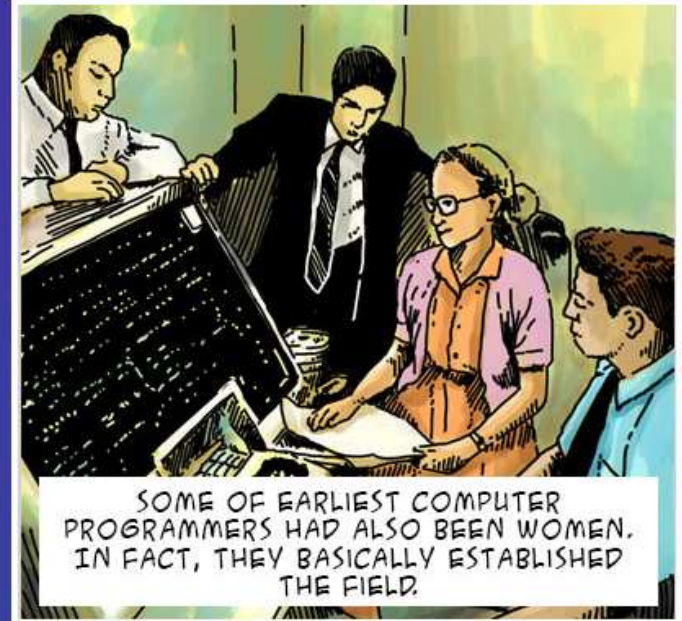IN THE 1960S, SHE HELPED DEVELOP THE CORE PRINCIPLES THAT GOVERN MODERN COMPUTER PROGRAMMING.

SHE'S ALSO A MAJOR REASON WE LANDED ON THE MOON IN 1969.
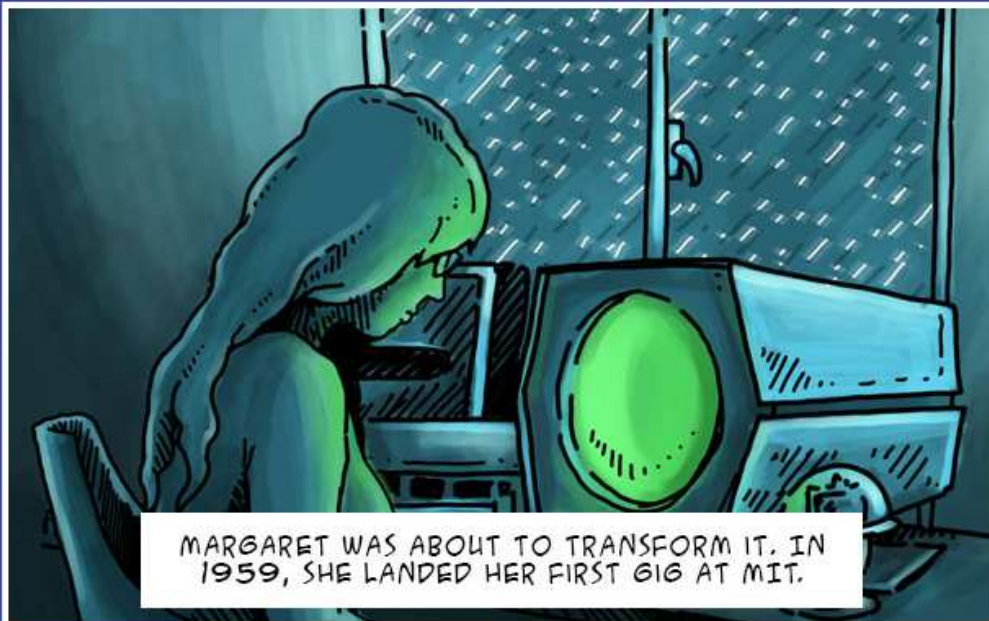
EARLHAM COLLEGE
FOUNDED 1847

HAMILTON GRADUATED FROM EARLHAM COLLEGE IN 1958 WITH A DEGREE IN MATHEMATICS.

DURING THIS TIME, WOMEN WERE COMMONLY EMPLOYED AS TYPISTS, KEY PUNCHERS, AND CALCULATING MACHINE USERS.

SOME OF EARLIEST COMPUTER PROGRAMMERS HAD ALSO BEEN WOMEN. IN FACT, THEY BASICALLY ESTABLISHED THE FIELD.
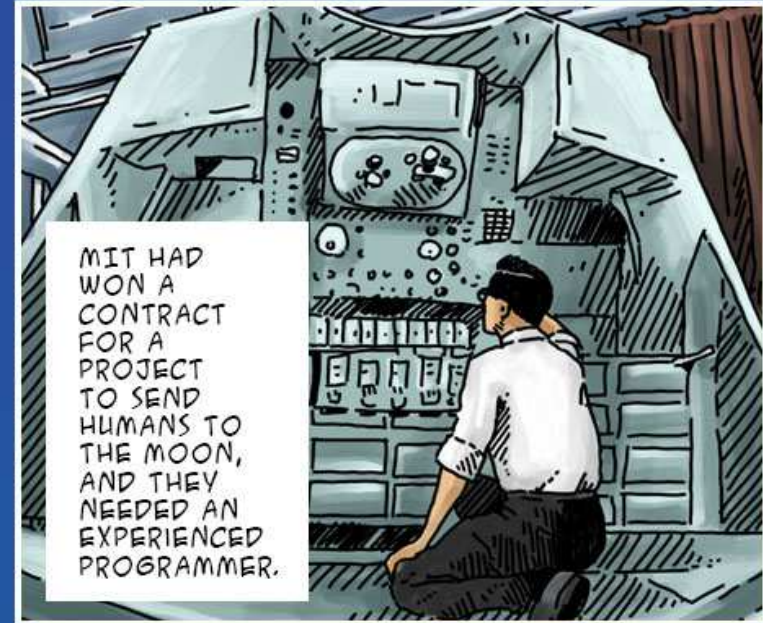

MARGARET WAS ABOUT TO TRANSFORM IT. IN 1959, SHE LANDED HER FIRST GIG AT MIT.

HER EARLY WORK ON WEATHER PREDICTION SOFTWARE PAVED THE WAY FOR HIGHER PROFILE OPPORTUNITIES, LIKE TRACKING HOSTILE AIRCRAFT.
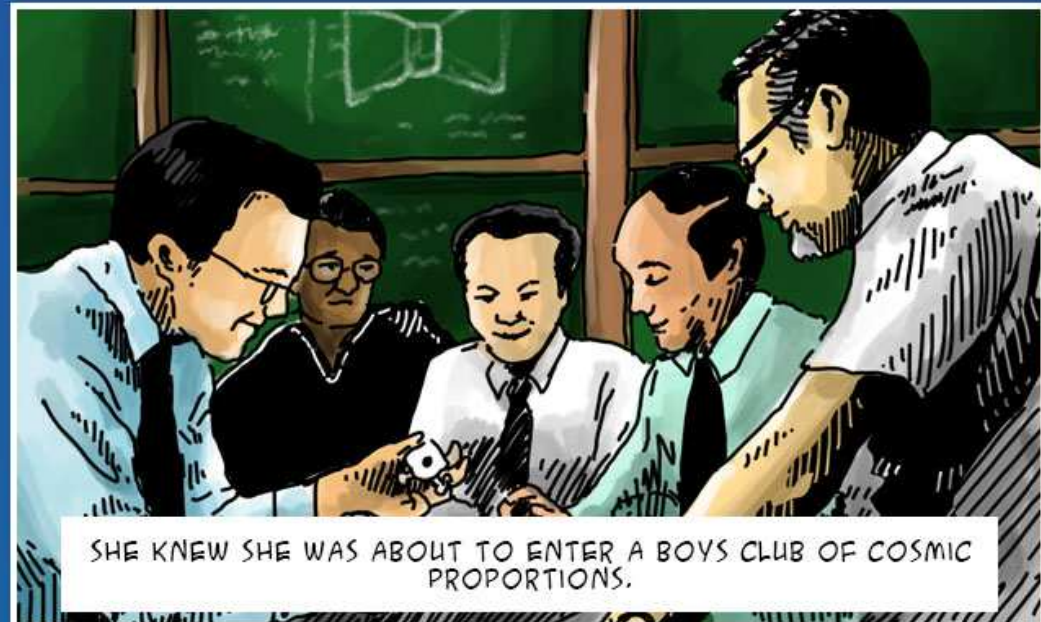
THEN, IN 1963, AN EVEN BIGGER OPPORTUNITY PRESENTED ITSELF

MIT HAD WON A CONTRACT FOR A PROJECT TO SEND HUMANS TO THE MOON, AND THEY NEEDED AN EXPERIENCED PROGRAMMER.

WELCOME TO APOLLO

HAMILTON GOT THE JOB ON THE SAME DAY AS HER INTERVIEW.

SHE KNEW SHE WAS ABOUT TO ENTER A BOYS CLUB OF COSMIC PROPORTIONS.

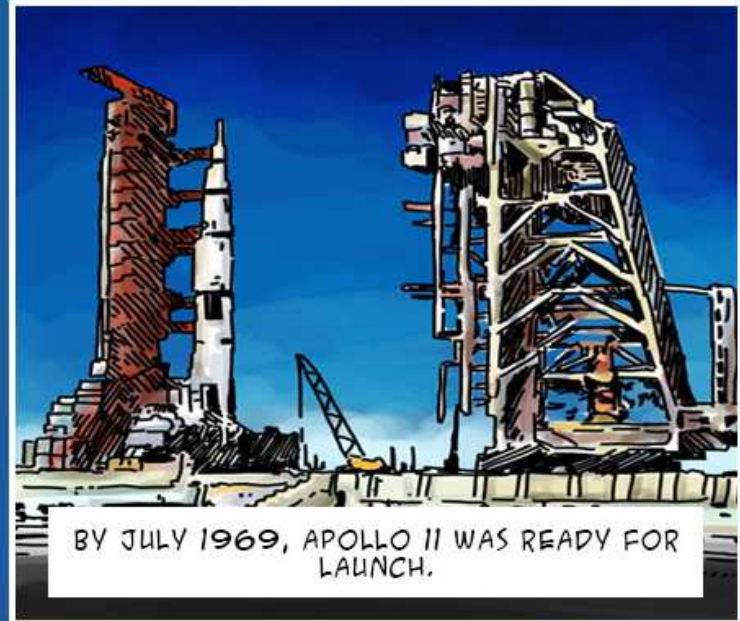AND SHE KNEW SHE COULD HANDLE IT.

BY 1965, MARGARET WAS LEADING THE SOFTWARE DEVELOPMENT TEAM FOR APOLLO'S ONBOARD COMPUTER SYSTEMS.

SHE WAS ALSO RAISING A YOUNG FAMILY AT THE SAME TIME.

HER LONG NIGHTS AND HARD WORK PAID OFF

BY JULY 1969, APOLLO 11 WAS READY FOR LAUNCH.

BUT MARGARET'S STORY DOESN'T END THERE.

ON JULY 20, THREE MINUTES BEFORE THE EAGLE'S SCHEDULED LANDING, A SERIES OF PROGRAM ALARMS WERE TRIGGERED.
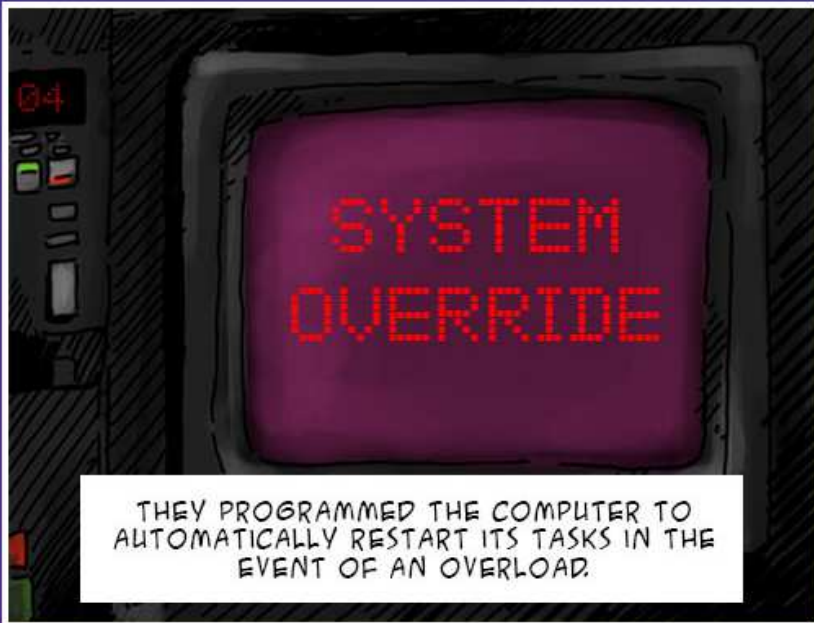
AN ERROR IN THE DESIGN DOCUMENTATION HAD MADE THE GUIDANCE COMPUTER SUSCEPTIBLE TO RANDOM DATA OVERLOAD.
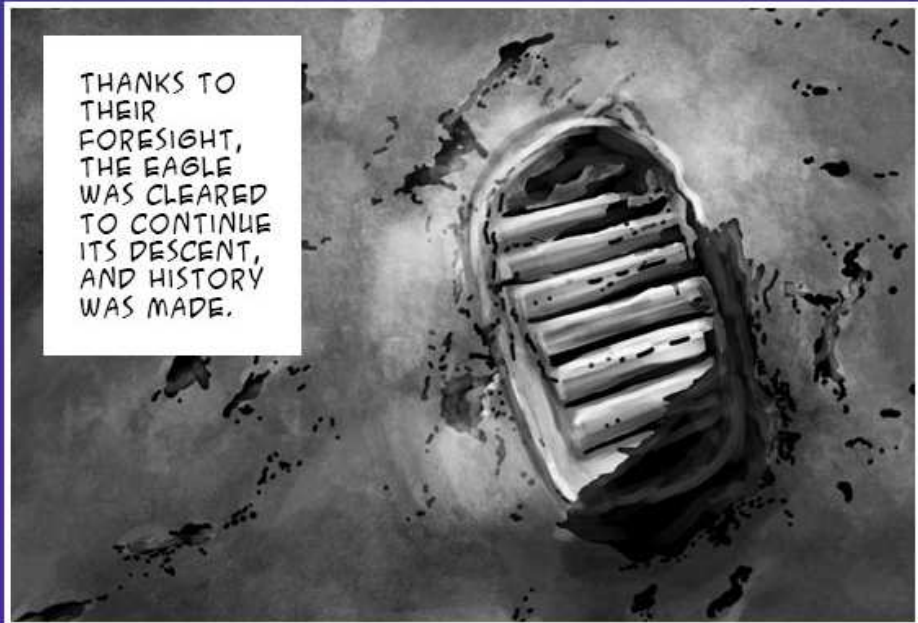
AND IT HAD FALLEN VICTIM AT THE WORST POSSIBLE MOMENT.

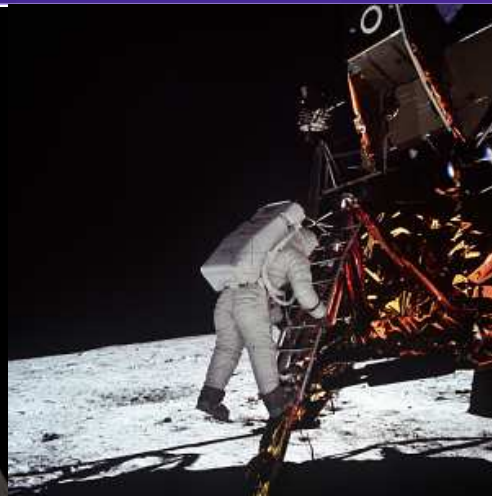FORTUNATELY, MARGARET'S TEAM HAD PLANNED FOR THIS.

SYSTEM OVERRIDE

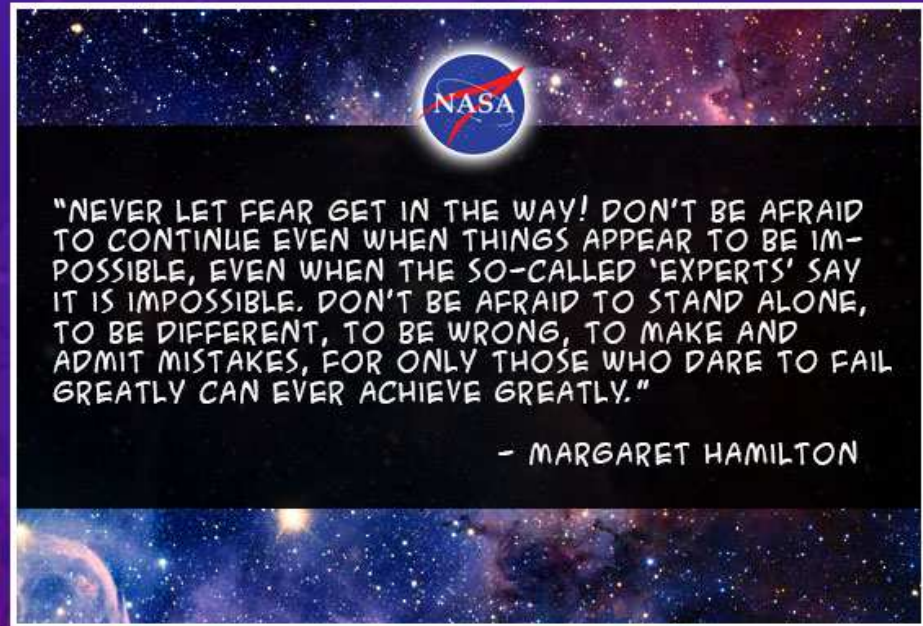THEY PROGRAMMED THE COMPUTER TO AUTOMATICALLY RESTART ITS TASKS IN THE EVENT OF AN OVERLOAD.

THANKS TO THEIR FORESIGHT, THE EAGLE WAS CLEARED TO CONTINUE ITS DESCENT, AND HISTORY WAS MADE.

THESE DAYS, MARGARET IS RUNNING HER OWN SOFTWARE COMPANY, HAMILTON TECHNOLOGIES.

HER ADVICE TO YOUNG GIRLS WHO WANT TO PURSUE A CAREER IN STEM?

"NEVER LET FEAR GET IN THE WAY! DON'T BE AFRAID TO CONTINUE EVEN WHEN THINGS APPEAR TO BE IMPOSSIBLE, EVEN WHEN THE SO-CALLED 'EXPERTS' SAY IT IS IMPOSSIBLE. DON'T BE AFRAID TO STAND ALONE, TO BE DIFFERENT, TO BE WRONG, TO MAKE AND ADMIT MISTAKES, FOR ONLY THOSE WHO DARE TO FAIL GREATLY CAN EVER ACHIEVE GREATLY."

— MARGARET HAMILTON

Apollo code developer Margaret Hamilton receives Presidential Medal of Freedom

Margaret H. Hamilton, a pioneering computer scientist and former head of the Software Engineering Division of MIT's Instrumentation Laboratory who led the development of on-board flight software for NASA's Apollo moon missions, has been awarded the Presidential Medal of Freedom.