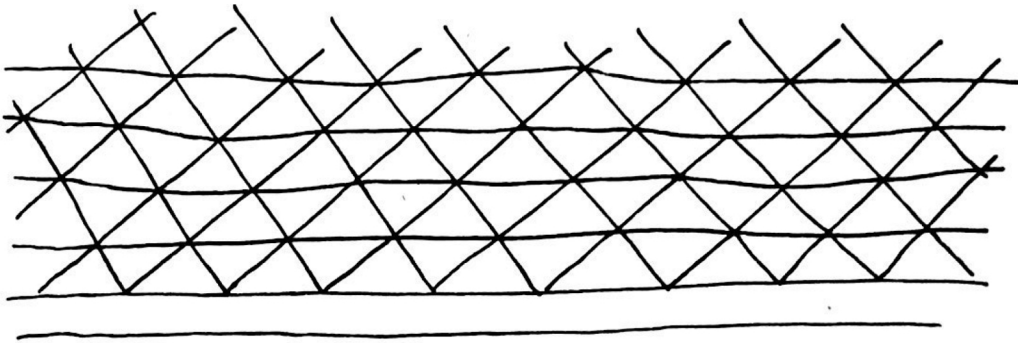


EQUITY, EXCLUSION AND EVERYDAY SCIENCE LEARNING

ZINE EDITION

BOOK BY EMILY DAWSON

ZINE BY SOPHIEWANG

AS ANYONE WHO'S EVER BEEN EXCLUDED FROM SOMETHING KNOWS...



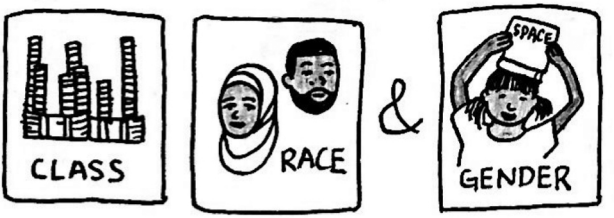


... EXCLUSION SUCKS.

AND ONE THING THAT WE KNOW ABOUT EVERYDAY SCIENCE LEARNING



IS THAT IT EXCLUDES CERTAIN COMMUNITIES. SPECIFICALLY, PEOPLE MARGINALIZED BY DOMINANT SYSTEMS OF



BUT THE WAYS THAT PEOPLE ARE EXCLUDED FROM EVERYDAY SCIENCE LEARNING AREN'T AS SIMPLE AS INSTITUTIONS SAYING STRAIGHT UP,




SO WHAT DOES EXCLUSION FROM EVERYDAY SCIENCE LEARNING LOOK LIKE?
WHAT ARE THE CAUSES OF EXCLUSION?
AND CAN WE CHANGE EXCLUSION?
THESE ARE ALL QUESTIONS THAT DR. EMILY DAWSON TACKLES IN HER RESEARCH.
I WROTE THIS BOOK BECAUSE I WANT TO UNDERSTAND HOW REPRODUCTION OF INEQUALITIES IN EVERYDAY SCIENCE LEARNING HAPPENS, SO THAT WE CAN GET TO A PLACE WHERE EVERYDAY SCIENCE LEARNING PRACTICES COULD DISRUPT & TRANSFORM SOCIAL INEQUITIES, INSTEAD OF REPRODUCING THEM.
IN HER RESEARCH FOR THIS BOOK, DR. DAWSON WORKED WITH 59 PEOPLE FROM 5 GRASSROOTS COMMUNITY GROUPS:
AFRO-CARIBBEAN
LATIN AMERICAN
ASIAN
SIERRA LEONEAN
SOMALI

SHE LEARNED ABOUT THEIR EXPERIENCES WITH EVERYDAY SCIENCE LEARNING THROUGH



FOCUS GROUPS



INTERVIEWS

&



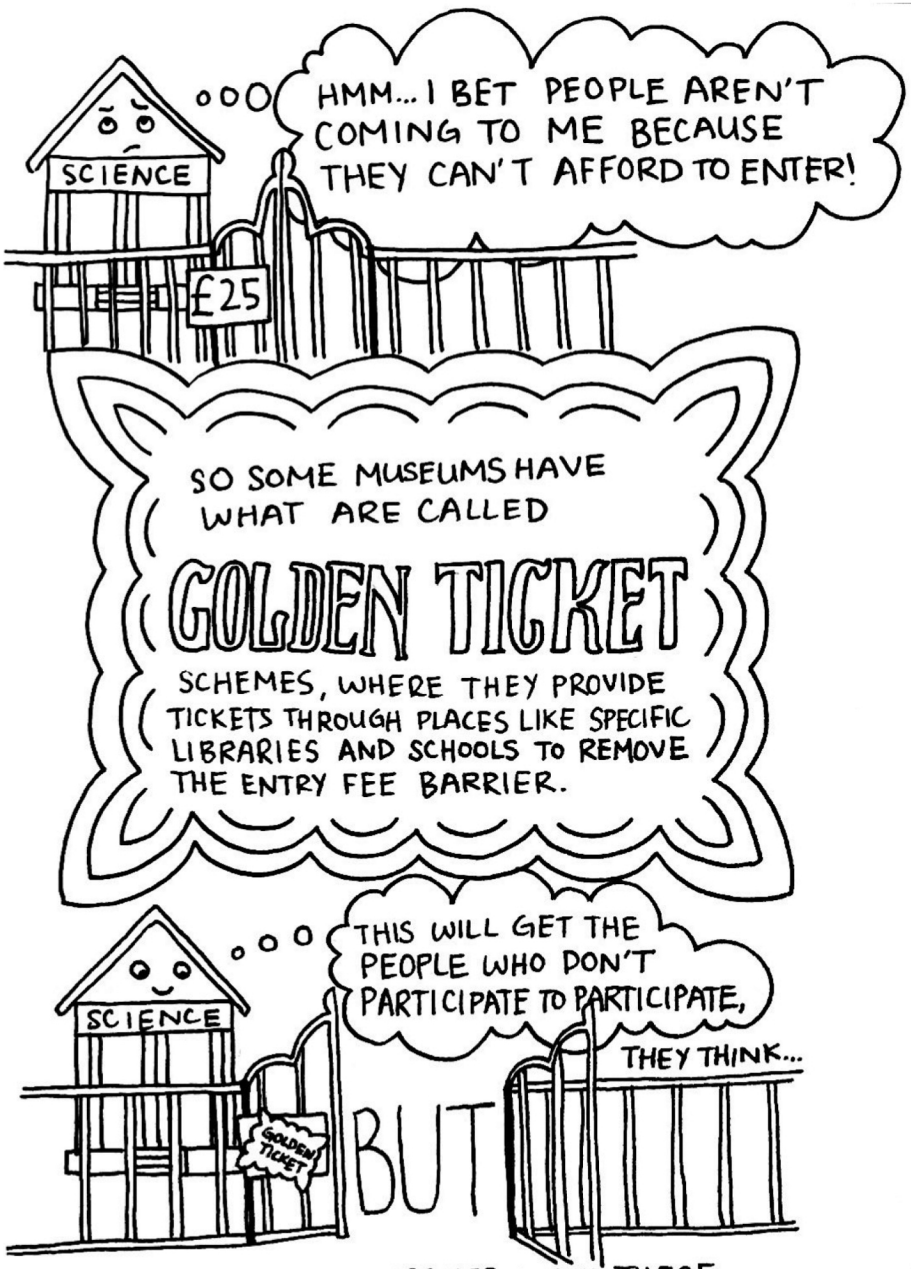
ACCOMPANIED VISITS TO EVERYDAY SCIENCE LEARNING ACTIVITIES.

☆ THE EXAMPLES OF EXCLUSION THAT WE'LL TALK ABOUT HERE ARE ALL FROM REAL EXPERIENCES OF THESE PARTICIPANTS! ☆

SO LET'S JUMP RIGHT INTO IT AND EXPLORE SOME OF THE WAYS THAT EXCLUSION IS UNDERSTOOD AND MISUNDERSTOOD TO SEE IF WE CAN ANSWER SOME OF THOSE BIG QUESTIONS ABOVE.

ONE WAY THAT EXCLUSION IS COMMONLY CONCEPTUALISED IS THROUGH TANGIBLE BARRIERS - FOR EXAMPLE, ADMISSION FEES.

SOME EVERYDAY SCIENCE LEARNING INSTITUTIONS THINK:


SCIENCE
£25
HMM... I BET PEOPLE AREN'T COMING TO ME BECAUSE THEY CAN'T AFFORD TO ENTER!
SO SOME MUSEUMS HAVE WHAT ARE CALLED
GOLDEN TICKET
SCHEMES, WHERE THEY PROVIDE TICKETS THROUGH PLACES LIKE SPECIFIC LIBRARIES AND SCHOOLS TO REMOVE THE ENTRY FEE BARRIER.
SCIENCE
GOLDEN TICKET
THIS WILL GET THE PEOPLE WHO DON'T PARTICIPATE TO PARTICIPATE,
THEY THINK...
BUT
THERE ARE A FEW ISSUES WITH THESE TYPES OF INITIATIVES AND THIS KIND OF THINKING.

(1) THE FIRST ISSUE IS THAT THESE TYPES OF INITIATIVES EXPECT



(2) THE SECOND ISSUE IS THAT A LOT OF INSTITUTIONS STOP HERE, WIPE THEIR HANDS, AND SAY



BUT AS YOU MIGHT *SUSPECT*...



TO INCLUSION/PARTICIPATION IN EVERYDAY SCIENCE LEARNING.



THAT ALL CONTRIBUTE TO/CREATE EXCLUSION.



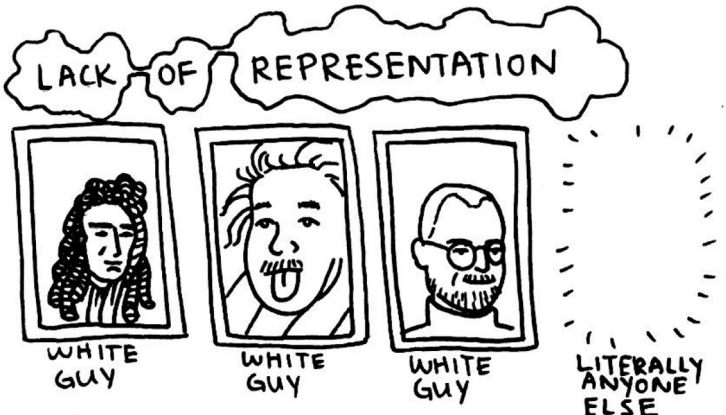
LET'S TAKE A CLOSER LOOK AT THESE EXCLUSIVE PRACTICES

1. CULTURAL IMPERIALISM

WHAT IS IT?

WHEN SOCIALLY DOMINANT PERSPECTIVES AND PRACTICES ~~SUPPRESS~~ OR INVALIDATE THE VIEWS AND EXPERIENCES OF MINORITISED GROUPS, HARMING THE MARGINALISED AND BENEFITTING THE DOMINANT.

WHAT DOES IT LOOK LIKE?



"IN REALITY, A LOT OF AFRICANS HAVE DONE A LOT OF THINGS THAT ARE GOOD IN THE WORLD.

BUT MOST OF THE TIME WHEN PEOPLE ARE TALKING ABOUT HISTORY, WHEN YOU THINK ABOUT SCIENCE IN MUSEUMS, THEY ARE FORGOTTEN."

– HAWA, SIERRA LEONEAN GROUP



PARTICIPANTS DESCRIBED HOW THEY RESENTED THE PERCEPTION OF AFRICA AS BURDENED BY DISEASE AND "SAVED" BY THE WEST IN STORIES ABOUT MEDICINE – AKA "WHITE SAVIOUR" NARRATIVES"

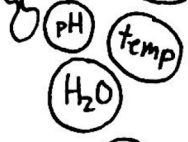
OTHERING // TOKENIZATION

SCIENCE CALENDAR
FEBRUARY
BLACK HISTORY MONTH ACTIVITIES!

SCIENCE CALENDAR
EVERY OTHER MONTH
"WE'RE NOT INVITED THE REST OF THE YEAR!"–CONNIE AFRO-CARIBBEAN GROUP

DOMINANT LITERACIES

BEING UNABLE TO SPEAK / READ / NAVIGATE MULTIPLE FORMS OF DOMINANT LANGUAGE AND CULTURE WAS A KEY ACCESS ISSUE FOR PARTICIPANTS IN EACH GROUP.

LITERACY	WHAT DOES IT MEAN?
ENGLISH 	ALL TEXT + SIGNAGE AT 3 VISITED INSTITUTIONS WAS EXCLUSIVELY IN ENGLISH, WHICH LEFT PARTICIPANTS UNABLE TO ACCESS LEARNING / UNABLE TO NAVIGATE
SCIENCE 	MANY EXHIBITS WERE DESIGNED WITH THE EXPECTATION THAT PARTICIPANTS WOULD ALREADY HAVE SIGNIFICANT SCIENTIFIC KNOWLEDGE.
MUSEUM 	KNOWING HOW TO LOOK AT, INTERACT WITH, OR USE AN EXHIBIT IS RACIALISED, CLASSED, AND GENDERED KNOWLEDGE.

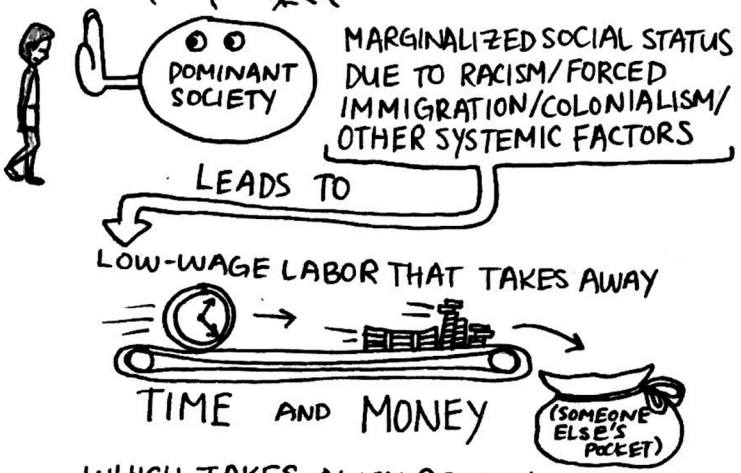
2. POWERLESSNESS

WHAT IS IT?

A COMBINATION OF ISSUES OF RACE/ETHNICITY, GENDER, AND CLASS THAT DESCRIBES THE EXPERIENCE OF BEING DISRESPECTED AND HAVING LITTLE TO NO AUTONOMY OVER YOUR CHOICES.

WHAT DOES IT LOOK LIKE?

CONSTRAINED CHOICES



WHICH TAKES AWAY PEOPLE'S ABILITY TO MAKE THE CHOICE TO DO THINGS LIKE PARTICIPATE IN EVERYDAY SCIENCE LEARNING, EVEN IF INVITED.

UNHEARD VOICES

VOICES AREN'T HEARD WHEN SOME RACIALISED/CLASSED/GENDERED GROUPS AREN'T LISTENED TO IN SOCIO-SCIENTIFIC CONSULTATION...



... OR WHEN THEIR OPINIONS AREN'T EVEN SOUGHT OUT



3. SYMBOLIC VIOLENCE

WHAT IS IT?

MISRECOGNITION OF OVERT EXCLUSION, DOMINATION, OR INHERITED ADVANTAGE THAT CAN MAKE EXCLUSION LOOK LIKE A CHOICE TO NOT PARTICIPATE.

WHAT DOES IT LOOK LIKE?

GUILT

SYMBOLIC VIOLENCE CAN RESULT IN PERSONALISED FEELINGS OF GUILT, RATHER THAN PLACING THE BLAME FOR STRUCTURAL INEQUALITIES ON INSTITUTIONS, SYSTEMS, OR SOCIETY

"I FEEL GUILTY THAT I'M NOT DOING IT ALL THE TIME... NOTHING CAN BEAT AN OUTING"
-MARIA, LATIN AMERICAN GROUP



NON-PARTICIPATION

"[SCIENCE PEOPLE]... MAKE IT DIFFICULT... DON'T WASTE YOUR TIME ANYWAY, WHY DO YOU WANT TO GET INVOLVED?"
-ABDOU, SIERRA LEONEAN GROUP



"I'M VERY UPSET WITH MUSEUMS, SO I'M NOT GOING"
-FATIMA, SOMALI GROUP

4. EMBODIED EXCLUSION

WHAT IS IT?

EXCLUSION AND NON-PARTICIPATION THAT'S BASED IN THE DISCONNECT BETWEEN

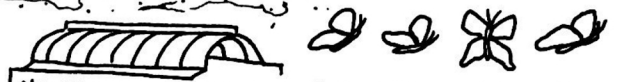
PEOPLE'S RACIALISED CLASSED, AND GENDERED BODIES

A N D

THE "SOMATIC NORM" - THE KINDS OF BODIES THEY IMAGINE EVERYDAY SCIENCE LEARNING CATERS TO.

WHAT DOES IT LOOK LIKE?

VISITOR BODIES



"WE WENT TO THE BUTTERFLIES MUSEUM, I DIDN'T SEE EVEN ONE OR TWO LATIN FAMILIES THERE; DID YOU SEE ANYWHERE, OR NO?"

-IGNACIO, LATIN AMERICAN GROUP

SCIENCE BODIES



"SCIENCE ON TELEVISION FEATURED AN ALL-STAR CAST OF PEOPLE WHO WERE "NOT LIKE US"

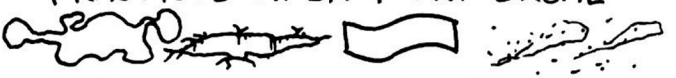
-IRENE, AFRO-CARIBBEAN GROUP



MOST SCIENTISTS ARE MEN, SO HOW COULD I BE A SCIENTIST?

-MRS. MALLICK, ASIAN GROUP (PARAPHRASED)

AS YOU CAN TELL, THESE EXCLUSIVE PRACTICES AREN'T UNIVERSAL –



THEY'RE TARGETED TO SPECIFIC GROUPS OF PEOPLE. THEY'RE

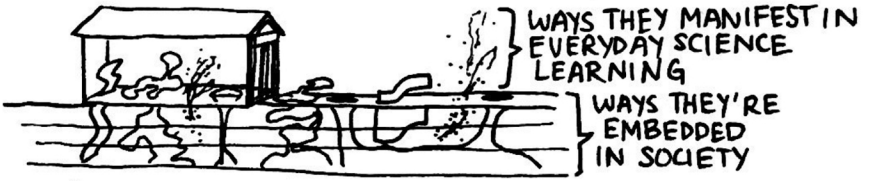
⇨ RACIST

⇨ SEXIST

⇨ CLASSED

STRUCTURAL INEQUALITIES.

AND WHILE WE KNOW THAT THESE STRUCTURAL INEQUALITIES RUN DEEP THROUGHOUT OUR SOCIETIES AND



EVERYDAY SCIENCE LEARNING INSTITUTIONS DIDN'T INVENT THEM...



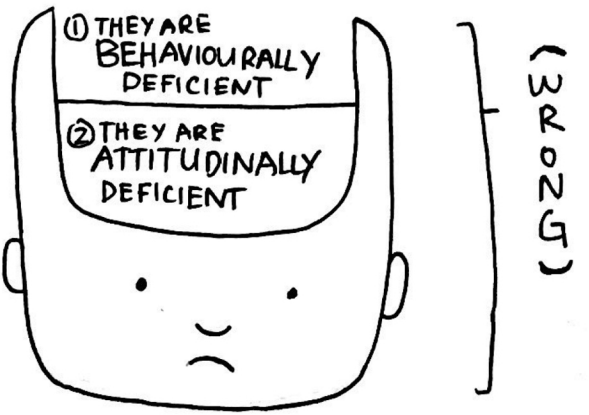
...THEIR PRACTICES REPRODUCE THEM

WHAT HAPPENS WHEN SCIENCE LEARNING PRACTITIONERS AND INSTITUTIONS AREN'T AWARE OF THOSE INEQUITIES AND DON'T SEE THESE EXCLUSIVE PRACTICES AS EXCLUSIVE?

WELL, THERE MUST BE SOME REASON THESE COMMUNITIES AREN'T PARTICIPATING...

AND THAT'S HOW YOU GET THE FALSE NARRATIVE OF THE DOUBLE DEFICIT

- THE IDEA THAT EXCLUSION IS THE FAULT OF THE EXCLUDED THROUGH TWO WAYS:



SO WHAT DO THESE TWO FALSE DEFICITS MEAN, AND WHY ARE THEY WRONG?

LET'S BREAK THEM DOWN.

DEFICIT

MYTH

BEHAVIORAL DEFICIT

"THEY'RE NOT PARTICIPATING IN THE KINDS OF CULTURAL PRACTICES LIKE EVERYDAY SCIENCE LEARNING THAT WE RECOGNIZE/SEE, AND THEREFORE WE DON'T SEE THEM AS CULTURALLY, EDUCATIONALLY, OR POLITICALLY ACTIVE."

THIS ARGUMENT DOESN'T HOLD WATER BECAUSE:

1. ALMOST ALL THE EVERYDAY SCIENCE LEARNING PRACTICES DISCUSSED + EXPERIENCED WITH PARTICIPANTS WERE SUPER INACCESSIBLE / EXCLUSIVE / OFF-PUTTING.

AKA



IF YOU SAW THIS PATH + EXPERIENCE IN FRONT OF YOU, WOULD YOU BE ABLE TO MAKE IT TO THE EVERYDAY SCIENCE LEARNING? WOULD YOU WANT TO?

(NO, YOU'D BE SMART NOT TO)

AND

2 PARTICIPANTS LED RICH POLITICAL, EDUCATIONAL, AND CULTURAL LIVES! THEY:



COME TOGETHER AROUND FOOD, HOMELANGUAGES, DANCE, + MUSIC!



PLAN CULTURAL EVENTS!



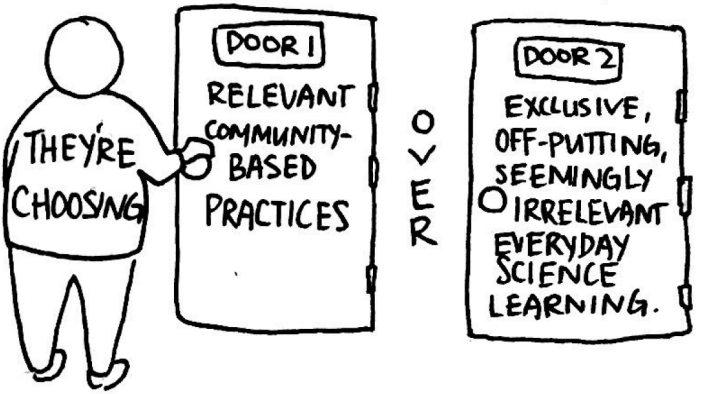
LOBBY LOCAL GOVTS!

AND MORE!

BUT THEIR PRACTICES + KNOWLEDGE ARE NOT THOSE THAT "COUNT" AND ARE RENDERED INVISIBLE.

THESE PARTICIPANTS AREN'T BEHAVIOURALLY DEFICIENT.

THEY'RE NOT CHOOSING TO DO NOTHING OVER GOING TO A SCIENCE MUSEUM (WHICH WOULD ALSO BE FINE.),



MYTH: ATTITUDINAL DEFICIT

"THESE PEOPLE JUST DON'T LIKE SCIENCE, IF THEY DID LIKE SCIENCE THEN THEY WOULD PARTICIPATE IN EVERYDAY SCIENCE LEARNING."

THIS ARGUMENT DOESN'T HOLD WATER BECAUSE WE KNOW THAT

LIKING SCIENCE → DOES NOT MEAN → HAVING ACCESS TO SCIENCE CAREERS OR SCIENCE HOBBIES

IN HER BOOK, DR. DAWSON TRACES THE LIVES OF 3 SUPER COOL PEOPLE WHO WERE ALL INTERESTED IN SCIENCE, WHETHER AS CAREER, EDUCATION, HOBBY, OR A COMBO OF THE 3.

BUT WHEN WE LOOK AT THE SCIENCE EXPERIENCES IN THEIR LIVES, WE CAN SEE HOW STRUCTURAL INEQUALITIES LIKE THOSE WE COVERED EARLIER + ROOTED IN THINGS LIKE COLONIALISM MADE SCIENCE "NOT FOR THEM."

HERE, WE'LL LOOK AT ONE OF THOSE STORIES:



IBRAHIM, MAN IN HIS 40s FROM THE SIERRA LEONEAN GROUP

*IMAGE + NAME ANONYMIZED

IBRAHIM GREW UP IN SIERRA LEONE (WHICH WAS COLONIZED BY BRITAIN FROM 1808 TO 1961). HE STUDIED SCIENCE IN THE CAPITAL, FREETOWN, AND GRADUATED WITH AN MSc IN BIOLOGY. HE THEN CARRIED OUT ENVIRONMENTAL RESEARCH PROJECTS IN COUNTRIES IN EAST AFRICA, THEN SETTLED BACK IN FREETOWN.

IBRAHIM LIKES SCIENCE.



SCIENCE IS IN EVERYTHING. SCIENCE IS WONDERFUL.

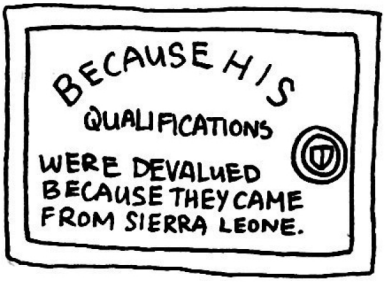
IN THE 1990s, IBRAHIM MOVED FROM FREETOWN TO THE UK TO ESCAPE VIOLENCE FROM THE SIERRA LEONEAN CIVIL WAR.

IN THE UK, DESPITE

- ☑ HIS PASSION FOR SCIENCE
- ☑ SELF-DESCRIBING AS A SCIENTIST
- ☑ AND HAVING A SCIENCE EDUCATION,

IBRAHIM WORKED AS A SECURITY GUARD FOR A CHAIN OF HIGH-STREET SHOPS,







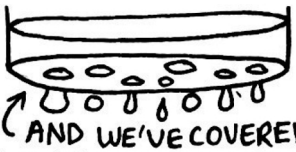
IBRAHIM DIDN'T KNOW WHERE THE SCIENCE MUSEUM WAS.

SO LIKING AND BEING INTERESTED IN SCIENCE WAS NOT ENOUGH TO GET INTO EVERYDAY SCIENCE LEARNING OR SCIENCE CAREERS.

NOW THAT WE'VE SEEN WHAT EXCLUSION LOOKS LIKE AND SOME OF ITS STRUCTURAL ROOTS, LET'S RETURN TO THOSE QUESTIONS WE POSED AT THE BEGINNING



↑WE'VE LEARNED ABOUT THE INTERCONNECTED, SYSTEMIC, ACTIVE NATURE OF EXCLUSION



↑AND WE'VE COVERED HOW THE IDEA OF NON-PARTICIPATING AND EXCLUDED COMMUNITIES AS BEING DOUBLY DEFICIENT IS A MYTH.

BUT WHAT ABOUT THAT THIRD QUESTION:
CAN WE CHANGE EXCLUSION?
AND Q 3.5: IF SO, HOW?



FIRST OF ALL, THERE'S A SERIOUS CONVERSATION TO BE HAD ABOUT WHETHER EVERYDAY SCIENCE LEARNING PRACTICES ARE EVEN SALVAGEABLE. CAN WE DISMANTLE THE MASTER'S HOUSE WITH THE MASTER'S TOOLS (AS AUDRE LORD ASKS)? CAN WE (AS DOMINANT PPL WHO WORK IN MUSEUMS) BE TRUSTED TO DO THAT WORK (AS MARIANA ORTEGA ASKS)? AND ARE THESE SYSTEMATIC INEQUALITIES DEEPLY ENTRENCHED IN EVERYDAY SCIENCE LEARNING WORTHY OF OUR TIME AND ENERGY TO RETHINK + REWORK?

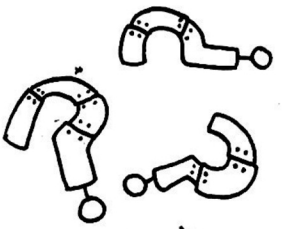
THE ANSWER MAY VERY WELL BE .... NO.

INSTEAD,

WE COULD COMMIT OURSELVES TO A TOTAL RADICAL ALTERNATIVE TO THE TYPES OF EVERYDAY SCIENCE LEARNING THAT CURRENTLY EXIST.

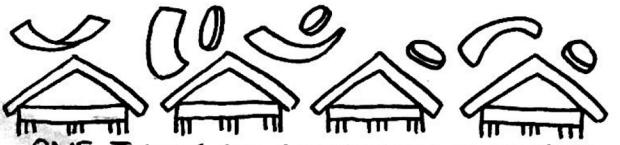


IT MAY BE HARD TO IMAGINE WHAT THIS COULD LOOK LIKE...

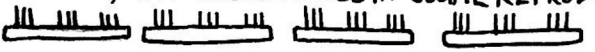


BUT TOGETHER, WE CAN ENVISION AND MANIFEST THIS ALTERNATIVE



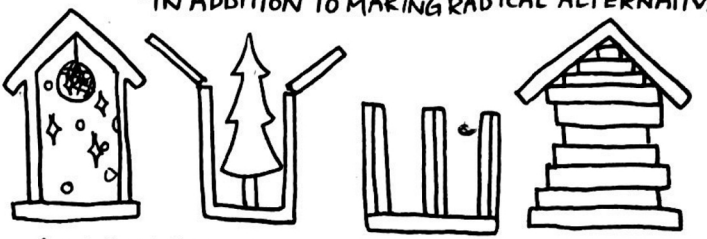


ONE THING TO CONSIDER IS THAT WE HAVE A LANDSCAPE OF PUBLIC CULTURE THAT ISN'T GOING AWAY, THAT MAINTAINS A DOMINANT, HEAVILY FUNDED, HIGHLY VISIBLE POSITION, AND THAT CONTINUES TO PLAY THESE REALLY POWERFUL ROLES IN SOCIAL REPRODUCTION.

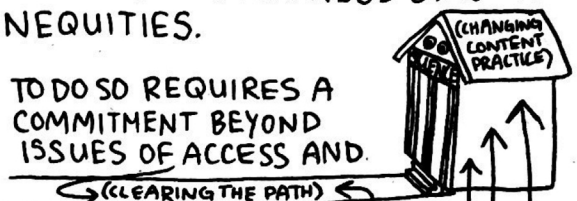


SO BECAUSE THESE INSTITUTIONS/PRACTICES AREN'T GOING TO DISAPPEAR OVERNIGHT, WE SHOULD CONSIDER TRYING TO TRANSFORM THEM-

↑ IN ADDITION TO MAKING RADICAL ALTERNATIVES



- A TRANSFORMATION THAT IS DEEPER THAN TOKENISTIC, SHALLOW CHANGE THAT DOESN'T ADDRESS STRUCTURAL INEQUITIES.



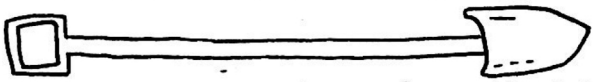
TO DO SO REQUIRES A COMMITMENT BEYOND ISSUES OF ACCESS AND

(CLEARING THE PATH)

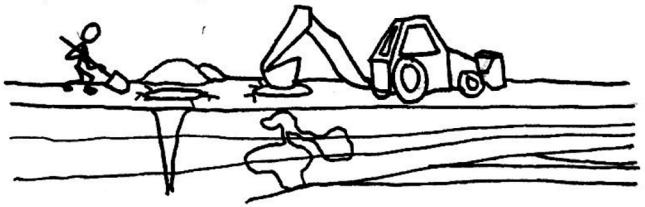
PARTICIPATION! TO ALSO INCLUDE

- ☐ RECOGNITION
- ☐ REPRESENTATION
- ☐ RESPECT

OF NON-DOMINANT PRACTICES, PEOPLE, AND FORMS OF KNOWLEDGE.



AND ULTIMATELY, WE HAVE TO ADDRESS THE STRUCTURAL INEQUALITIES THAT THE EXCLUSIVE PRACTICES BUILD OFF OF.





ONLY WHEN THAT HAPPENS (WHILE PEOPLE MAY CONTINUE TO NOT PARTICIPATE IN EVERYDAY SCIENCE LEARNING FOR REASONS THAT DON'T STEM FROM INCLUSION)

WILL EVERYONE BE EQUALLY ABLE TO CHOOSE TO USE EVERYDAY SCIENCE LEARNING, AND TO HAVE MEANINGFUL, RELEVANT, AND RESPECTFUL EXPERIENCES WHERE THEIR OWN COMMUNITIES, KNOWLEDGES, AND PRACTICES ARE WELCOME.

FOR MORE INFO ON THE BOOK, FIND EMILY AT
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AND FIND SOPHIE @wangshuf on TWITTER

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