Episode Book

EPISODE #5920

The Psychiatrist in Those 1950s Patient Films

PUBLISHED	12 October 2026 at 23:04 UTC
DURATION	26:05
LISTEN	myweirdprompts.com/episode/heinz-lehmann-patient-films-07971/
HOSTS	Corn, Herman, Hilbert
SCRIPT MODEL	deepseek-flash
VOICES	chatterbox-regular (chatterbox-local)
PIPELINE	V5.4
SOURCES	14 cited by the research (listed at the end)
BOOK GENERATED	19 October 2026 at 17:41 UTC

SYNOPSIS

Dr. Heinz Edgar Lehmann read the chlorpromazine papers in his bathtub in 1953, published the first English-language clinical study on the drug, and helped end the asylum era — then spent his later years warning that the revolution he started had produced cookbook psychiatry. This episode works through his biography, the science, and the black-and-white patient interview films that keep drawing millions of viewers seventy-five years later. Was Lehmann unusually compassionate by the standards of his era, or do the recordings just make him look that way?

TRANSCRIPT



Corn

The catatonic patient's hands. That's what people clip. Not the diagnosis, not the interview — the hands.



Herman

And the upload has three point three million views, which is more people than ever saw it in a lecture hall in 1951.



Corn

Daniel sent us something on this. He found those black-and-white interviews on YouTube, Dr. Heinz Edgar Lehmann, and he says the thing that got him wasn't the diagnosis — it was how Lehmann talks to the patients. He wanted to know who the man was, and it turned out he's a major figure, the antipsychotic work, Germany, Canada, all of it. So Daniel wants the biography, the science, the story of the films themselves, and then the harder one: was Lehmann actually unusually compassionate by the standards of his era, or do the recordings just make him look that way?



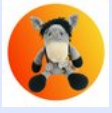
Herman

That last question is the whole episode.



Corn

So who was he, and why are we still watching him interview patients seventy-five years later?



Herman

There are two tracks here and they pull in opposite directions. Track one: Lehmann is one of the people who helped end the asylum era, because he got chlorpromazine into North American clinical practice faster than anyone else. Track two: the man in those films looks gentler than his era should allow, and that impression has a written record behind it. Both are true, and the interesting part is they don't sit comfortably together.



Corn

Start with the spine.



Herman

Born in Berlin, July seventeenth, nineteen eleven, into a family of physicians — his father was a surgeon. Studied at Freiburg, Marburg, Vienna, Berlin, graduated in medicine in 1935. Left Germany in 1937. He was twenty-six and classified non-Aryan under Nazi law, which is the polite administrative way of saying there was no future for him there. Arrived in Canada that same year and took a post at Verdun Protestant Hospital in Montreal. That hospital later became the Douglas. He stayed affiliated with it for more than sixty years.



Corn

Sixty years in one building.



Herman

Charles Cahn, who wrote about him for the International Network for the History of Neuropsychopharmacology, said it must be some sort of record. He lived on the grounds. Met his wife Annette there, she was a nurse. Their son François was born in 1944.



Corn

So the institution wasn't a job. It was where he lived, married, raised a kid.



Herman

And that matters for the second half of the episode, because the same man who read the chlorpromazine papers in his bathtub spent the end of his life worrying that the drug revolution he started had produced cookbook psychiatry and clinicians who stopped using their empathy.



Corn

Nice. He founded the thing and then complained about what it made.



Herman

He complained specifically, which is different. But we should get there honestly, and the honest route is chronological. He decided on psychiatry before he decided on medicine.



Corn

That's backwards from how it usually goes.



Herman

He had a depression in adolescence. His parents were told he would never make it, so they hired a tutor, and the tutor handed him Freud. He read Freud at fourteen or fifteen. Years later, talking to David Healy, he said, this bibliotherapy might have helped.



Corn

A fourteen-year-old reading Freud. I've met adults who didn't survive that.



Herman

He came out of it a doctor who had been on the patient's side of the desk before he ever sat behind it. I don't think you can separate that from the films.



Corn

So the empathy isn't a performance for the camera. It's upstream of the camera. That's the first real answer to Daniel's question.



Herman

Then Germany. He left in 1937 with no future there. And Canada took him, and the Douglas took him, and he never left. Clinical Director by 1947, research director in 1962, director of medical education in 1967, and Chair of McGill's Department of Psychiatry from 1971 to 1975. He founded a Division of Psychopharmacology in 1976. In 1981 he took an unpaid post as Deputy Commissioner for Research at the New York State Office of Mental Health, and he held that until he died.



Corn

Unpaid.



Herman

Unpaid.



Corn

So he had one employer for six decades and a second job he did for free.



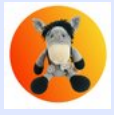
Herman

Which tells you what he thought the work was for.



Corn

Now the bathtub.



Herman

Spring 1953. A salesman from Rhône-Poulenc leaves reprints of two French papers — Delay and Deniker, the Paris group who had been running chlorpromazine on patients. Lehmann reads them that Sunday, in the bathtub, and he starts treating patients the following month with a resident named G. E. Hanrahan.



Corn

A drug rep left him papers. That's the hinge of modern psychopharmacology. A guy with a sample bag.



Herman

Lehmann told Healy exactly that. It all happened because of a drug salesman, he said. And then he added the part I love — that it came about because he married a French Canadian and they spoke French at home, so he could read the papers.



Corn

So the whole North American drug revolution runs through a man's marriage.



Herman

It runs through a man who could read French on a Sunday. In 1954 he publishes the first English-language clinical article on chlorpromazine in Archives of Neurology and Psychiatry. Seventy-one patients. The follow-up in the Canadian Medical Association Journal in 1955 reports two hundred eighty-nine.



Corn

Seventy-one to two hundred eighty-nine in a year.



Herman

The evidence base grew that fast because the effect was that visible. His own line about the first remissions — in 1953 there just wasn't anything that ever produced something like this, a remission from schizophrenia in weeks.



Corn

Weeks.



Herman

Weeks. People who had been in a ward for years walked out of the symptom. That had not happened before. Not at that scale.



Corn

What did that actually look like on the ward? Give me the picture.



Herman

Picture a back ward in the early fifties. Thirty, forty patients, many of them there for a decade or more. Some catatonic — mute, immobile, held in postures you couldn't hold a healthy person in for ten minutes. Some agitated, some in restraints, some in wet sheets because that was the sedation of the day. The staff are outnumbered. Nobody expects anyone to leave. The ward is a terminal destination.



Corn

And then the drug arrives.



Herman

And within weeks, a subset of those patients — not all, but a visible subset — start to organize their own thinking. The catatonic one answers a question. The agitated one sits through a meal. And the thing the nurses noticed first, before any rating scale, was that some of them started asking about going home. That question had not been asked on that ward in years.



Corn

That's the part the paper can't carry. "Seventy-one patients" doesn't tell you a man asked about going home.



Herman

Right. And the reason Lehmann's own writing matters here is that he was careful about it. He didn't claim a cure. He claimed a remission, and he knew the difference. He'd seen the wards. He knew what a remission meant to a family that had already been told there was nothing.



Corn

Okay, now the part where we stop being nice about him.



Herman

He was the first North American psychiatrist to publish on the drug. He was not the first to prescribe it. Emmanuel Stip's paper from 2015 lays this out — Roland Saucier wrote the first North American prescription and studied a sample three times larger, more than two hundred patients, published in August 1954. And Ruth Kajander presented findings in Ontario in late 1953, before Lehmann's paper was out.



Corn

So the father of modern psychopharmacology is a tribute, not a verdict.



Herman

It's a tribute with a lot of truth in it, and it's narrower than the label suggests. First to publish in English. First to make the English-speaking clinical world take it seriously. That's the real claim and it's big enough without inflating it.



Corn

Who's Saucier? Everyone knows Lehmann's name and nobody's heard of him.



Herman

Montreal, same era, and he wrote the first prescription. That's the whole point of Stip's paper — the founding gets compressed to one face because one face is easier to remember than a priority dispute.



Corn

And what did Lehmann actually contribute that the others didn't?



Herman

Two things, and they're both conceptual. First, he and Hanrahan coined the term extrapyramidal symptoms for the Parkinson-like side effects — the tremor, the stiffness, the mask face. They named the harm, which is not nothing.



Corn

Second?



Herman

Second is the bigger one. He was among the first to argue this drug wasn't just sedating people. That it had a specific antipsychotic action — it was doing something to the psychosis itself, not just flattening the patient. And he said it took him nearly two years to accept that. Nearly two years of watching before he'd commit to the idea.



Corn

Why two years?



Herman

Because the alternative explanation is always available. A patient who stops shouting might be calmer, or might be quieter because you've drugged them into quiet. Distinguishing those two is the whole intellectual problem. If the drug only sedates, you've invented a nicer restraint. If it acts on the psychosis, you've invented treatment. Everything downstream depends on which one it is.



Corn

So the field is built on that distinction.



Herman

Every antipsychotic trial since is built on it. The distinction between calming someone and treating them is the load-bearing wall.



Corn

And then he does it again with antidepressants.



Herman

1958. He reads Roland Kuhn's German paper on imipramine on a flight from Zurich, and publishes the first North American study of it. Same pattern — a European finding, a German or French paper, and Lehmann gets it into English-language clinical practice before anyone else. He's a transatlantic reader. That's a real job and almost nobody does it well.



Corn

It's a translator in both senses. He moves the molecule and the meaning.



Herman

Barry Blackwell called him the third member of a triumvirate of pioneers whose early work with chlorpromazine set the world stage for an end to centuries of asylum care. Centuries. That's the scale of what changed.



Corn

And here's where we don't skip the ugly part. Early descriptions of chlorpromazine called it a chemical lobotomy.



Herman

Lehmann himself used the term.



Corn

The same drug that emptied the back wards also gave people tardive dyskinesia — permanent involuntary movements, sometimes showing up years after they started. And institutions absolutely used it as chemical restraint when there weren't enough staff.



Herman

Both things happened and often in the same building. The liberation story is real and it's partial.



Corn

The way I've heard it put is that they traded the restraints for a prescription pad, and for a lot of patients that was a straight upgrade. For some it wasn't.



Herman

And the people who got the worst of it were the ones who couldn't complain, which is the same population the asylums had. The institution changed shape. It didn't stop being an institution.



Corn

How does something like tardive dyskinesia actually present? Because "involuntary movements" is abstract until it isn't.



Herman

It's the mouth first, usually. The tongue that won't stay still, the lip-smacking, the chewing motion that the patient isn't doing on purpose. Then the fingers, the tapping, the writhing. And the cruel part is the timing — it can appear after years on the drug, and sometimes it doesn't reverse when you stop. So you have a person whose psychosis is controlled and who now has a movement they can't switch off, in public, forever. That's the trade some patients made.



Corn

And that's the thing Lehmann lived long enough to see, because he kept seeing patients into his eighties. He wasn't a man who published and left.



Herman

No. He was the one who had to look at it in the clinic.



Corn

So how big is his name in the field, honestly?



Herman

Lasker Award 1957. Stratton Award 1962. Fellow of the Royal Society of Canada 1970. Officer of the Order of Canada 1976. Canadian Medical Hall of Fame 1998. Over three hundred papers.



Corn

That's the trophy case. What does the field actually use?



Herman

The antipsychotic-versus-sedative distinction he helped establish is foundation. The Brief Psychiatric Rating Scale he helped popularize is still in trials. And his own warning about cookbook psychiatry has aged into a live critique of DSM-driven practice, which he did not intend as a gift to anyone but delivered anyway.



Corn

Let's go to the films. That's why Daniel wrote in.



Herman

The black-and-white recordings are the National Film Board of Canada's Mental Symptoms series, 1951. Directed by Stanley Jackson, produced by Robert Anderson, sponsored by the Department of National Health and Welfare. Lehmann is the interviewer and the advisor. Sixteen millimeter, black and white, sound, roughly eleven to twelve minutes each.



Corn

Titles.



Herman

Schizophrenia, Simple Type, Deteriorated. Schizophrenia, Catatonic Type. Schizophrenia, Hebephrenic Type. Paranoid Conditions. And Depressive States, parts one and two.



Corn

Who were they for?



Herman

Students of psychiatry, psychology, and medicine. They were made to teach symptom recognition — this is what catatonia looks like, this is what hebephrenia looks like. The opening titles say it outright. This series of films is not meant to illustrate techniques of mental examination.



Corn

That's the sentence that undoes Daniel's question.



Herman

It complicates it. They're saying, don't watch this to learn how to interview. Watch it to learn what the illness looks like. And yet everyone who watches them today comes away talking about how he interviewed.



Corn

So they disclaim the exact thing we're all watching them for.



Herman

The Depressive States film is billed as a phenomenological approach, with close-up work on faces. The camera holds on a face and the film asks you to read it. And then the material from these films becomes the basis of chapters in Kaplan's Comprehensive Textbook of Psychiatry — the standard reference — on the clinical features of schizophrenia and mood disorders.



Corn

So the films graduate into the textbook. That's the afterlife.



Herman

There's a second set people confuse with them. In the early 1980s, at the Douglas, Lehmann made six videotapes interviewing six different patients with schizophrenia. Those were training tapes for the Brief Psychiatric Rating Scale — eighteen items, scored one to seven — for multi-center antipsychotic trials in Europe. Clinical investigators watched and practiced scoring.



Corn

So he's doing rater training. He's teaching people to measure.



Herman

In his seventies. And those tapes went to the CAMH Archives in Toronto — Tom Ban sent them over in December 2005 — and as far as the published record goes, they haven't been digitized for the public.



Corn

Different films, different decade, different purpose. Daniel's YouTube clips are the 1951 ones.



Herman

Right. The catatonic hands everyone's seen are 1951.



Corn

Okay. So now the actual question. Was he unusually compassionate, or does the film just flatter him?



Herman

The films by their own terms can't prove it, because they weren't built to show technique. So we have to go outside them.



Corn

Go outside them.



Herman

Joel Paris, writing the memorial in the McGill Reporter, says Lehmann was famous for his humanity and his simple way of living. Lived on the hospital grounds. Never owned a car. Bicycled everywhere. And Paris says he developed a reputation as an unusually dedicated clinician.



Corn

Never owned a car. In Montreal. In the snow.



Herman

Every Christmas Day he and his son toured the hospital and greeted every patient. Every one. And he saw patients until about three months before he died, at eighty-seven.



Corn

So the films aren't the evidence. The bicycle is the evidence.



Herman

The bicycle, the Christmas rounds, the sixty years in one building, the fact that he's still seeing patients at eighty-seven. That's independent of any recording. Contemporaries describe him this way without having watched him on film.



Corn

He's described as a humane lecturer too — anxiety, depression, obsessions, paranoia, 1952.



Herman

And then the positions, which I think are the strongest evidence of all. He pushed to decriminalize marijuana, through the Le Dain Commission, sixty-nine to seventy-two. He sat on the American Psychiatric Association's nomenclature committee that removed homosexuality from the diagnostic manual in 1973. And he supported psilocybin research for anxiety when that was a fringe position with a bad smell on it.



Corn

Those aren't bedside manner. Those are what he was willing to say in a room full of colleagues.



Herman

Anyone can be gentle with a patient. Being right and unpopular at a committee is a different test.



Corn

Let me make the counterargument, though, because it's sitting right there. He's a man of his time in at least one way we haven't touched. The drugs he championed were pushed onto people who couldn't consent, in institutions that had every incentive to quiet them down. Is the compassion we're describing actually separable from the harm?



Herman

That's the honest question and I don't think it resolves cleanly. What I'd say is that he's one of the few figures in that era who spent his late career naming the harm out loud. Most people who built the thing defended the thing. He didn't.



Corn

And then his own ambivalence. This is the part I want.



Herman

To Healy: drugs are only adjuncts. Very helpful practical adjuncts. But psychiatry is not psychopharmacology. I don't think it ever will be.



Corn

From the man who started it.



Herman

And then the sharpest one. He said he knew colleagues he used to send patients to, and he doesn't send patients to them anymore, because doing the laundry list they're no longer using much of their empathy. Their words. He thought it wasn't very scientific.



Corn

The checklist ate the bedside.



Herman

And his line about the skill itself — you have to know when to smile and when not to smile, what kind of tone to use. And that comes only after thousands of hours of contact with patients.



Corn

Thousands of hours. So he'd say the compassion can't be taught from a film or a manual or a list.



Herman

Which means the people now watching his films on YouTube to learn how to be kind are watching a man who'd tell them kindness isn't transferable that way.



Corn

That's the loop. The films were made to teach symptoms, and they now circulate as a lesson in manner, and the man in them thought manner could only be earned, not watched.



Herman

I'd add one more thing about how the films get read. The uploads have new title cards and sometimes the running order is rearranged. The three point three million views belong to a version that isn't the archival object.



Corn

So the film people are watching isn't the 1951 film.



Herman

The performances are. The framing is someone's later edit.



Corn

It doesn't change the compassion question, but it changes what we're calling evidence.



Herman

And the contestation cuts deeper than priority. The same drug that ended centuries of asylum care also produced tardive dyskinesia, and the deinstitutionalization that followed didn't build the community care it promised. Lehmann lived long enough to watch both halves of that.



Corn

So his real legacy might be the warning.



Herman

He built the thing and he told you what was wrong with it.



Corn

And he did that while bicycling to a hospital he never left for sixty years.



Herman

He was, Paris wrote, an idealist who lived a life of service to those who were sick and marginal.



Corn

Which is a strange phrase to read about a man whose name is on the founding of an entire industry.



Herman

It's the same man. That's the episode.



Corn

The thing I keep circling — he didn't think the film could teach what he knew.



Herman

There's research — no. Let me say it plainly. He thought the skill was earned in thousands of hours, and we're now watching the proof on YouTube, and none of us can earn it from watching.



Corn

So the films are a window we can't climb through.



Herman

The textbooks took the symptoms. The films can't hand over the manner.



Corn

So the question isn't really whether he was compassionate.



Herman

It's whether the field kept it.



Corn

And the answer is in his own words. He thought it hadn't.



Hilbert

The title cards are wrong, and the running order is wrong on two of them.



Hilbert

The Hebephrenic one. The transfer people watch has a new card at the head and the reels have been swapped. It's not the 1951 cut. I've watched that frame more times than is healthy.



Herman

How do you know which cut it is?



Hilbert

My uncle was on that shoot. Boom operator. NFB, Montreal. And you can see the boom in the reflection of the glass cabinet in the Hebephrenic film if you know where to look. I have the timestamps.



Corn

That's a very specific claim.



Hilbert

It's a very specific reflection, Corn.



Herman

A boom operator on a psychiatric teaching film.



Hilbert

The whole family was in the film business in Montreal in the fifties.



Corn

The boom in the cabinet. Herman, is that possible?



Herman

If the camera is angled at a glass-fronted cabinet and the boom is above frame, absolutely. You'd get a shadow or a reflection, depending on the light.



Corn

Hilbert has a family connection to the exact film Daniel found on YouTube.



Hilbert

I'm not saying it's a bad film. I'm saying the version with three million views is not the film my uncle worked on.



Herman

The transfer changed the title cards.



Hilbert

The order. Depressive States is the one where it matters most, because that one is doing close work on faces and the sequence is the argument.



Corn

Hilbert, why do you know what a boom reflection looks like in a glass cabinet?



Hilbert

Because I spent forty years looking at frames nobody was supposed to look at.



Corn

Hm.



Hilbert

Anyway. My uncle got paid in NFB cafeteria vouchers. Not cash. The family still has a shoebox of them.



Herman

A shoebox of cafeteria vouchers from the National Film Board.



Hilbert

I tried to redeem one at a depanneur in 2019. The owner took it. Which is why I believe they are still legal tender in Verdun.



Corn

Hilbert. They're not.



Hilbert

The depanneur owner disagrees, and he's the one with the register.



Corn

What did you buy?



Hilbert

Milk.



Corn

You bought milk in 2019 with a voucher from a 1951 government film shoot.



Hilbert

He kept it. I think he framed it.



Herman

The voucher system — the NFB was paying crew in its own cafeteria scrip?



Hilbert

That's how it worked. You ate at the Board or you didn't eat. The shoebox is mostly mid-fifties. The Hebephrenic vouchers are in it somewhere.



Corn

Somewhere in your apartment there's a box with the paper trail of a film that's on YouTube with three million views.



Hilbert

If the transfer people had called me, I'd have told them about the reels.



Corn

I think that's the most useful thing anyone has said in this segment, and it's about a shoebox.



Hilbert

Keep the cabinets in frame. That's my only note.



Herman

Hilbert, you're right about the transfers, and you're right that the version circulating isn't the 1951 object. I glossed over that and I shouldn't have.



Hilbert

It's fine. Just say it on air so people know what they're watching.



Corn

If the reels are swapped, then the sequence someone's diagnosing from isn't the sequence the students saw.



Herman

And that's not a small thing, because the Depressive States film is built on the order of the faces.



Hilbert

If you ever get the archival print, watch the cabinet in the Hebephrenic one. You'll see the boom.



Corn

We'll take your word for it, and the vouchers.



Hilbert

The vouchers aren't a joke. Milk was involved, Herman.



Herman

I'm not arguing.



Corn

Okay. Setting aside the vouchers for a moment — Herman, he's right about the reels, and there's a bigger version of that problem. If the upload isn't the archival object, then every conclusion people draw from watching it is a conclusion about someone's edit.



Herman

Which is why the written record matters more than the films. The bicycle, the Christmas rounds, the committee votes — none of that can be re-cut.



Corn

Here's what I'm left with. If Lehmann himself worried the drug revolution he started would produce less empathic psychiatry, and if the written record says he was unusually compassionate by the standards of his era, then what does that say about how a field remembers its founders versus how it practices?



Herman

The films are the strangest part of the whole story. They were made to teach students what schizophrenia looks like. The titles say explicitly, this isn't about technique. And seventy-five years later they circulate as evidence of a clinical humanity that their own titles disclaim, in a re-cut version, watched by millions of people who will never earn the thousands of hours he said it takes.



Corn

Which is either a tribute or a misunderstanding. Maybe both.



Herman

He'd probably say both.



Corn

If this was worth the listen, a rating and a subscribe helps people find the show.



Herman

Our producer, as always, is Hilbert Flumingtop. The vouchers are not being entered into the record.



Corn

If you want more of this, try episode thirteen, AI; episode ninety-one, The Story Behind the Show; and episode five twenty-four, Beyond the Stigma. This has been My Weird Prompts. Send us your own prompt on Telegram at t dot me slash MWP listener bot.



Herman

We'll be back soon.

SOURCES

What the research for this episode read before the script was written. Primary sources first.

1. **Wikipedia, Heinz E. Lehmann**
[primary-adjacent reference]
https://en.wikipedia.org/wiki/Heinz_E._Lehmann

2. **McGill Reporter, In memoriam (Joel Paris), 1999**
https://reporter-archive.mcgill.ca/Rep/r3115/memoriam.html

3. **McGill Health e-News, Marking 70 years of psychiatric research at the Douglas, 2024-03-13**
https://healthenews.mcgill.ca/marking-70-years-of-psychiatric-research-at-the-douglas-celebrating-heinz-lehmann/

4. **Emmanuel Stip, Who Pioneered the Use of Antipsychotics in North America? *Can J Psychiatry* 2015**
https://pmc.ncbi.nlm.nih.gov/articles/PMC4418623/

5. **INHN, Heinz E. Lehmann BPRS Videotapes (John P.M. Court)**
https://inhn.org/archives/court-collection/heinz-e-lehmann-videotapes

6. **INHN, Heinz Lehmann: Psychopharmacotherapy. David Healy's Interview**
https://www.inhn.org/inhn-projects/archives/heinz-lehmann-psychopharmacotherapy-david-healys-interview

7. **INHN, Lehmann Collection 4: Heinz Lehmann and Douglas Hospital (Charles C. Cahn)**
https://www.inhn.org/about/central-office-cordoba-unit/education/.../lehmann-collection-4-heinz-lehmann-and-douglas-hospital-by-charles-c-cahn

8. **INHN, Lehmann Collection 3 (Barry Blackwell)**
https://www.inhn.org/about/.../lehmann-collection-3-heinz-edgar-lehmann-by-barry-blackwell

9. **PeriscopeFilm, Mental Symptoms: Schizophrenia (1951)**
https://stock.periscopefilm.com/xd48984-mental-symptoms-schizophrenia-1951-psychiatrist-psychologist-training-film/

10. **Screenculture, Schizophrenia: Catatonic Type**
https://www.screenculture.org/cesif/film/8434

11. **NFB Collection, Schizophrenia: Hebephrenic Type (1951)**
https://collection.nfb.ca/film/schizophrenia-hebephrenic-type

12. **NLM *Circulating Now*, Psychiatric Interview Films in the Age of Reform, 2023-09-28**
https://circulatingnow.nlm.nih.gov/2023/09/28/psychiatric-interview-films-in-the-age-of-reform/

13. **Wellcome Collection, The faces of depression**
https://wellcomecollection.org/works/evqupqfu

14. **UCLA CSHN, Lehmann, Heinz E.**
https://cshn.semel.ucla.edu/2022/03/10/lehmann-heinz-e/