

Clark University

Clark Digital Commons

Faculty Works

Scholarly Collections & Academic Work

1980

Annals of Medical Sociobiology: The North Dana Blood Disease

Nicholas S. Thompson

Clark University, nthompson@clarku.edu

Follow this and additional works at: <https://commons.clarku.edu/facultyworks>

Repository Citation

Thompson, Nicholas S., "Annals of Medical Sociobiology: The North Dana Blood Disease" (1980). *Faculty Works*. 51.

<https://commons.clarku.edu/facultyworks/51>

This Article is brought to you for free and open access by the Scholarly Collections & Academic Work at Clark Digital Commons. It has been accepted for inclusion in Faculty Works by an authorized administrator of Clark Digital Commons. For more information, please contact larobinson@clarku.edu.

ANNALS OF MEDICAL SOCIOBIOLOGY: The North Dana Blood Disease

North Dana Family Practice Center
North Dana, Massachusetts 10783

Because of your readers' interest in the alphabet soup phenomenon described in my letter of April 9, 1975, you might be interested in the material which follows. This letter came from a college classmate, Dravrah Nhoj. Since the name meant nothing to me, I looked him up in the 10th reunion class book. The entry is short. It says only that Dr. Nhoj, after a brief sojourn in his native country, returned to the United States to practice medicine in a small Family Practice Center in western Massachusetts. Only after reading the entry several times did I begin to have any recollection of Nhoj.

These memories suggest to me that Nhoj is not a man to be taken lightly. Indeed, if my understanding of organic evolution is any guide, the phenomenon he describes in his letter has the gravest possible implication for public health and safety.

Herewith the letter:

Dear Nicholas:

What a pleasure it was to see your biography in the class book. I shall be surprised if you remember me, but I remember you well. You were kind to listen to me tell the dreams of my future. What a sadness and irony it is that the political situation in my country made it impossible for me to realize those dreams. Fate has had another plan for me.

Not long after coming to work here in North Dana, my colleagues appealed to me for assistance in diagnosing a strange blood disease which had been afflicting with greater and greater frequency the people of the district. The disease was characterized by a sudden loss of vigor with an associated loss in resistance to infections of all kinds. The patients reported in with a variety of symptoms including loss of appetite, lethargy, and headaches. In the later stages

of the disease they displayed a mortal inability to resist infections of all sorts. Cause of death was therefore from a variety of causes including pneumonia, kidney failure, liver failure, meningitis, encephalitis, and heart failure.

Because of the diffuse nature of the symptoms, some sort of systemic infection was immediately suspected and careful blood work was performed on all of the afflicted patients. The laboratory reports showed them to have an exorbitant number of white blood cells.

Autopsies showed the ravages of whatever disease the patient had finally succumbed to but also showed the effects of some sort of chronic systemic ailment which had obviously escaped diagnosis for many months, perhaps years. It was almost as if the blood of the patients had for many months been *corrosive*. There were signs of damage to almost every part of the circulatory system and to the organs closely associated with the circulatory system. It was apparent therefore that whatever disease the patients had ultimately died of, they had for an extended period of time been afflicted by some sort of chronic, degenerative disease of the circulatory system.

What was baffling about this syndrome was the absence of any direct evidence of any infective agent. There were the white blood cells, there was the evidence of damage to tissue. Where was the infective agent? None of the standard procedures for culturing infective agents revealed anything.

Even with this curious pattern of symptoms the disease would not have attracted so much attention if it hadn't seemed to affect differentially the elders of the community. One by one, the patients who reported with the disease were the town officers, the presidents of town organizations, the ministers, and the perennial volunteers. Whatever the etiology of this strange disease, it seemed to affect "good" people with a far greater frequency than it affected "bad" people.

It was this universal civic-mindedness of the victims that provided our first clue to the nature of the disease. In every case the disease had come on following an intense period of civic-minded activity on the part of the victim. This activity varied from individual to individual, but its universal characteristic was the faithful participation in the blood

The Journal of Irreproducible Results, Vol. 26, No. 3:15-19
Copyright © 1980 by The Journal of Irreproducible Results, Inc.

drives mounted by all the various organizations in the community. Careful study revealed that among the victims of the disease, *all* had given blood at least twice during the year prior to their death and some had given blood as many as six times. Those that had exceeded the Red Cross Guidelines for frequency of donorship had often gone to great lengths to do so. In one particularly dramatic instance, one victim, in the month before his reporting ill to our clinic, had made visits to the blood drives of no less than four neighboring communities.

At first, of course, we assumed that these good people had somehow damaged their health through over-donation. We consulted with the officials of the Red Cross to determine if any such symptomology had ever been observed before. They went through the records for decades, even going back through the Korean War and WW II in search for a syndrome such as we had observed. Among those records they had instances of soldiers who had donated ten times in a single month in order to save wounded comrades in front line hospitals. While these soldiers suffered from lassitude and mild anemia with occasional headaches and weakness, none of their symptoms even approached the severity of the symptoms of the North Dana cases.

The Red Cross in turn said that they suspected that there was some contamination in the equipment which had been used during the blood drives. At this point we felt the problem was beyond our ability to handle it and we called for assistance from the Center for Disease Control in Atlanta. They sent two epidemiologists who culled through records and conducted interviews with all the personnel associated with any of the blood drives in the North Dana area in the two years preceding the outbreak. This study revealed that due to the regional nature of the Red Cross operation, no common feature was present in all of the donations. Equipment of various different vintages had been used and personnel from different hospitals had taken the samples. No individual person, piece of equipment, location, etc., was present at more than 60 percent of the blood collection facilities and most of the overlap between personnel of different blood drives was considerably lower than that.

Only one common theme or thread seemed to carry through all those interviews and this appeared almost as an afterthought: all personnel reported a marked increase in the response to blood drives in the past few years in the North Dana area. The workers had taken no particular notice of this phenomenon because they thought it was a result of the epidemic. Often in the final stages of the disease, its victims required extensive transfusions in order to keep them alive. It was standard practice in such cases for the Red Cross to prevail upon relatives and friends of the patients to make donations to the blood bank to balance the drain on the bank made by the patients. Because of the perennial shortage of blood, it was common practice to extort as much blood as possible by exaggerating the needs of the patient to the relatives. Therefore, the workers had not really paid much attention to the fact that the increase in donorship had exceeded the needs placed on the bank by several times. Indeed, such was the success of local blood drives, that the North Dana Community blood bank had credits with neighboring blood banks all over the state.

There was another puzzling feature. Despite the heavy preponderance of civic leaders and blood donors among the victims of the disease, some civic leaders and blood donors seemed to be immune to it. The CDC people decided that instead of continuing to concentrate on the future search for an infectious agent, they would try to discover what the factors were that were protecting those who didn't contract the disease. Working carefully with Red Cross and medical records, they created two carefully balanced groups of people. These two groups were as similar as possible in all their civic responsibilities and blood donorship, but differed insofar as was possible only in whether they had ultimately contracted the blood disease which was rapidly becoming known as Red Cross disease.

When the medical histories of these two groups were compared, a startling difference was revealed: among the 20 members of the control group, only two had ever received blood transfusions for any reason. Within the 20 members of the disease group, all had serious medical problems requiring hospitalization during World War II, or more specifically, during the years from 1931-1947. The medical emergencies which took them into the hospital varied from gall stone removals to bleeding ulcers to farm accidents, but all had one curious feature. In every case, the victim had required a blood transfusion from the North Dana Regional Blood Bank. Thus, it was possible that they had contracted the disease while RECEIVING a blood donation.

It was in this connection that the CDC people began to take an interest in "bloody Charlie." Charlie Watner had been Chairman of the Board of Selectman in the Town of North Dana for most of the Depression. The last son of a large farm family Charlie was afflicted with a gimpy leg from birth, which probably was a result of the incredible degree of inbreeding which existed in that small community. Whatever its cause, it meant that Charlie wasn't good for much as a farmer and so took to repairing engines. He always could be found in some disused horsesheds just down from the Town Hall in the center of town amidst an appalling clutter of old tires, worn parts, spilled oil, empty oil cans, rags, newspapers, a Ford, bubble gum machine, an antiquated cigarette machine, and a gas pump of the type with the clear reservoir at the top of the machine. From this advantageous position, it was natural for Charlie to migrate into town politics and it was not many years before he became the Chairman of the Board of Selectman.

As a civic leader Charlie felt called upon to volunteer the day after Pearl Harbor, but his gimpy leg made him no more valuable on the battlefield than he was on the farm and he was refused enlistment. Charlie returned to the village of North Dana in a funk. To cheer him up, the local minister suggested he organize the local blood drive to provide blood for the boys at the front. In short order Charlie's involvement with local blood drives became something of a phenomenon. Not only did he organize the drives and participate on all the local committees and drive from door to door soliciting donations, he began to give blood in prodigious quantities. Local newspapers featured him, wearing a civil defense cap and a blood pressure cuff donating his 100th pint of blood sometime early in 1945. Shortly thereafter Charlie passed away and was given a hero's burial in the veteran's section of the local cemetery.

Two features of Charlie's life and death attracted the interest of the CDC investigators. First of all, his death, not notable at the time because of his advanced age was remarkably similar to the demise of many of the cases currently under study. According to the coronor, he had died of massive bacterial infection which his body seemed totally unable to contend with. Doctors were mystified at the time because the bacterial agents seemed to be so much more virulent than those which had been survived by hundreds of school children in the district in the previous winter. They treated it extensively with antibiotics and sulfa drugs, but while these slowed the course of the disease, they did not stem it. Charlie's body simply had no resistance.

The other oddity the CDC people encountered came from the minister who had originally suggested that Charlie become involved in blood work. The investigators, in the course of trying to find somebody who had known Charlie, had gone to the minister, now a very old man himself. The minister had confided in them a strange tale which he said perhaps ought to die with him but which, in the light of the serious implication of the North Dana cases, he would break his ministerial vows and relate. The investigators were so intrigued by the tale that they recorded it in detail. Here, excerpted is the statement of the minister . . .

"Shortly after V-E day, Charlie came to see me at the parsonage. I remember the day clearly because it was a rare thing for a man in the community, particularly one of Charlie's standing, to come see the minister on a personal matter. Women came all the time, but the men kept their problems to themselves, as a rule. He was distressed because the Red Cross had started to refuse his offers of donation of blood, now that the war was over."

"I sympathized with him and tried to show him that he was not alone in his problem. Many people who had come to prominence in the community under the special circumstances of the war, became depressed or even agitated when their leadership or services were no longer required. I suggested that he, with his demonstrated abilities at leadership, might form a group to help others cope with this problem, and I offered him the offices of the church as a meeting place."

"But the more I talked and the more sympathetic I was the more agitated and upset he became. He finally stood up and paced restlessly back and forth: 'You don't understand, pastor,' he kept saying. And I kept saying but I *do* understand, Charlie. Finally he said, 'Dammit, you don't understand. You see it FEELS good.' I started to say something mollifying about how it did feel good to service others and he replied, 'NO, I don't mean that. It FEELS good. There ain't no feeling like it.'"

"I remember staring at him, dumbfounded, as his meaning finally sunk in."

"That's right, pastor. Now you understand. There ain't no feeling like it. I can't live without it. You gotta convince those Red Cross people to let me donate. If you don't, my life ain't worth living.' And he stomped out of the parsonage."

"The next day I called the local Red Cross and asked if they might make an exception and take a token blood donation from Charlie. They said they wouldn't consider it. 'That man has given 50 times his share,' they said. They wouldn't

think of it. I tried to convince them, but without violating Charlie's confidence, I couldn't move them."

"When Charlie died a few months later, I didn't know what to think. Maybe he'd gone a little crazy. Maybe he'd died of a broken heart. It just didn't make any sense. I'd never heard of any such thing. But then again, war is a kind of madness, so I don't know why I should be surprised at a man who got pleasure from giving blood."

On a whim we proceeded to call in for interviews the ten most frequent blood donors in the past year. The CDC people bowed out of this one. They said I was known and trusted in the community and I was more likely to get the information that we all wanted. Most of the people we interviewed had good reasons for their spurt of donations -- a relative recently saved from the brink of death in an accident or a recent brush with traumatic injury themselves. But in a few of the interviews, I had the spooky feeling that something else was lurking behind what they were saying.

One woman confirmed our suspicions. We were recording her interview so I can give you a transcript of the statement she made. She said,

"It's really weird, doc, and I wouldn't tell anybody but you. But, when I'm lying on that table and they open that little cock on the tube, just about the time I see the blood oozing up in the little plastic tube, I get this rush of feeling. It just takes over my whole body. I tell you it's better than ... well, you know. And the thing is, once you've had it, you feel like you've just got to have it again and again."

That night I got together with the CDC people in my kitchen. We sent the children to bed early, we sent my wife to a friend's house and we spread our papers over the kitchen table, made a pot of coffee and tried to brainstorm the case.

The CDC people were being called back to Atlanta to work on a recent outbreak of Legionnaires Disease and they wanted to wrap the case up. They admitted the whole story of Bloody Charlie was fascinating but from their point of view it didn't seem to warrant much concern. No evidence -- save the large numbers of white blood cells -- had ever been produced of any infection. None of the immunological work gave the slightest evidence that the bodies of the victims had ever been invaded by any external agent. Without an infective agent there really couldn't be an epidemic. The frequency of cases had died down during the last several weeks from a flood, to a trickle, and now nothing. Whatever the problem was, it seemed to have abated and that was something which couldn't be said for Legionnaires Disease. They certainly didn't attach much importance to the woman's curious confession that blood donorship gave her pleasure. They pointed out that this woman, like the other patients in the diseased group, had had a blood transfusion at an early age and may have become psychologically traumatized in such a way as to attach her to blood transfusions psychologically.

I, for my part, was uneasy to see them go. For several days I had been developing a theory about the disease which I had been unable to get myself to relate to the CDC people because it seemed crazy. They were so strong in their reas-

surances that I didn't feel that I could tell them that night. They were quite right in saying that the disease would abate. In fact, we have had no cases of the disease since they left and that was almost a year ago. My colleagues have long since stopped talking about it. The community has settled back into its old routines. Younger folk have taken over the various roles of those who were afflicted. There are two new members of the Board of Selectman. A new Town Moderator. Young people have started taking an interest in the PTA. In some way, cruel though it sounds to say it, the sudden disappearance of so many of the town's leaders has had an invigorating effect on those that remain. But if my theory is correct, then these circumstances are just a lull in what may be a devastating epidemic. So devious is the mode of infection of this epidemic and so slow will be its incubation period, that it could irreversibly afflict millions of people before correct action is taken.

This, then, is my reason for writing you, Nicholas. I remembered that you were a sympathetic sort of fellow. And I saw by your entry in the 10th reunion book that you are interested in behavior and evolution. I am writing because I think perhaps you may be uniquely qualified to appreciate the danger we are in and the corrective actions which must be taken.

It was my hope, Nicholas, that you would come to visit me here in North Dana so that I might present my theory to you and show you the records on which it is based.

Respectfully,

Dravrah Nhoj

I met Dr. Nhoj at his home in North Dana one evening several weeks ago. He was still the dark frail man I remembered and he still had the faint smokey lilt to his English that I associate with people who have learned to speak their English in the Orient. But beyond these residuals, he seemed to be completely Americanized. He presented two school-age boys for introduction who shared his dark eyes and hair but were already clearly more robust in stature than he and had all the irreverent boisterous challenge of American children. His wife passed through the kitchen on her way to some public health meeting or other. She also had some sort of foreign echo to her English and I assumed that they had found each other in medical school as two lonely foreigners.

Nhoj poured us both coffee. As he reviewed the case, he removed from a dispatch case various files and records which illustrated the points he was making. When his review was complete, I must say I was still as much in the dark as I had been upon finishing his letter.

"Dravrah," I said, "I'm afraid I don't understand. If there is no evidence of foreign virus material or bacteria, how can you be concerned about an epidemic?"

"What if the infective agent is human cells?" he said.

"I still don't understand," I said.

"Do you remember Wesman's course?"

"Nat. Sci. 8. Of course. Did you take that?"

"Yes. We used to sit together almost every time."

"Wasn't Wesman that old guy who talked about slime molds?"

"Yes. Good. I'm glad you remember the slime molds. How much to you remember about the slime molds?"

"Well," I said, "I remember those neat timelapse photos where all the little amoeba used to stream together and form a little tower. And then the spores would come out of the top of the tower and start the life cycle over. That was neat stuff."

"Do you remember that we used to wonder how it was that natural selection could produce such a structure since the spores in the stalk never got to reproduce?"

"Oh, yes. I remember. There was talk of them being 'stuck' since the only way to reproduce was through being on top of the tower."

"Exactly," he said. "But the problem isn't limited to slime molds. Even the cells in your own body are stuck in the same sense. The only way they can reproduce is through your sex cells."

"I see that," I replied. "But what does this have to do with the people of North Dana?"

"Don't you see?" he said now in some agitation. "What if there were some way for the cells to become unstuck?"

"Then those cells would be selected by interests other than those of the person's body they were in."

"Exactly."

"I still don't see the connection."

"It's the transfusions. When we give transfusions, we produce an opportunity for blood cells to become unstuck."

Suddenly it all became clear to me. "The white blood cells!" I said.

"Yes," he said. "The white blood cells."

"That's why nobody tested for any infectious agent."

"Exactly," he said. "The white blood cells were the infectious agent. Because they are human cells the body cannot recognize them as infectious."

"But why all these cases concentrated here in North Dana?"

"That's easy. The local Red Cross office has first call on any blood donated in the area. Charlie's blood type was the most common type. They would have kept several of his donations for local use."

"But what about the soldiers that received his other donations?"

"What about them?"

"Well, let's say that 50 soldiers got donations of Charlie's blood. That means there are 50 middle-aged people out there who are donating blood like crazy and are about to die. You'd think we'd hear about something like that."

"Not necessarily. Remember the way the army was organized during World War II? People from the same part of the country didn't necessarily fight in the same units. Those recipients are probably scattered all over the country. Some of them may even have been foreign nationals."

"You're right."

"And remember, we wouldn't have noticed the disease if there hadn't been a cluster of deaths right here in North Dana. The symptoms looked too much like systemic infections."

Then I said, "OK. Let's say I buy it. Let's say Charlie's blood gave those folks a fatal dose of Charlie's bad white blood cells. What's all this talk about a world-wide epidemic? I mean, I feel badly about all those North Dana folks and about the soldiers; but let's say a thousand people died

of Charlie's blood! A thousand people dying over the entire world is hardly a world-wide epidemic!"

"You still don't quite understand, do you Nicholas?" Nhoj said. "All those pints of blood given by the people who died in the North Dana outbreak: each of those pints of blood will infect the person it's transfused to with a fatal dose of Bloody Charlie's white blood cells.

"In some ways, the disease is like rabies. You know how in a dog that is infected with rabies, the virus passes through the lymph system to the brain, where it does two things: first, it passes outward along the facial nerves to the salivary glands from which the virus seeps into the saliva; second, the virus goes to work on the cells of the brain. It makes the dog extremely restless and irritable. Really, from the point of view of the virus, it's a very good thing. The dog roams over the countryside looking for other animals to infect with the virus. It's almost as if the dog's behavioral system has been captured by the virus as a distributive agent."

"But I thought you said this disease isn't caused by a virus."

"I don't think it is. I just use the rabies example to show how one organism can be captured by the interests of another. The infective agent in this case is Charlie's white blood cells. And just as the virus makes the dogs restless, Charlie's white blood cells seem somehow to make people *altruistic*; particularly they make people want to give blood. All those good souls joining in blood drives, they are acting in the interest of the distribution of Charlie's white blood cells."

We sat looking at each other for a long moment across the kitchen table.

"Dravrah," I said. "This IS crazy! If you are right, then those blood cells have to be able to divide and reproduce themselves once they get into a new body. Blood cells can't do that, can they?"

"Not ordinarily. That's why I never mentioned this to anybody before I wrote you the letter." He reached into his dispatch case and drew out a plastic box. From the box he removed four round plastic dishes which I recognized as Petri dishes. The bottom of each was coated with a brownish red substance. Some of them had a film of whitish material on the surface of the brown. He set the four dishes on a row in front of me on the kitchen table.

"We had several samples of patients' blood left in the laboratory after the disease had tapered off. So, I thought, what the hell, I'll try it. So I took white blood cells from one sample and inoculated each of these Petri dishes with twenty of them. Then I added a nutrient broth. Then some time later I preserved cells by freeze drying them. Look at the different dishes. This one I killed immediately."

He pointed to the dish on the left of the row. It had a faint white spot at the center of the dish. "This one I killed at 12 hours, this one at 24 hours and this one at 36 hours. Each of the dishes successively had a larger film of white. I've done cell counts on each of these dishes. The counts show not only that the cells can reproduce, but that they can reproduce very rapidly."

"But what's that mean? Does it mean that all those people who have made donations have infected the blood bank? Does it mean that all the people who receive donations from the bank are going to become avid blood donors?" I faltered. "That is what it means, isn't it?"

Nhoj nodded glumly.

"But how can we stop it?"

"Well," he said. "Conceptually the task is simple enough." He stood at the kitchen table and started packing away his paper in the dispatch case. We have to find each pint of blood donated by the North Dana people and have it destroyed. Then we have to get to the people who have received the blood and give them adequate medical care. Then we have to do the same with each person who contracts the disease. It's logistically possible. But we've got to get started. The real problem is convincing people to make the sacrifices."

He smiled for the first time, like a man who had just been relieved of a great burden, and extended his hand to me across the table.

* * * * *

I have now conveyed to you the complete story of the North Dana Blood disease. Notwithstanding Dr. Dravrah's faith in my expertise as a sociobiologist, I felt that in the long run his letter was the most persuasive representative of his case -- with, of course, the additions I have supplied. I have described these matters in such detail in the hope that somehow the pages of *The Journal of Irreproducible Results* might be used to alert the medical and scientific community to the risks of the North Dana blood disease.

If you need more information or if you wish me to further substantiate some of the events described herein, I hope you will get in touch with me.

Yours sincerely,

Nicholas S. Thompson
Associate Professor of Psychology and Ethology
Clark University

Really ready? Okay. Now, under capitalism, man exploits man, right?
Well, under communism, exactly the *opposite* situation exists!