

“We Don’t Know What *This* Is Yet”

Discussing the many challenges facing the United States and the world with business luminary Charles O. Holliday.



Illustration by Shonagh Rae

At *Issues in Science and Technology* we frequently speak with scientists and people doing public policy, but as the pandemic enters its seventh month, we wanted the perspective of someone in industry. In August, editor William Kearney interviewed Charles O. “Chad” Holliday Jr., chair of the board of Royal Dutch Shell, former chief executive officer of DuPont, and member of the National Academy of Engineering. Kearney asked the engineer and business leader for his perspective on the economic repercussions of the COVID-19 pandemic and his thoughts on other challenges facing the nation and the world.

Have you ever seen anything cause so much economic upheaval and disruption so abruptly and swiftly as the pandemic has?

Holliday: No, I have never seen anything like this. And, of course, we don’t know what *this* is yet; it’s still playing out. Because it’s driven by forces other than economic impacts, it’s even scarier. We know what recessions are; we know what depressions are; and we knew what the financial crisis was. We have tools to deal with those types of economic crisis, but to deal with this, we just

don't know. This is a very tough combination of things; it's very difficult. It could even turn out to be good for us in the long term. We might develop healthier habits as individuals. We might think about the connectedness of the world in a totally different way than we had before. So I am not sure it's going to be all bad. But right now, it's very difficult, and it looks to me like we are going to be dealing with this in some form for a couple of years.

As the chair of Royal Dutch Shell, what was it like when oil futures prices briefly turned negative?

Holliday: Yeah, that was a little bit of a blip; they weren't there for long, but nevertheless, what we had was a double whammy because oil prices were already down significantly before the virus really hit hard. So it was about as dramatic as anything we've seen. We're still not sure where it's going to settle out, but we decided early in the crisis to cut our dividend to a third of what it was. We just didn't know what kind of crisis this would be, though as of now, it's actually turned out to be a little better than we thought, with oil prices in the low \$40s when we thought they could have been in the low \$20s at this point in time, so we'll have to see. Meanwhile, we've got people on offshore platforms, and if we have an outbreak on a platform, how are we going to deal with it? How are we going to make sure people are safe and feel comfortable? But they've been very professional, very thorough, and we've been able to keep things running safely. Our safety and environmental performance has improved during this period, and I think it's just because there's been so much more attention to detail than you would normally have. You would think with all this stress, it would be just the opposite—but it's been very encouraging so far.

What do we need to do to rebuild the US economy?

Holliday: Well, the first question is whether we are going to get a vaccine. Based on what I am hearing from my colleagues in the health and research sectors, I am optimistic that we are going to get a vaccine, or many vaccines, and that they are going to be effective enough and last long enough. Eventually enough people will take the vaccine that we'll get the virus and disease to be manageable. But that's going to take time—probably a couple of years from where we are today, before we start to get into that kind of manageable situation.

Meanwhile, people are going to develop a whole new set of habits, and the change in how we distribute and pick up our goods is going to become more the norm. I don't think we will go back to the old habits for a very long time—maybe a decade. A lot of people will be out of work as a result of these changes, but there'll be a lot of new jobs created at the same time. So another big question is, how do we get people to

flip over and get trained for where the new work is? I think it's going to be a massive redistribution of people in a way that we've never had to do before. For example, hospitality workers may move to do distribution-of-goods work, and so I think there will be those sorts of shifts in the workforce. My guess is we'll become more efficient in the distribution of goods than we were in the old system, because we'll be doing more for ourselves, so we'll pay less, but there's going to be net unemployment as a result.

It appears to me that we haven't thought our way through this challenge, especially when it comes to these industries that have been so hard hit, such as the aviation industry. We protected payrolls into the early fall, but I don't think suddenly in November, people are going to be massively getting on planes like they did before—maybe it'll be back up to 25 or 30%. So I can see bulking up the unemployment system at first, but now that we're in the next phase, we need to be geared up for something that's going to last another couple years, and that money may be better used to start preparing people for new jobs.

The pandemic also is hastening the decline of these iconic clothing retailers we have known forever, and many are now bankrupt. There was some pent-up demand when things reopened this summer, but it slipped away. I know from my time in the synthetic fiber side at DuPont that we all buy more clothes than we have to. But will that demand for clothing ever come back to the level it was before? Probably not. When was the last time you wore a suit, right?

So overall demand will probably not be at the same levels as before in affluent societies. It might be different in developing countries, but so much demand comes from the developed world. So I think there's going to be this significant shift.

And if the government just continues to print money, and continues to run this deficit, that's pretty scary in itself. And with interest rates so low, there's not much else to do with your money so you put it in the stock market. But the levels the stock market are at today don't make sense to me, and eventually when things don't make sense, they don't make sense; it's only a matter of time before we have a correction somewhere along the way. I'm greatly concerned about the recessionary risks in the next couple years.

How do you think about the relationship between the federal government and the private sector during a crisis like this?

Holliday: The most critical thing is really good communication between business and government leaders—straight communication, not postured. There's got to be clear communication because business can really respond quicker and realign very effectively to meet needs. But businesses need to understand what government is

doing; they have to be assured that the support systems from government will work as described, that strings won't be attached later.

You've spent a lot of time the last couple decades warning about competitive pressures facing the United States, particularly from China. What do the heightened—if not hostile—tensions between the United States and China mean for American business now?

Holliday: I've been doing business in China for a few decades, and what I found was that when China needs you, they're the most accommodating country you could find. They will break down barriers, give you financial support, allow you to do things. When China doesn't need you, they're one of the worst countries you can be in. And what they needed you for 10 years ago, they might not need you for today, and so the rules change. So you do business in China at risk, and have to understand that that's the way the game is played.

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I think this increased tension certainly doesn't help; it is a real problem. Sanctions are closing some Chinese markets to US companies, so you get unintended consequences. These individual moves are dragging down global productivity. Will it bring more manufacturing back to the United States over the long term? Perhaps. But my guess is it's just going to drive it to other developing countries.

It's the 75th anniversary of Vannevar Bush's Science, the Endless Frontier, which provided a blueprint for government investment in basic research, the rewards of which fueled US prosperity in the twentieth century, according to many. Do you believe the relationship between the federal government and the research enterprise needs to be reimaged to drive that same kind of innovation in today's world?

Holliday: Absolutely! And I don't care what administration is in office; I think this should be a nonpolitical thing. We should be able to move on this. I look back at DuPont. We had been a major discovery research company, had a major discovery research center, like a little college campus. People gave up academia to come work with us. But with time, after I left the company, they basically shut it all down. It's just not

there anymore. That kind of discovery research is rare today in industry.

But the nation also has these National Laboratories that I have developed a much greater appreciation for. At first the labs seemed to me like a lot of money for maybe a little output—but the closer I've gotten to the labs in the last few years, the more I believe they could help commercialize basic research. I went to Oak Ridge National Laboratory, for example, and they have additive manufacturing, which uses 3-D printing in complex ways. And they have very user friendly access for companies to come in and use the technology to research and develop new manufacturing processes. I could envision major research centers and expanding use of the National Labs. We can take that discovery research and turn it into practical products.

I think the gap is not that we're not doing great discovery research—we could do more, of course—but the issue is then the bridge to make it commercial. Somehow you've got to have companies working in those labs; you've got to have people from company X and Y posted at the labs, so they're seeing that innovation and getting it out and commercialized. I think that those are steps we could greatly ramp up. And we can do it pretty quickly, too, because the facilities are already there.

I believe that the government is going to have to play an important role if we're going to have breakthroughs. I get worried that companies are so short-term-focused that besides a few—like pharmaceuticals (though there was already a lot of government investment in health sciences)—they don't understand the long-term value of research. Look at the dilemma Shell has right now. We're in an energy transition. No question about it: we are going to need less oil and gas in the future and more of other sources. Clearly if we can put in an offshore oil platform, we can put in an offshore windmill, and we're doing that. But what we really need is some fundamental breakthroughs in how to use hydrogen for a whole new energy system. And who is doing the fundamental research for that? It's not clear. Japan seems to be putting a lot more effort into hydrogen research than we are. So we need plans to prioritize that kind of research, which may not be as obvious as, say, pursuing a vaccine. Hydrogen energy would be an example, and maybe research into whole new generations of biofuels. Those are two areas that I'm pretty confident we could get companies involved in, but we would have to have a level of funding from the government to get started.

You chaired a National Academies committee that issued a report in 2012 calling for renewed investment in research universities to spur the ideas and innovation needed for the United States to remain a global leader. Now research universities are facing unprecedented financial pressures because of the pandemic. How worried are you?

Holliday: Extremely. What hit me in chairing that study was that I went into it very worried that I was going to be the mediator between the public versus private universities. It was most encouraging to hear that everybody on the committee realized that the success of the public universities is what's critical to the country. A majority of the research output comes from public universities, so it's critical that they be funded now. When we were doing that study, the states were cutting back already.

Now I can't imagine how states can properly fund their universities at a time like this, so I think it's a very critical issue. When you don't have people on campuses, and then you have a jolt to the system for a few years, how do you ever put it back in place? My guess is the privates will get through okay; they have enough endowment, they'll dig into it and still somehow be a success. But I think the publics will have a much more challenging time. I don't have a magical answer, because managing a state budget right now is tough. But it's a great concern, one that could put us behind as a country.

You are an industrial engineer. We tend to think of scientists and physicians when looking for answers to the pandemic, but what's the role of engineering and engineers in finding solutions to COVID-19?

Holliday: Today we call it systems and industrial engineering. Industrial engineering may imply a focus on manufacturing processes, whereas systems engineering can be applied anywhere. We have a big systems engineering group at Hospital Corporation of America [Holliday is a board member], and now, all of a sudden, they have been redeployed to address things such as how to operate an emergency room during COVID-19. Engineers will have the solutions to redesign systems, and companies will redeploy their engineers in appropriate ways. Engineers will play a great role in solving the pandemic. It's a really important time for engineering, and you're right, everything we hear in the press is more about science. The engineering side should come out more.

You coauthored a book almost 20 years ago called *Walking the Talk*, which suggested that companies have to take real actions to be environmentally sustainable, not simply reword their mission statements. What do companies need to do to be successful while being sincere about their commitment to sustainability? And is the pandemic teaching us any lessons about the need to address global-scale challenges like sustainability and climate change in particular?

Holliday: The point of that book was to look at things companies had done that help sustainability—mainly, but not only, around the environment—and made money doing so. We had 64 case studies that said, Here's who's really done it, been successful, and had an impact on the environment. When

we took a look 10 years after the book came out at how those companies were doing, the one correlation we found among companies that were successful longer-term was that they had a plan for where they were going. Even if their sustainability efforts were just one-off projects, if there was some direction and they could learn from that program and apply it to others, that was really important. So I think it's critical that companies not only “walk the talk” and have good projects but also have some longer-term goals. At DuPont we would set seven-year goals, and set very ambitious goals because seven years was—well, it wasn't five or 10 for starters—far enough out that we didn't have to have all the answers now, but not so far out that people forget your commitment to get there. We found that very effective.

What I am seeing at Shell is that the energy transition and climate change is an everyday conversation, and this is not a trivial conversation—it is shaping what the whole company will become in the future. Now will COVID-19 speed up the work to deal with climate change? Will we move much faster because we now understand how something that happens in China can impact the whole world? Will people be able to now relate more to a global problem and move much faster to address it? Well, there's a camp in Europe that says, Absolutely, we're going to reduce greenhouse gases even faster. Another camp says, No we're not, right now we've got to get jobs back. I saw a recent study on China that was another great example of dueling priorities—they are doing some of the best demonstration projects of wind and solar development, while ramping up coal at the same time. So it's not clear whether COVID-19 is going to speed up work on climate change or not. I hope it speeds it up because this climate issue is very real and we are running out of time to avoid massive impacts.

How are you thinking about equality as a business leader during the awakening in this country about how far we still need to go overcome systemic racism and the continued lack of opportunity for so many people of color?

Holliday: Well, I have to say that how fast this moved globally—from one tragic incident in the United States—and the staying power it has had, surprised the heck out of me. My guess is that the issue is going to stick with us, and I hope it does. Hopefully we'll get some things right now. Perhaps that sums up of this whole conversation—maybe we have more opportunities than we can deal with in these crises. So how do we pick the ones that are really critical, and get them right?

Charles O. Holliday Jr. is chair of the board of Royal Dutch Shell and the former chair of Bank of America. He is the former chief executive officer and director of DuPont and a member of the National Academy of Engineering.