1

00:00:00,000 --> 00:00:29,920

Revealed in upcoming episodes of this program are the contents of a recently

2

00:00:29,920 --> 00:00:36,920

unearthed repository classified by the secret government, the Phenomenon Archives.

3

00:00:59,920 --> 00:01:29,080

In the past century, humanity has been pulled from the furnace of worldwide epidemics and

4

00:01:29,080 --> 00:01:34,880

saved from the clutches of military dictatorships by the men and women of science.

5

00:01:34,880 --> 00:01:39,360

Now that we've come to consider them almost venerable, what if we were to discover that

6

00:01:39,360 --> 00:01:44,520

the attitudes of these professionals have taken a turn toward the darker side?

7

00:01:44,520 --> 00:01:49,180

Are the people of science today serving an agenda of integrity or some vast corporate

8

00:01:49,180 --> 00:01:53,980

policy wherein the consumer is the unwitting guinea pig for the testing of profit making

9

00:02:19,180 --> 00:02:28,340

the world?

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00:02:28,340 --> 00:02:34,740

In December of 1912, Charles Dawson, a lawyer and amateur geologist, announces to the amazement

11

00:02:34,740 --> 00:02:40,300

of the world that he has uncovered in a gravel bed near Luz, England what appears to be the

12

00:02:40,300 --> 00:02:43,380

skull of an ancient human being.

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00:02:43,380 --> 00:02:48,540

The world regales Dawson with the laurels of international celebrity, touting his discovery

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00:02:48,540 --> 00:02:55,860

as the long sought after missing link, the evolutionary bridge between ape and man.

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00:02:55,860 --> 00:03:00,260

The British Empire's scientists who could not previously lay claim to a single major

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00:03:00,260 --> 00:03:04,260

archaeological find are at last vindicated.

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00:03:04,260 --> 00:03:08,660

The discovery of the Piltdown Man becomes the most prestigious archaeological find of

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00:03:08,660 --> 00:03:11,740

its day.

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00:03:11,740 --> 00:03:18,820

In 1953, nearly 40 years after Dawson's dramatic breakthrough, chemical analysis of Piltdown

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00:03:18,820 --> 00:03:25,700

Man's remains revealed that the very establishment which authenticated the find was duped in

21

00:03:25,700 --> 00:03:31,540

one of the greatest deceptions of all time, the Piltdown Man hoax.

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00:03:31,540 --> 00:03:38,180

Ultimately, it is determined that the cranium belongs to a modern human being and the jawbone

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00:03:38,180 --> 00:03:40,220

to an orangutan.

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00:03:40,220 --> 00:03:43,980

Which is skillfully altered to appear prehistoric.

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00:03:43,980 --> 00:03:49,180

The ensuing revision of history books and archaeological reference materials prove costly,

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00:03:49,180 --> 00:03:55,020

but the cost and credibility to the scientific community is inestimable.

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00:03:55,020 --> 00:03:56,260

There's corruption in any field.

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00:03:56,260 --> 00:04:00,980

I mean, there are great people and there are people that are somewhat corrupt in any field.

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00:04:00,980 --> 00:04:02,340

Science is no different.

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00:04:02,340 --> 00:04:03,940

Does fraud occasionally happen?

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00:04:03,940 --> 00:04:05,940

Yes, it occasionally happens.

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00:04:06,140 --> 00:04:11,140

Oh God, I could spend an entire day telling you about the science and research fraud that

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00:04:11,140 --> 00:04:13,340

my colleagues and I know about.

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00:04:13,340 --> 00:04:17,340

The famous case of the Wright brothers, was it the New York Times, said that they were

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00:04:17,340 --> 00:04:21,340

committing a fraud the day before they actually flew their plane?

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00:04:36,340 --> 00:04:42,740

Most of the disciplined rigors of science go on behind closed doors, beyond the inquiring

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00:04:42,740 --> 00:04:44,540

eyes of the public.

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00:04:44,540 --> 00:04:50,540

Nevertheless, scientists in their often solitary quest for new knowledge enjoy an almost hallowed

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00:04:50,540 --> 00:04:51,540

admiration.

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00:04:51,540 --> 00:04:57,820

They are granted a virtual hands-off policy by our modern world to create, advance and

41

00:04:57,820 --> 00:05:00,900

mold the future of civilization.

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00:05:00,900 --> 00:05:06,380

I think that the society does have the concept that scientists are purer than other people

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00:05:06,380 --> 00:05:11,580

and they're omniscient and for that reason they can do no wrong.

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00:05:11,580 --> 00:05:18,380

Given this revered social standing, the field of science is now more competitive than ever.

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00:05:18,380 --> 00:05:24,660

There is enormous pressure on scientists to obtain grant funding.

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00:05:24,660 --> 00:05:28,300

It is very demanding.

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00:05:28,300 --> 00:05:33,300

The process is nerve-wracking for scientists.

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00:05:33,300 --> 00:05:37,020

In most universities now you can't really do the research you want to do unless you have

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00:05:37,020 --> 00:05:41,060

funding for it and funding is more and more difficult to get.

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00:05:41,060 --> 00:05:48,860

So at places like MIT you have to go where the money is even to publish.

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00:05:48,860 --> 00:05:54,660

In the mainstream media of today, tales of science fraud abound.

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00:05:54,660 --> 00:06:01,020

Some of the most classical cases that I can think of, first was a psychiatrist from Arcadia,

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00:06:01,020 --> 00:06:06,740

California who falsely claimed that a drug, T-H-A, was a treatment for Alzheimer's and

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00:06:06,740 --> 00:06:12,780

subsequently created a tremendous demand for this drug.

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00:06:12,780 --> 00:06:19,140

But he was busted by one of my colleagues at the FDA who forced him to retract his results.

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00:06:19,140 --> 00:06:23,420

Another case involves four pharmaceutical companies caught making payments to a top government

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00:06:23,420 --> 00:06:28,460

researcher to secure his assistance in accessing confidential research he is conducting at

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00:06:28,460 --> 00:06:31,740

the National Institutes of Health.

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00:06:31,740 --> 00:06:37,260

And in a court of law, one group of industry-sponsored scientists stands behind their shameless,

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00:06:37,260 --> 00:06:43,740

quote, conclusive research, unquote, that cigarette smoking is in no way harmful to

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00:06:43,740 --> 00:06:45,100

human health.

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00:06:45,100 --> 00:06:50,820

There was a junior researcher at the Harvard Medical School who published 18 major articles

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00:06:50,820 --> 00:06:55,900

in 100 abstracts, most of which were completely bogus.

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00:06:55,900 --> 00:07:00,460

He was fleshed out by another colleague of mine from the National Institutes of Health,

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00:07:00,460 --> 00:07:02,300

Walter Stewart.

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00:07:02,300 --> 00:07:07,860

Stewart was also caught a professor at the University of California at San Diego who

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00:07:07,860 --> 00:07:13,340

was writing papers at a rate of one every ten days and they were all based on complete

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00:07:13,340 --> 00:07:14,860

fabrications.

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00:07:14,860 --> 00:07:18,740

He was forced to withdraw and retract 15 of these papers.

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00:07:18,740 --> 00:07:23,620

Unfortunately, the field of science is strewn with cases like this.

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00:07:23,620 --> 00:07:28,620

There are more than one million practitioners of science in the United States alone.

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00:07:28,620 --> 00:07:33,820

These men and women are for the most part actively engaged in the advancement of prosperity.

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00:07:33,820 --> 00:07:39,420

Yet critics argue that science is too often done as fast practice.

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00:07:39,420 --> 00:07:43,740

That these same scientists we have learned to depend on are guilty of cutting corners

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00:07:43,740 --> 00:07:47,380

by rushing results in order to get their papers published.

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00:07:47,380 --> 00:07:52,860

Their research ideas funded and beat out their peers in an ongoing struggle for fame,

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00:07:52,860 --> 00:07:56,060

glory and financial reward.

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00:07:56,060 --> 00:08:00,620

No, science is not a career for the faint of heart.

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00:08:00,620 --> 00:08:04,660

Does it follow then that in a society where financial gain is considered the ultimate

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00:08:04,660 --> 00:08:09,140

praise, the temptation to cheat has become too mighty?

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00:08:09,140 --> 00:08:14,380

Has the reality of science fraud become so commonplace that fudging research is an accepted

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00:08:14,380 --> 00:08:15,380

norm?

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00:08:15,380 --> 00:08:21,460

An astronomer faking the discovery of an unknown star may set planetary science back years

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00:08:21,460 --> 00:08:25,280

as the piltdown scam did to the field of archaeology.

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00:08:25,280 --> 00:08:30,500

The ramifications of fudged research in other fields of science, however, foretell a much

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00:08:30,500 --> 00:08:35,860

greater danger to our world and to individual human life.

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00:08:35,860 --> 00:08:42,020

Well, the whole reason why agencies like the National Institutes of Health, the National

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00:08:42,020 --> 00:08:47,020

Science Foundation and the Food and Drug Administration and many others have reviewers

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00:08:47,020 --> 00:08:52,380

to scrutinize the work done by researchers is because of the extreme dangers to the public

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00:08:52,380 --> 00:08:54,220

of faulty research.

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00:08:54,220 --> 00:09:00,340

I'm aware of a number of faulty drug studies that were contaminated and biased either deliberately

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00:09:00,340 --> 00:09:05,940

or unintentionally, testing certain drugs on patients with a variety of ailments that

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00:09:05,940 --> 00:09:11,460

ended up as articles in medical journals only to have been retracted later.

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00:09:11,460 --> 00:09:15,820

If an innocent doctor had read any of these articles, they may well have prescribed that

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00:09:15,820 --> 00:09:19,900

drug to a patient and ended up making things much worse.

96

00:09:19,900 --> 00:09:20,900

Good morning.

97

00:09:20,900 --> 00:09:21,900

Good morning, sir.

98

00:09:21,900 --> 00:09:25,540

Do you mind showing your throat to these men?

99

00:09:25,540 --> 00:09:31,420

No, sir.

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00:09:31,420 --> 00:09:35,220

Medical research and the development of new physical and drug therapies are specialty

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00:09:35,220 --> 00:09:37,920

areas of scientific study.

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00:09:37,920 --> 00:09:43,280

As the potential financial gains to drug companies working in this arena are so vast, experts

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00:09:43,280 --> 00:09:47,920

complain that the tendency toward conflict of interest is increased.

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00:09:47,920 --> 00:09:52,240

Such has certainly been the case in the area of AIDS research.

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00:09:52,240 --> 00:09:58,020

We have multiple interest, multi-billion dollar international companies coming into the field

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00:09:58,020 --> 00:10:04,480

because they see the potential of offering the public all their drugs as the cure.

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00:10:04,480 --> 00:10:08,600

While drugs have not been the cure, the drugs have been a cure for heart disease, diet and

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00:10:08,600 --> 00:10:10,760

lifestyle change has been.

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00:10:10,760 --> 00:10:13,880

Drugs have not been the cure for cancer, prevention has been the cure.

110

00:10:13,880 --> 00:10:18,120

I have just perfected a new remedy for locomotor attacks here.

111

00:10:18,120 --> 00:10:20,720

This has taken me years of research.

112

00:10:20,720 --> 00:10:24,080

You've been prescribing new medicines for me for a long time.

113

00:10:24,080 --> 00:10:27,840

I've paid you over two thousand dollars.

114

00:10:27,840 --> 00:10:33,840

Mr. Spencer, I'd sooner cut off my right arm up to there than take another dollar from

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00:10:33,840 --> 00:10:37,800

you if you've lost faith in my ability or my integrity.

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00:10:37,800 --> 00:10:40,160

You don't make money when people become well.

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00:10:40,160 --> 00:10:43,160

You make money when people stay sick.

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00:10:43,160 --> 00:10:47,000

It's like the old analogy that Humpty Dumpty fell off a wall and all you needed was more

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00:10:47,000 --> 00:10:48,920

horses, more soldiers.

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00:10:48,920 --> 00:10:50,680

We had the same analogy with healthcare.

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00:10:50,680 --> 00:10:54,680

All we need for health is more hospitals, more doctors, more diagnostic tests.

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00:10:54,680 --> 00:10:58,760

I don't mind putting out the money if I could only get better.

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00:10:58,760 --> 00:11:02,840

But losing faith in me isn't going to make you feel any better, is it now?

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00:11:02,840 --> 00:11:06,520

You don't have investigative reporters going in there to say, all right, before you offer

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00:11:06,520 --> 00:11:11,880

the public anything and before you manipulate the media to act as your propagandist, let's

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00:11:11,880 --> 00:11:13,920

put it to the test.

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00:11:13,920 --> 00:11:18,640

No one's doing that because it's considered medicine as a sacred cow.

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00:11:18,640 --> 00:11:21,440

Doctors are the high priests of this religion.

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00:11:21,440 --> 00:11:24,680

And as a result, nobody challenges them.

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00:11:24,680 --> 00:11:26,280

I'm sorry, doctor.

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00:11:26,280 --> 00:11:28,120

I didn't mean to hurt your feelings.

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00:11:28,120 --> 00:11:34,800

Now what has happened is that the media is now running from company to company's press

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00:11:34,800 --> 00:11:39,880

conferences, heralding the advent of some new miracle breakthrough.

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00:11:39,880 --> 00:11:45,360

Well, maybe since you put so much time on the new medicine, I ought to give it a fair

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00:11:45,360 --> 00:11:46,360

trial.

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00:11:46,360 --> 00:11:51,120

Instantaneous journalism, where they'll run out without any knowledge or background on

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00:11:51,120 --> 00:11:56,480

a subject and trust the scientists or doctors for a company or a governmental agency to be

138

00:11:56,480 --> 00:11:57,480

the experts.

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00:11:57,480 --> 00:11:59,520

I just follow the directions.

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00:11:59,520 --> 00:12:04,600

Each bottle will last you three days and all of your troubles will be over.

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00:12:04,600 --> 00:12:08,320

Official science has never been good science.

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00:12:08,320 --> 00:12:12,000

They've never won a major war, not the war on cancer, not the war on AIDS, not the war

143

00:12:12,000 --> 00:12:13,960

on heart disease, not the war on arthritis.

144

00:12:13,960 --> 00:12:15,840

There's no cure for any of those.

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00:12:15,840 --> 00:12:18,360

But it's like the official story.

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00:12:18,360 --> 00:12:21,560

It's what serves the interests of those in power.

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00:12:21,560 --> 00:12:28,200

As in the case of Viagra and FinFinn, the relentless hunt for financial gain seems, once again,

148

00:12:28,200 --> 00:12:30,760

to be at the core of these problems.

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00:12:30,760 --> 00:12:35,080

And the difficulty, I think, is that business people have very different motivations from

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00:12:35,080 --> 00:12:36,480

scientists.

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00:12:36,480 --> 00:12:40,760

And in the end, money makes the communication between the two very difficult.

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00:12:40,760 --> 00:12:45,400

The business people are interested in, you know, the bottom line.

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00:12:45,400 --> 00:12:48,640

How does the company, how can they make the company most profitable?

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00:12:48,640 --> 00:12:54,320

Whereas the research scientists are interested in developing a neat technology, a new product.

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00:12:54,320 --> 00:12:57,680

How can this technology help cure diseases and things?

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00:12:57,680 --> 00:13:01,960

So there's a great barrier to having the two mesh.

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00:13:01,960 --> 00:13:09,680

With media coverage growing more invasive, accessibility of information is adding to

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00:13:09,680 --> 00:13:13,280

the public's awareness of science and how research is conducted.

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00:13:13,280 --> 00:13:16,480

This new knowledge has made the public wary.

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00:13:16,480 --> 00:13:20,800

Here is replacing confidence, and instead of celebrating the merits of scientific advancement,

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00:13:20,800 --> 00:13:26,600

there's a general reluctance to accept scientific results at face value.

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00:13:26,600 --> 00:13:29,960

The scientific process has changed over the years.

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00:13:29,960 --> 00:13:34,560

For scientists, professional advancement has always been tied to productivity.

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00:13:34,560 --> 00:13:38,680

But these days, productivity is too often measured by the amount of money a scientist

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00:13:38,680 --> 00:13:41,320

can gather for research.

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00:13:41,320 --> 00:13:45,760

Scientists are thereby pressured on two fronts, from their employers who expect a continuing

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00:13:45,760 --> 00:13:51,120

flow of grant money, and from grant-giving bodies who demand profitable results.

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00:13:51,120 --> 00:13:57,480

Well, modern science is now being heavily funded by institutions, multinational corporations

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00:13:57,480 --> 00:13:58,760

and government agencies.

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00:13:58,760 --> 00:14:05,280

And the competition and demand for funding is astonishing and just growing at an alarming

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00:14:05,280 --> 00:14:06,280

rate.

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00:14:06,280 --> 00:14:11,880

In this age of billion-dollar atom smashers and multi-million-dollar magnetic resonance

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00:14:11,880 --> 00:14:18,880

imaging devices, the complexity and costs of research and maintaining the most up-to-date

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00:14:18,880 --> 00:14:24,240

technology are expanding at exponential rates.

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00:14:24,240 --> 00:14:28,400

Not at all like the old days of Charles Darwin or Isaac Newton.

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00:14:28,400 --> 00:14:31,520

No money, no research, I'm afraid.

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00:14:31,520 --> 00:14:37,040

Now even the largest of institutional grants cannot satisfy the ever-expanding appetite

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00:14:37,040 --> 00:14:39,440

for research dollars.

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00:14:39,440 --> 00:14:43,240

Sometimes the money is set aside solely for universities, sometimes it's set aside solely

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00:14:43,240 --> 00:14:47,000

for business, sometimes solely for government laboratories, sometimes anybody can go after

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00:14:47,000 --> 00:14:48,000

it.

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00:14:48,000 --> 00:14:51,040

And so we write proposals to government agencies.

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00:14:51,040 --> 00:14:54,440

We're usually in competition with all these other organizations.

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00:14:54,440 --> 00:14:58,560

The win rate right now is somewhere between 5% and 8% of the proposals that are turned

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00:14:58,560 --> 00:15:00,360

in actually get funded.

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00:15:00,360 --> 00:15:04,200

I wonder about whether or not they have to find...

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00:15:04,200 --> 00:15:08,880

Even scientists find themselves going up against much younger, comparatively inexperienced

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00:15:08,880 --> 00:15:14,080

challengers, each competing for finite funds in a glutted field.

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00:15:14,080 --> 00:15:19,760

This competition for grants, status and position makes the temptation to veer off the path

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00:15:19,760 --> 00:15:21,920

difficult to resist.

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00:15:21,920 --> 00:15:28,520

Right now I'm looking for a job just because we are running out of the grant and chances

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00:15:28,520 --> 00:15:32,160

of getting the grant is highly competitive.

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00:15:32,160 --> 00:15:37,200

Only a livelihood is dependent upon the procurement of grant funding.

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00:15:37,200 --> 00:15:42,360

Scientists fortunate enough to win this coveted cash find themselves hamstrung by the prerequisites

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00:15:42,360 --> 00:15:44,800

of their patrons.

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00:15:44,800 --> 00:15:48,360

Relationships develop which many consider unhealthy.

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00:15:48,360 --> 00:15:54,020

Anytime a company like Pfizer funds a researcher there is usually a contracting that goes on

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00:15:54,020 --> 00:15:58,960

between the two as to where the restrictions are, what the specific outcomes are.

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00:15:58,960 --> 00:16:01,160

Is there an expected outcome for the investment?

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00:16:01,160 --> 00:16:02,800

Yes, there would be.

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00:16:02,800 --> 00:16:06,320

But you're talking about hundreds and hundreds, thousands of people, hundreds of thousands

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00:16:06,320 --> 00:16:10,240

of hours investment in bringing any single product to marketplace.

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00:16:10,240 --> 00:16:14,400

With such extraordinary amounts of money at stake, grant recipients are subjected to

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00:16:14,400 --> 00:16:19,720

such microscopic scrutiny by their benefactors that the possibility of failure can barely

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00:16:19,720 --> 00:16:21,160

be entertained.

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00:16:21,160 --> 00:16:28,720

Obviously, with the prospects of billions of dollars of profit at stake with the development

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00:16:28,720 --> 00:16:35,720

of a new drug or new technology, grant recipients are subjected to massive scrutiny by their

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00:16:35,720 --> 00:16:37,600

patrons and supporters.

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00:16:37,600 --> 00:16:42,920

I've always felt that this kind of relationship between sponsor and researcher inevitably

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00:16:42,920 --> 00:16:46,520

leads to major conflicts of interest.

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00:16:46,520 --> 00:16:55,040

Scientists, those honorable, distinguished people who diligently focus on solving the

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00:16:55,040 --> 00:17:00,120

most complicated of problems, selflessly throwing themselves at the inequities of a

213

00:17:00,120 --> 00:17:02,360

savage work.

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00:17:02,360 --> 00:17:06,840

Now we see that at least those in the private sector, those working for corporations, for

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00:17:06,840 --> 00:17:13,320

instance, are subject to the same ethical dilemmas we are all forced to face.

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00:17:13,320 --> 00:17:18,280

But how about those unimpeachable professors, the men and women covered by the security

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00:17:18,280 --> 00:17:21,080

blanket of university life?

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00:17:21,080 --> 00:17:23,840

How do they fare in all of this?

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00:17:23,840 --> 00:17:33,240

The individual who is able to attract grant funding, and particularly grant funding, repetitively,

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00:17:33,240 --> 00:17:40,640

is viewed as being someone who is desirable to retain on one's faculty and certainly

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00:17:40,640 --> 00:17:42,120

to promote.

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00:17:42,120 --> 00:17:46,200

Just one of the many examples I can think of is that of a research at the University

223

00:17:46,200 --> 00:17:51,600

of Paris who came up with absolutely outrageous claims of a homeopathic medicine that was

224

00:17:51,600 --> 00:17:56,920

discovered to be bogus by my colleague at the National Institutes of Health.

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00:17:56,920 --> 00:18:01,460

It was little surprised to find out that this researcher was funded by a homeopathic medicine

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00:18:01,460 --> 00:18:02,960

manufacturing company.

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00:18:02,960 --> 00:18:09,520

These university scientists are very independent and very rigorous in their approach to science

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00:18:09,520 --> 00:18:19,280

and quite frankly are not as profit driven and therefore basically will analyze data

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00:18:19,280 --> 00:18:25,920

in an appropriate manner and they will not be biased just because they have a certain

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00:18:25,920 --> 00:18:29,040

amount of grant support from a pharmaceutical firm.

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00:18:29,040 --> 00:18:34,480

The industry being involved in university research is a double-edged sword.

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00:18:34,480 --> 00:18:43,880

There is the fear that there will be some interjection of their agenda into the research.

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00:18:43,880 --> 00:18:49,080

Are they somewhat restricted and they can't say they're going to do research on ABC and

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00:18:49,080 --> 00:18:54,080

then decide to do research on XYZ without the involvement and the approval of the person

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00:18:54,080 --> 00:18:55,080

funding it?

236

00:18:55,080 --> 00:18:58,280

Sure, they shouldn't be allowed to do that.

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00:18:58,280 --> 00:19:03,040

Given this environment, does the potential for objective scientific research really

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00:19:03,040 --> 00:19:04,720

exist?

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00:19:04,720 --> 00:19:09,440

What incentive is there for a scientist to research a lackluster group of findings if

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00:19:09,440 --> 00:19:14,200

these will only result in his being passed over the next time deep pocketed corporations

241

00:19:14,200 --> 00:19:17,480

come courting?

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00:19:17,480 --> 00:19:22,400

It should come as no surprise then that many scientific researchers are becoming less concerned

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00:19:22,400 --> 00:19:28,360

about whether data is contaminated considering instead what can be done with contaminated

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00:19:28,360 --> 00:19:29,360

data.

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00:19:29,360 --> 00:19:36,080

Because if there's anywhere that science could be more corrupt, it would be within the company

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00:19:36,080 --> 00:19:41,080

itself because there those scientists are really profit motivated.

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00:19:41,080 --> 00:19:46,680

Despite these consequences, the lure of short term gain through fudged research is undeniable

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00:19:46,960 --> 00:19:51,120

and once indulged becomes science fraud.

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00:19:51,120 --> 00:19:56,800

Although incidents of science fraud have increased in recent years, this is not a new problem.

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00:19:56,800 --> 00:20:01,520

Some of the biggest names in history have pulled off some of the biggest scams.

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00:20:01,520 --> 00:20:07,240

It is widely known, for example, that Isaac Newton, father of modern physics, intentionally

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00:20:07,240 --> 00:20:12,040

skewed data to make the work of a rival appear less important.

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00:20:12,040 --> 00:20:17,440

Since his competitors philosophy clashed with his own theory of universal gravitation, Newton

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00:20:17,440 --> 00:20:23,200

improved some of his calculations on the velocity of sound and precision of the equinoxes to

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00:20:23,200 --> 00:20:26,680

overshadow and malign the work of his challenger.

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00:20:26,680 --> 00:20:32,400

The 19th century monk Abbey Gregor Mendel founded modern gene theory through the breeding

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00:20:32,400 --> 00:20:35,040

and cross breeding of pea plants.

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00:20:35,040 --> 00:20:40,320

His results were so suspiciously perfect, however, that they prompted a later investigation

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00:20:40,440 --> 00:20:46,680

which revealed that Mendel had tailored his data to help justify his theories.

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00:20:46,680 --> 00:20:51,680

In a modern day example of scientific discovery going wrong, the results of the cold fusion

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00:20:51,680 --> 00:20:58,680

experiments of Stanley Ponds and Martin Fleischman were rushed into the public arena.

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00:20:58,840 --> 00:21:04,280

Fusion reactions occur when two hydrogen atoms become so hot that they fuse together, releasing

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00:21:04,280 --> 00:21:06,600

a tremendous amount of energy.

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00:21:06,600 --> 00:21:12,320

The current technology demands that more energy has to be put into a reaction than comes out.

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00:21:12,320 --> 00:21:14,880

It hasn't been economically viable.

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00:21:14,880 --> 00:21:20,120

However, Stanley Ponds of the University of Utah and Martin Fleischman of the University

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00:21:20,120 --> 00:21:26,240

of Southampton claimed that they could create a fusion reaction at room temperature and

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00:21:26,240 --> 00:21:33,240

make fusion energy a reality with the potential of making uncounted billions of energy dollars.

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00:21:33,800 --> 00:21:38,360

When a colleague working at a nearby university threatens to undermine Ponds and Fleischman's

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00:21:38,360 --> 00:21:43,880

claim to their cold fusion discovery by going public with proprietary information, the two

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00:21:43,880 --> 00:21:50,160

respected chemists are compelled by peers and legal advisors to bypass scientific convention

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00:21:50,160 --> 00:21:53,120

and the accepted practices of the peer review system.

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00:21:53,120 --> 00:21:56,200

There's a hypothesis, an idea.

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00:21:56,200 --> 00:22:00,080

The idea is tested in the laboratory.

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00:22:00,080 --> 00:22:02,520

It's written up in a journal.

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00:22:02,520 --> 00:22:07,440

It undergoes peer review, which means people, experts in the field, look at that information.

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00:22:07,440 --> 00:22:08,880

They test its validity.

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00:22:08,880 --> 00:22:11,000

They ask questions about its validity.

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00:22:11,000 --> 00:22:12,960

Then it's published in the journal.

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00:22:12,960 --> 00:22:16,480

Then of course the scientific community reads it.

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00:22:16,480 --> 00:22:21,400

Then the scientific community tries to test, can they repeat this experiment?

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00:22:21,400 --> 00:22:27,240

And then after that kind of scrutiny, it goes out into the public domain.

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00:22:27,240 --> 00:22:31,120

Researchers in the field are eager to reproduce the work of Ponds and Fleischman.

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00:22:31,120 --> 00:22:36,120

The public benefits of such a discovery would be economically and environmentally revolutionary.

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00:22:36,120 --> 00:22:43,520

Well, a cold fusion is a perfect example of how science works and judges its own kind.

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00:22:43,520 --> 00:22:49,520

Numerous attempts to duplicate the alleged results by several independent laboratories

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00:22:49,520 --> 00:22:51,120

failed miserably.

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00:22:51,120 --> 00:22:56,600

There weren't any marginal results that could even give hope to any cold fusion that worked.

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00:22:56,600 --> 00:23:02,080

In the way that Ponds and Fleischman claim, as a result, cold fusion was denounced

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00:23:02,080 --> 00:23:05,440

and all funding for cold fusion was cut off.

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00:23:05,440 --> 00:23:10,960

In conclusion, we have no evidence in our laboratory with any of our samples for fusion.

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00:23:10,960 --> 00:23:16,120

I'm very sorry that Professor Lewis has no information on the teritium levels.

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00:23:16,120 --> 00:23:22,600

That is available and is available in the correction list to the paper.

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00:23:22,600 --> 00:23:23,600

We know the foreground.

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00:23:23,600 --> 00:23:24,600

We don't know the background.

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00:23:24,600 --> 00:23:29,600

I beg your pardon, the background is available in the corrections to the paper.

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00:23:29,600 --> 00:23:30,600

That might be.

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00:23:30,600 --> 00:23:32,600

I would like to specifically hear what an atelium...

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00:23:32,600 --> 00:23:33,600

Could we go on?

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00:23:33,600 --> 00:23:37,680

Could we go on to the question, please?

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00:23:37,680 --> 00:23:41,080

This was the official story surrounding the cold fusion debacle.

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00:23:41,080 --> 00:23:45,800

However, in subsequent years, independent scientists working to duplicate the work of

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00:23:45,800 --> 00:23:50,600

Ponds and Fleischman were indeed able to produce similar results.

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00:23:51,600 --> 00:23:55,920

But I do know that a great discovery has been made and I do know that it's completely

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00:23:55,920 --> 00:24:00,600

true and I do know that nuclear reactions can take place in the cold.

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00:24:00,600 --> 00:24:16,600

And I think that's one of the greater things to be discovered in this century.

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00:24:16,600 --> 00:24:21,280

And once Ponds and Fleischman made the choice to take their claim public prior to publication

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00:24:21,280 --> 00:24:26,480

in an accepted scientific journal, they were sitting ducks for the scientific establishment

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00:24:26,480 --> 00:24:30,360

and the guardians of the peer review system.

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00:24:30,360 --> 00:24:31,600

It was just a very unfortunate...

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00:24:31,600 --> 00:24:39,160

Apparently it was a very unfortunate time to make such an announcement for various political

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00:24:39,160 --> 00:24:40,660

reasons really.

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00:24:40,660 --> 00:24:46,880

The situation in the United States, the situation with regard to the program in cold fusion,

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00:24:46,880 --> 00:24:48,940

that was against it.

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00:24:48,940 --> 00:24:55,260

But also of course was the fact that we were not ready to make such an announcement.

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00:24:55,260 --> 00:25:00,220

Journal publication is considered a necessary first step in establishing scientific merit

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00:25:00,220 --> 00:25:02,740

and legitimacy.

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00:25:02,740 --> 00:25:09,220

Data should be published in the most reputable of scientific journals.

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00:25:09,220 --> 00:25:14,540

It should not be published first in the newspapers or other media.

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00:25:14,540 --> 00:25:22,240

It should not be quite frankly disseminated through the popular media until in fact the

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00:25:22,240 --> 00:25:24,460

information can be replicated.

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00:25:24,460 --> 00:25:33,780

Science moves forward by having people research certain claims on one side or the other and

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00:25:33,780 --> 00:25:40,060

that in fact they are able to resolve it by doing more experimentation or more tests

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00:25:40,060 --> 00:25:46,340

so that they can figure out what it is that is actually going on.

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00:25:46,340 --> 00:25:50,540

The cold fusion experiments of Ponds and Fleischman have been widely replicated over

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00:25:50,540 --> 00:25:52,860

the past ten years.

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00:25:52,860 --> 00:26:00,100

It was absolutely clear in 1991 that there was a staggering excess heat source in water

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00:26:00,100 --> 00:26:06,860

that would lead to ultimately technologies that would change the world forever.

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00:26:06,860 --> 00:26:11,660

Today, we can no longer say that the evidence is overwhelmingly compelling.

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00:26:11,660 --> 00:26:15,820

It is now 100 percent certain.

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00:26:15,820 --> 00:26:20,140

The scientific establishment in continuing to uphold the claim that the two respected

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00:26:20,140 --> 00:26:25,620

chemists handed the world a gold brick has now itself come under scrutiny.

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00:26:25,620 --> 00:26:29,980

Believed by many to be conspiring to suppress the confirmed results of the monumental break

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00:26:30,020 --> 00:26:33,020

through that is cold fusion.

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00:26:33,020 --> 00:26:38,580

If this is so, then the scientific establishment is perpetrating a fraud of its own.

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00:26:38,580 --> 00:26:40,060

But why?

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00:26:40,060 --> 00:26:47,540

Why relegate a discovery that could result in pollution-free unlimited energy to oblivion?

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00:26:47,540 --> 00:26:53,020

The work of both Ponds and Fleischman were considered bogus and thus no further funding

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00:26:53,020 --> 00:26:55,020

and their careers destroyed.

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00:26:55,020 --> 00:27:00,340

They left their respective universities and shamed by the scientific community.

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00:27:00,340 --> 00:27:05,820

With Ponds and Fleischman and cold fusion rubbed out, hot fusion or nuclear energy research

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00:27:05,820 --> 00:27:10,460

could continue as the grant funding conduit of choice.

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00:27:10,460 --> 00:27:15,580

With money as the primary motivating factor, it is clear that the knife of science fraud

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00:27:15,580 --> 00:27:19,140

can and does cut both ways.

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00:27:19,140 --> 00:27:25,460

The rigidity of the peer review, or as some would call it, the sneer review system, boldly

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00:27:25,460 --> 00:27:30,900

dismissed the work of two highly respected and accomplished professionals, doing so despite

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00:27:30,900 --> 00:27:35,260

mounting favorable data supporting their claims.

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00:27:35,260 --> 00:27:43,820

When the Wright brothers first flew in 1903, no papers covered as tall because everybody

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00:27:43,820 --> 00:27:48,740

was convinced, certainly the American press, that heavy-than-air flight was totally impossible.

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00:27:48,740 --> 00:27:51,060

All the top scientists said this is nonsense.

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00:27:51,060 --> 00:27:57,980

It wasn't for about five years that eventually they realized, my goodness, this is real.

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00:27:57,980 --> 00:27:59,740

Heavy-than-air flight is possible.

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00:27:59,740 --> 00:28:05,900

And I think a similar thing is going to happen with so-called cold fusion, although it's

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00:28:05,900 --> 00:28:09,900

seldom cold and often isn't fusion at all.

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00:28:09,900 --> 00:28:15,060

The rush to announce results, to publish work and establish ownership comes as a result

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00:28:15,060 --> 00:28:17,540

of massive competition.

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00:28:17,540 --> 00:28:23,100

In the case of cold fusion, the fraud perpetrated against ponds and Fleischmann by the scientific

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00:28:23,100 --> 00:28:28,980

community has cost the people of the world fifteen years in the development of a technology

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00:28:28,980 --> 00:28:38,340

that would mean a virtually unlimited source of clean, free energy.

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00:28:38,340 --> 00:28:41,380

Without grants, scientists can't research.

361

00:28:41,380 --> 00:28:44,100

Without research, scientists can't publish papers.

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00:28:44,100 --> 00:28:46,980

Without papers, they can't achieve recognition.

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00:28:46,980 --> 00:28:50,740

They can't bring future dollars to their institutions or secure their position on the

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00:28:50,740 --> 00:28:52,340

faculty.

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00:28:52,340 --> 00:28:56,260

In our research, we met with some of the most important representatives from each of several

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00:28:56,260 --> 00:28:58,140

scientific fields.

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00:28:58,140 --> 00:29:01,380

Fearing professional reprisal, they refused to appear on camera.

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00:29:01,380 --> 00:29:05,500

However, each scientist made the same troubling allegation.

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00:29:05,500 --> 00:29:12,220

The rush to publish, legitimately or otherwise, comes as a direct result of grant competition.

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00:29:12,220 --> 00:29:16,140

It's commonly accepted that the more you publish, the greater your chances of success in the

371

00:29:16,140 --> 00:29:18,140

grant contest.

372

00:29:18,140 --> 00:29:21,740

The bottom line, publish or perish.

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00:29:21,740 --> 00:29:26,540

Well, pretty soon we see the professor and then the dough is in the oven.

374

00:29:26,540 --> 00:29:28,820

Sure pretzel dough.

375

00:29:28,820 --> 00:29:33,420

The girls seem to learn quicker in the boys, but then the gals are always handy around

376

00:29:33,420 --> 00:29:34,420

the kitchen.

377

00:29:34,420 --> 00:29:37,860

Some are good and some are not.

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00:29:37,860 --> 00:29:43,860

Modern science has unfortunately evolved into a huge feedback loop.

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00:29:43,860 --> 00:29:47,540

Without grants, scientists can't conduct research.

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00:29:47,540 --> 00:29:50,660

Without research, scientists can't publish papers.

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00:29:50,660 --> 00:29:56,140

Without published papers, scientists can't achieve recognition or bring future dollars

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00:29:56,140 --> 00:29:58,180

to secure their future.

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00:29:58,180 --> 00:30:05,620

So the cliche, publish or perish, has a great deal of meaning both, literally and figuratively.

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00:30:05,620 --> 00:30:09,540

Accomplishment is generally evaluated on multiple levels.

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00:30:09,540 --> 00:30:18,100

One is the number of publications, but more importantly to that, the quality of publications.

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00:30:18,100 --> 00:30:22,980

Publication is important for scientists and researchers for a number of reasons.

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00:30:22,980 --> 00:30:29,300

One is because it does get the claims before their own community.

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00:30:29,300 --> 00:30:32,860

It ensures review.

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00:30:32,860 --> 00:30:40,980

It ensures that it has gone through some process within the community that assesses the credibility

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00:30:40,980 --> 00:30:43,300

of what is being said.

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00:30:43,300 --> 00:30:48,340

Some of the government agencies, for example, the National Institutes of Health, weigh their

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00:30:48,340 --> 00:30:52,540

evaluation criteria very heavily on whether or not you've published and whether or not

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00:30:52,540 --> 00:30:56,100

the journals that you've published in are peer-reviewed journals.

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00:30:56,100 --> 00:31:03,780

One goes from assistant professorship to associate professorship and depending the rate of that

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00:31:03,780 --> 00:31:08,980

promotion is generally dependent on the person's rate of accomplishments.

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00:31:08,980 --> 00:31:14,300

So the more you accomplish, the more grants you generate, the more articles you publish,

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00:31:14,300 --> 00:31:17,340

the faster your rate of ascent.

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00:31:17,340 --> 00:31:22,060

While almost every university administrator would say on camera that there is no publisher

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00:31:22,060 --> 00:31:27,100

parish quota system and in effect to judge the status of a given professor, there would

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00:31:27,100 --> 00:31:32,420

all be at a complete loss to give the name of any high-ranking professor who did not

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00:31:32,420 --> 00:31:35,700

publish at least three or four papers a year.

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00:31:35,700 --> 00:31:42,780

This apparent life or death need to publish is especially significant for university professors.

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00:31:42,780 --> 00:31:47,540

On top of their constant struggle to procure grant money, publishing is requisite to their

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00:31:47,540 --> 00:31:51,260

attaining that elusive pot of gold at the end of the rainbow.

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00:31:51,260 --> 00:31:56,620

That ultimate ride on the university gravy train, the guarantee of lifetime employment

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00:31:56,620 --> 00:31:59,020

known as tenure.

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00:31:59,020 --> 00:32:04,740

The philosophical reason for tenure is that it gives people freedom of speech.

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00:32:04,740 --> 00:32:10,140

So that you can say something that someone else doesn't like, a different, not personal,

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00:32:10,140 --> 00:32:12,980

but a different theory, and you're protected.

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00:32:12,980 --> 00:32:16,740

And you need that in an academic environment otherwise there's no controversy.

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00:32:16,740 --> 00:32:21,300

You're free to speak out because you're going to be fired, then people would not have the

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00:32:21,300 --> 00:32:22,980

same freedom of thought.

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00:32:22,980 --> 00:32:31,580

As it has evolved in the latter part of the 20th century, it is a reward system for truly

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00:32:31,580 --> 00:32:40,220

outstanding accomplishment in science and depending on the university, also interwoven

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00:32:40,220 --> 00:32:44,900

with accomplishments as a teacher and as a clinician.

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00:32:44,900 --> 00:32:56,260

And it is, again, depending on the university, given to no more than 10% to 25% of individuals

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00:32:56,260 --> 00:32:58,180

on a faculty.

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00:32:58,180 --> 00:33:02,460

If scientists fail to maintain the highest levels of publishing, they risk both their

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00:33:02,460 --> 00:33:05,740

funding and their status at the university.

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00:33:05,740 --> 00:33:10,700

Loss of grant money directly threatens earnings since more and more often professors receive

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00:33:10,700 --> 00:33:14,300

the bulk of their salary from research grants.

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00:33:14,300 --> 00:33:19,220

What most people don't understand is that only a very small fraction of the researchers

423

00:33:19,220 --> 00:33:24,940

and professors at a given research university are funded by the university directly.

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00:33:24,940 --> 00:33:27,220

That's called hard money.

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00:33:27,220 --> 00:33:32,180

In a vast majority of other cases, the university would set the salary range but not pay the

426

00:33:32,180 --> 00:33:34,140

salary.

427

00:33:34,140 --> 00:33:38,860

The researcher would be responsible for getting a source like the National Science Foundation

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00:33:39,180 --> 00:33:44,180

or the National Institutes of Health or a company to pay the university that then pays

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00:33:44,180 --> 00:33:45,940

the researcher.

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00:33:45,940 --> 00:33:51,500

That is what's called soft money and in these situations, scientists must perform the unenviable

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00:33:51,500 --> 00:33:54,780

dual role of marketer and researcher.

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00:33:54,780 --> 00:33:57,660

Are reports of science fraud overstated?

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00:33:57,660 --> 00:34:01,820

Are the men and women we depend on to provide the medical products for ourselves and our

434

00:34:01,820 --> 00:34:05,420

children operating solely out of greed?

435

00:34:05,500 --> 00:34:09,940

Or are these just the self-indulgent allegations of an overzealous media?

436

00:34:09,940 --> 00:34:13,140

It's kind of like your income tax.

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00:34:13,140 --> 00:34:17,540

There's probably about 5% of people that are crooks that don't even file their income

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00:34:17,540 --> 00:34:18,900

tax.

439

00:34:18,900 --> 00:34:21,420

And then there's the rest of us, 90% of people.

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00:34:21,420 --> 00:34:26,220

We do a good job because we know, you know, you do an honest job because you know that

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00:34:26,220 --> 00:34:32,820

the possibility is that you could be audited and that there are people are watching you.

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00:34:32,820 --> 00:34:37,260

People pick on that 5% because they like to read about it.

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00:34:37,260 --> 00:34:38,460

Who is the press going to write about it?

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00:34:38,460 --> 00:34:39,460

Mr. Jones?

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00:34:39,460 --> 00:34:43,460

Oh, we interviewed Mr. Jones today and he had a perfect tax report.

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00:34:43,460 --> 00:34:44,460

How nice.

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00:34:44,460 --> 00:34:49,620

Or the guy, this bum hasn't filed in five years and we have bad schools because he's

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00:34:49,620 --> 00:34:50,820

not paying his taxes.

449

00:34:50,820 --> 00:34:52,620

I mean, it's the same thing.

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00:34:52,620 --> 00:34:57,100

Of course, I like bad news myself to read about it.

451

00:34:57,100 --> 00:35:01,060

Is this type of sensational reporting eroding public support?

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00:35:01,060 --> 00:35:06,300

If so, how does the negative publicity and allegations of misconduct impact the practice

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00:35:06,300 --> 00:35:08,100

of science?

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00:35:08,100 --> 00:35:14,500

The example of discovering the problems that emerge with fen fen.

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00:35:14,500 --> 00:35:28,620

A typical of what happens once it goes into a broader population.

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00:35:28,620 --> 00:35:38,620

Public confidence is eroded by these odd cases.

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00:35:38,620 --> 00:35:43,140

But on the other hand, what happens the next day when someone comes out with an antibody

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00:35:43,140 --> 00:35:45,060

that attacks breast cancer?

459

00:35:45,060 --> 00:35:46,060

We do experiments.

460

00:35:46,060 --> 00:35:47,980

We think we understand what's going on.

461

00:35:47,980 --> 00:35:48,980

We publish it.

462

00:35:48,980 --> 00:35:51,700

We think we know one answer at least.

463

00:35:51,700 --> 00:35:56,180

And three years, four years down the road, the methods change, the technology has advanced

464

00:35:56,180 --> 00:35:59,260

and the results don't change.

465

00:35:59,260 --> 00:36:05,140

But how we interpret them may change as time progresses.

466

00:36:05,140 --> 00:36:11,620

So a product comes to the market generally after being tested in anywhere from several

467

00:36:11,620 --> 00:36:16,300

thousand to perhaps ten thousand individuals.

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00:36:16,300 --> 00:36:23,220

When the product comes on the market, be it fen fen or any other pharmaceutical, we then

469

00:36:23,340 --> 00:36:30,100

have a population base of a hundred thousand or five hundred thousand or millions of people.

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00:36:30,100 --> 00:36:35,460

Then one begins to see side effects that one did not anticipate.

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00:36:35,460 --> 00:36:40,300

Or the drug may even behave better than one anticipated.

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00:36:40,300 --> 00:36:44,660

The vagra I think would be a good example of where originally the project wasn't aimed

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00:36:44,660 --> 00:36:47,140

at the treatment for erectile dysfunction.

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00:36:47,140 --> 00:36:49,060

It was aimed at some other kind of treatment.

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00:36:49,060 --> 00:36:52,780

And as we went through the discovery and the development process, we discovered that that

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00:36:52,820 --> 00:36:54,740

was not going to be an avenue that made sense.

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00:36:54,740 --> 00:36:58,340

There might have been four or five applications considered, but in the end, the one that looked

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00:36:58,340 --> 00:37:03,420

like the most viable from a scientific, probably from a financial side, from an acceptance

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00:37:03,420 --> 00:37:07,700

by society would have been to aim the treatments toward erectile dysfunction.

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00:37:07,700 --> 00:37:12,300

They're not safe and they can't be made safe.

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00:37:12,300 --> 00:37:13,300

Use a rubber.

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00:37:13,300 --> 00:37:16,500

Well, I think the American public is pretty intelligent.

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00:37:16,540 --> 00:37:25,540

I think they recognize that wide use of medications frequently is associated with unexpected complications.

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00:37:25,540 --> 00:37:34,900

I think that consciously or subconsciously, when they hear about drugs that cause certain

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00:37:34,900 --> 00:37:42,660

side effects and certain medical problems, they recognize that something unfortunate

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00:37:42,660 --> 00:37:45,820

has occurred and they're concerned about it.

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00:37:45,820 --> 00:37:51,940

But at the same time, I think they recognize that the system is working for the betterment

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00:37:51,940 --> 00:37:57,700

of themselves and that the primary goal of our system is to do no harm.

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00:38:03,940 --> 00:38:08,460

With multi-billion-dollar interests hanging in the balance, the rush to get profitable

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00:38:08,460 --> 00:38:13,860

products to market is the single most motivating force on the corporate agenda.

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00:38:13,860 --> 00:38:18,060

Even the smallest amount of data fudging or most insignificant leap of faith can lead

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00:38:18,060 --> 00:38:20,700

tragically to consumer deaths.

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00:38:20,700 --> 00:38:25,620

However, in our attempts to look deeper into the media hype surrounding science fraud,

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00:38:25,620 --> 00:38:27,980

we've found few smoking guns.

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00:38:27,980 --> 00:38:32,900

Unlike other aspects of our society, the scientific community has developed effective checks and

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00:38:32,900 --> 00:38:38,860

balances that have helped preserve the integrity of the scientific method.

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00:38:38,860 --> 00:38:43,940

Most concerned about fast-track practices foretell dangers wherein even the tiniest

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00:38:43,940 --> 00:38:47,180

fudge can result in human tragedy.

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00:38:47,180 --> 00:38:51,620

Spokesmen for the scientific establishment would uphold that safeguards are continually

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00:38:51,620 --> 00:38:58,460

renewed through the effective checks and balances that make up the very conservative peer review system.

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00:38:58,460 --> 00:39:04,140

The larger question may be, is the peer review system so overbearing that it is obstructing

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00:39:04,140 --> 00:39:06,780

the very pathway to discovery?

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00:39:06,780 --> 00:39:11,220

No one is making that much of an advance.

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00:39:11,220 --> 00:39:17,260

So the advances are small and most of them are not terribly detrimental.

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00:39:17,260 --> 00:39:18,780

They're helpful to society.

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00:39:18,780 --> 00:39:22,340

Nobody is working on making Frankenstein.

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00:39:22,340 --> 00:39:30,780

Nobody is Dr. Frankenstein working on making a monster.

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00:39:30,780 --> 00:39:39,100

There are occasional bad apples, but virtually all the scientists are really trying their

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00:39:39,100 --> 00:39:46,220

best, are honest, and are pursuing what they believe are exciting venues of research.

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00:39:46,220 --> 00:39:50,460

There's pressure on them, but I think the most of them realize that fudging data is

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00:39:50,460 --> 00:39:52,100

not the way to do it.

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00:39:52,100 --> 00:39:58,140

And even if they do it, those that do it do it in such a small way as to be insignificant

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00:39:58,140 --> 00:40:00,060

for society in general.

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00:40:00,060 --> 00:40:03,860

But there is that fear, in fact, that probably might even be a little bit exaggerated, that

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00:40:03,860 --> 00:40:04,860

fear.

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00:40:04,860 --> 00:40:09,220

If you go and publish a paper and you do it for a company, in that paper it has to say

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00:40:09,220 --> 00:40:14,060

that this research was funded by that company.

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00:40:14,060 --> 00:40:18,060

If you give a talk about something, you have to say that some of the facts that I'm going

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00:40:18,060 --> 00:40:24,300

to present here were part of a study that was supported by X company.

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00:40:24,300 --> 00:40:28,180

So there is that area of conflict of interest.

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00:40:28,180 --> 00:40:35,300

The major interaction between the pharmaceutical industry and academia is through various clinical

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00:40:35,300 --> 00:40:37,060

trials.

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00:40:37,060 --> 00:40:42,900

That is where the pharmaceutical firms finally recognize whether they have a good product

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00:40:42,900 --> 00:40:43,900

or not.

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00:40:43,900 --> 00:40:48,740

They have enough preliminary data, but they need to have it corroborated in a clinical

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00:40:48,740 --> 00:40:50,260

setting.

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00:40:50,260 --> 00:40:52,660

And quite frankly, it's not biased.

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00:40:52,660 --> 00:40:53,660

It's not a good idea to have it.

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00:40:53,660 --> 00:40:59,660

And drugs will either then drop out of the clinical marketplace or if they're good drugs,

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00:40:59,660 --> 00:41:02,940

their development will then go on to the FDA.

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00:41:02,940 --> 00:41:08,820

But at every step of the way, the product is evaluated.

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00:41:08,820 --> 00:41:10,500

Actually the commercial community is interested.

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00:41:10,500 --> 00:41:14,940

They're not interested in having somebody be corrupt and ruin the name of their product

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00:41:14,940 --> 00:41:20,780

because they tried to please them and did something that was out of the ordinary.

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00:41:20,780 --> 00:41:24,500

So this science undergoes more scrutiny than anything else.

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00:41:24,500 --> 00:41:29,620

There are all these steps that ensure that the products that come to market should be

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00:41:29,620 --> 00:41:32,020

safe and helpful.

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00:41:32,020 --> 00:41:38,460

And I think it's up to each scientist that they maintain integrity, that they do the

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00:41:38,460 --> 00:41:44,020

best science they can, and that they present the results as what they actually are.

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00:41:44,020 --> 00:41:53,700

And the FDA is not known as being an easy mark for the pharmaceutical industry.

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00:41:53,700 --> 00:42:01,260

They want hard data and they analyze that data with consultants and they will not approve

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00:42:01,260 --> 00:42:06,140

a product unless they are certain of its efficacy and of its safety.

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00:42:06,140 --> 00:42:12,540

Science progresses with sound, reliable results, only to the degree that scientists are honest.

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00:42:12,540 --> 00:42:17,180

The existing system of checks and balances works to protect us from the few who do decide

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00:42:17,180 --> 00:42:19,260

to defy the system.

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00:42:19,260 --> 00:42:25,620

But when a system becomes too rigid, money-motivated and political, there is another danger.

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00:42:25,620 --> 00:42:29,980

That the truly important scientific work, like the work being done today in the area

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00:42:29,980 --> 00:42:36,380

of cold fusion, either never gets recognized or is intentionally discarded by a system

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00:42:36,380 --> 00:42:38,580

resistant to change.

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00:42:38,580 --> 00:42:46,940

The peer-reviewed system in this country, both for the funding of grants and for the

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00:42:46,940 --> 00:42:56,620

publication of manuscripts, is so rigorous and conducted at such a high level, meaning

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00:42:56,620 --> 00:43:01,940

referees who review the articles, editorial review of the journals.

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00:43:01,940 --> 00:43:06,740

These are people that are highly educated, highly intelligent, have a great spirit and

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00:43:06,740 --> 00:43:10,060

love for life for their own and for other people.

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00:43:10,060 --> 00:43:16,020

And even though we are doing experimentation, there are tremendous safeguards built in, again,

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00:43:16,020 --> 00:43:20,460

both internally and externally, to obviate the chance of there being problems.

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00:44:06,740 --> 00:44:18,100

In a world where corruption, greed and political maneuvering often win out over the virtues

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00:44:18,100 --> 00:44:22,500

of the human spirit, it's comforting to find a pursuit which is constructed a way to keep

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00:44:22,500 --> 00:44:24,740

its own health in order.

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00:44:24,740 --> 00:44:30,100

While the history of science is littered with incidents of fraud and flagrant misrepresentation,

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00:44:30,100 --> 00:44:35,580

we have found little to support a contemporary conspiratorial plot in the phenomenon archives.

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00:44:35,580 --> 00:44:38,620

I'm Dean Stockwell for Phenomenon.

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00:45:05,580 --> 00:45:09,620

Even in science, there's lies.