Telescopic Innovation

***e*Research Corporation** is pleased to provide an article, authored by Ivan Lo of Equedia, in which Mr. Lo reveals a world-changing discovery.

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Bob Weir, CFA, Director of Research

THE EQUEDIA LETTER
Independent, Revealing, & Sometimes Controversial Investment Newsletter

Telescopic Innovation

March 6, 2016

Dear Readers,

I am about to introduce you to a company that has made the technological discovery of a lifetime. Centuries of research from well-known scientists may need to be rewritten when this radical discovery is unveiled. Companies will likely be quaking in their boots once their leaders see what they could be competing with.

This Company has discovered a technology so radical that fundamental equations we have been using for over 400 years may need to be redefined. In fact, when the Company presented the features of this technology to a senior executive from a world leader in global aerospace, defense, and security, he sarcastically responded:

"Please tell us how you managed to break the laws of physics."

Now I assure you they did not break the laws of physics, but his response goes to show you just how radical this technology really is.

Now, what if I told you we could invest in this company before it unveils its technology? What if I told you that we could invest in a technology that could literally change the way we see the world? What if I told you that we could invest in a discovery so radical that even some of the brightest minds are left scratching their heads? That is, until they see it with their own eyes. Well, you can.

I will get back to this in just a bit.

A Massive Industry

Last week, I wrote a Letter explaining how big the photonics industry is.

According to a new analysis by SPIE, the value of annual sales in the global photonics market in 2013 alone was an incredible $182 billion.

Every year, hundreds of billions of dollars are generated as a result of light-based technologies. But that should come as no surprise since photonics are responsible for some of the world's biggest breakthroughs:

- Quantum computing capable of calculations 100 million times faster than single core processors;
- Photonic microchips more than 50 times faster than current electronic ones;
- Li-Fi that's 100 times faster than Wi-Fi;
- and even invisibility cloaks.

In the world of optics and imaging, we are also about to witness an incredible change.

From computational photography to the creation of Extremely Large Telescopes capable of seeing far beyond what we ever imagined, we are about to take part in incredible new discoveries, and one Company could be at the forefront of it all.

But, before I tell you their incredible story and radical technological discovery, it is important you understand why they could change the way we see the world. More importantly, it will give you an idea of just how big their breakthrough really is, and show you why the market opportunity is massive.

The Same for 400 Years

Hundreds of years ago, on the island of Milano, we learned how to make transparent glass. We then discovered that, by adding a curve to it, light is magnified, and images are distorted. This led to the creation of lenses and spectacles and became the basis of optics as we know today.

During the 14th century, convex (curved out) lenses were used to correct farsightedness. A hundred years later, concave (curved in) lenses were used to correct nearsightedness.

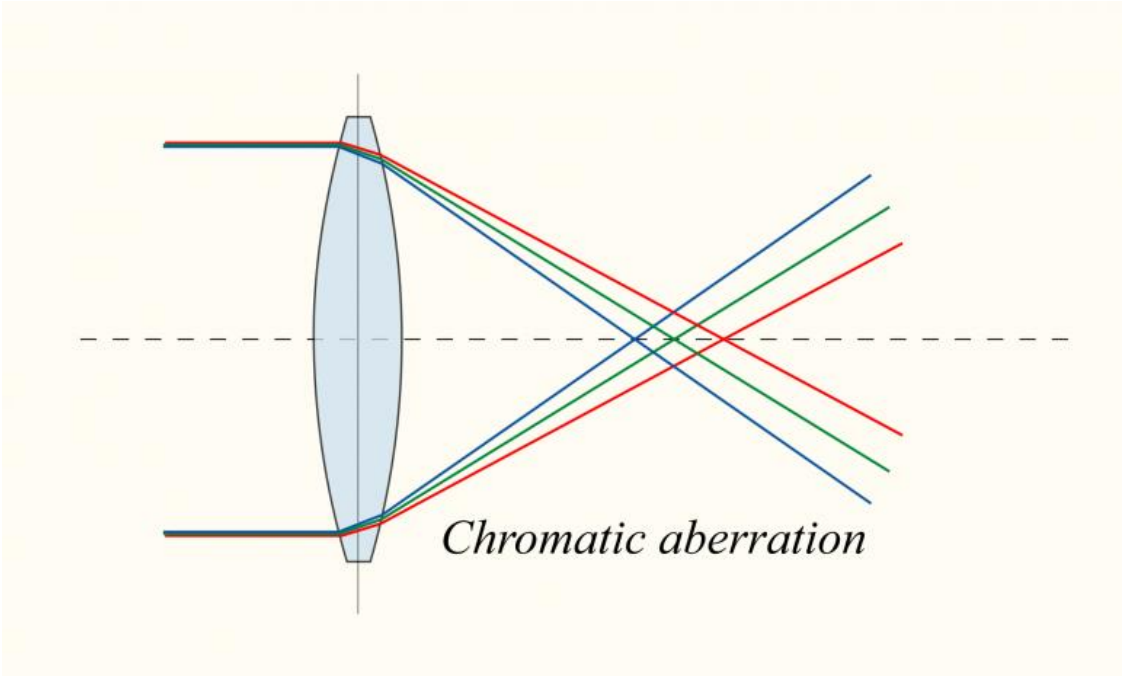
Soon after those discoveries, a spectacle maker by the name of Hans Lippershey decided to hold two lenses apart in a straight line. By doing so, he realized that the two lenses together could make distant objects appear much bigger. With this discovery, Lippershey had built the world's first refracting telescope. And it changed everything.

A New Understanding of the Universe

When Galileo heard about this telescope, he decided to build one of his own. But instead of pointing it at terrestrial life, he pointed it up toward the heavens. From that point on, our place in the universe as we knew it completely changed. By simply taking a piece of technology and using it for something else, Galileo changed the history of the world. His findings using a telescope not only ushered in a new era of telescope creation, but also led to the revelation of galaxies beyond galaxies.

But Galileo's refracting telescope had limits.

First, when a strongly curved lens bends, or refracts, beams of light, the light does not all come to a single point. Since the different beams of light do not all line up, the images from these early telescopes were very fuzzy. Also, some of the light coming through the lens would have its colours split apart, and that distorts the image. We call this chromatic aberration. See the schematic on the next page.

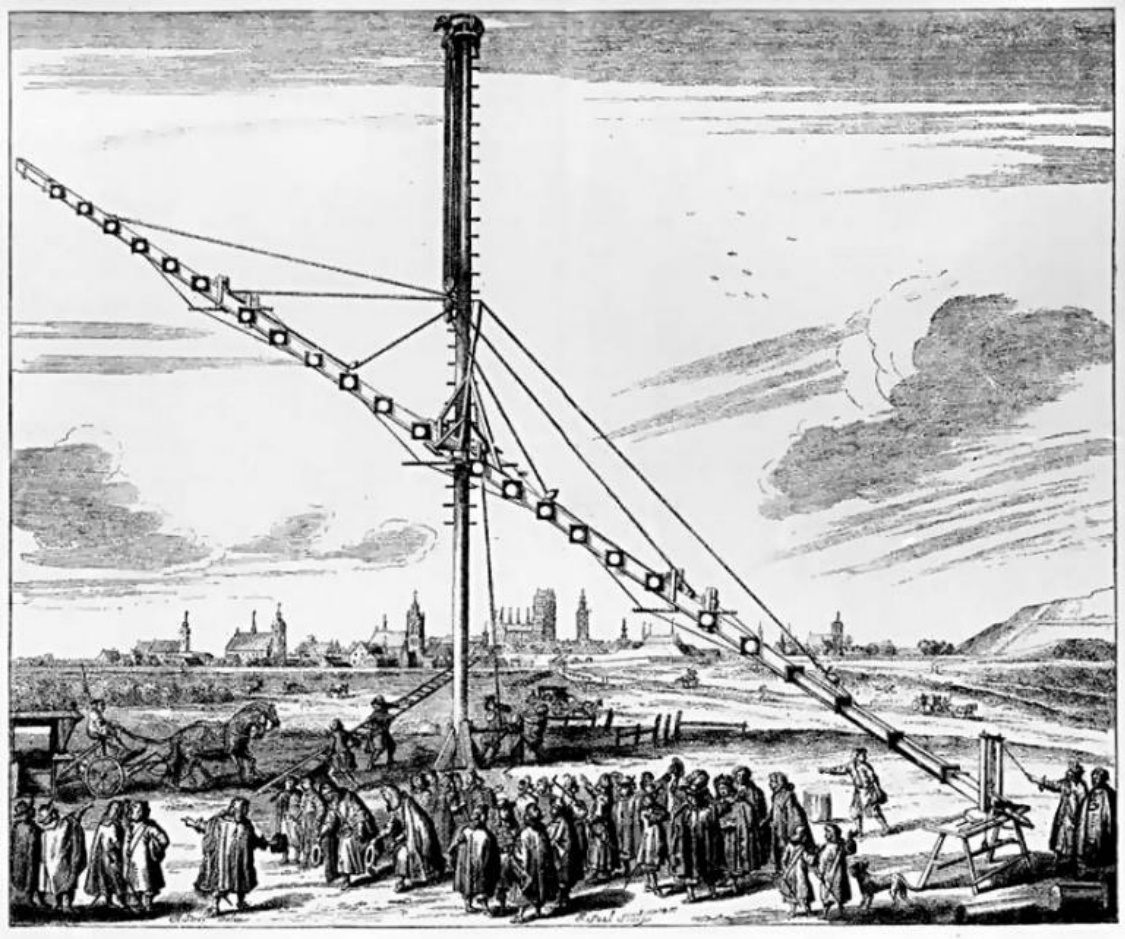


credit: DrBob at the English language Wikipedia

The only way to minimize the blurriness and rainbow colours is to use thinner lenses with a shallower curve.

Second, in order to see further away, the lenses have to be further apart. That is because light comes to a focus further from the lens, which is why refracting telescopes get greater magnification as it gets longer.

So 17th-century astronomers made thinner lenses, with shallower curves and spaced them further and further apart. On this quest to see ever further, telescopes reached absurd lengths of up to 150 feet. That is half the length of a football field!



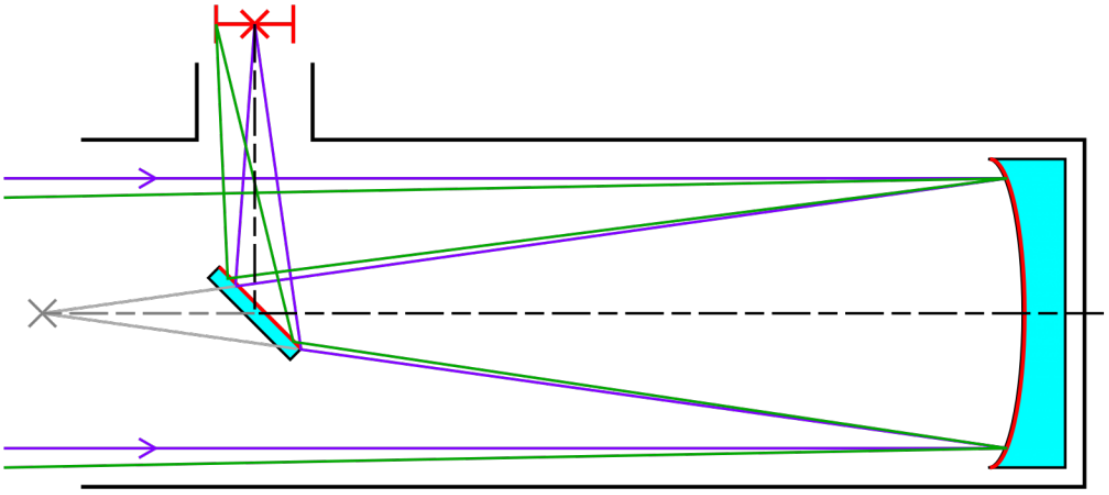
But while these telescopes got bigger and better, despite being ridiculously long, they still could not eliminate the rainbow colours altogether. Surely, there had to be a better way, and there was - it just needed to be discovered.

A Novel Breakthrough

A few decades later, one of science's greatest minds solved the problem. Isaac Newton found that, as white light passes through a glass prism, it refracts (bends) and breaks up into the colours of the rainbow. This was the root of the problem. He discovered that, when mirrors are curved, they too could bring light to a focus, just like a lens. The difference is that when we use a mirror instead of a lens, the light bounces off but does not pass through it, which avoids breaking up the image and prevents the rainbow halo.

With this knowledge, Newton made a curved mirror only 1.5 inches across and inserts it into the base of a 6-inch tube. Light from the heavens passes down the tube, reflects off the curved mirror, and then reflects off a second flat mirror, which is then focused by an eyepiece.

See the next schematic.



This discovery was revolutionary. Not only did his reflective telescope avoid the rainbow colours, but it was significantly smaller.

Newton's 6-inch reflective telescope was equivalent to the magnification of a 4-foot refracting telescope that uses lenses! This reflector telescope that Newton designed was an incredible breakthrough.

Today, telescopes, binoculars, and even camera lenses are still designed using the same principles discovered over centuries ago by Galileo and Newton. In fact, Newton's design still stands as the basis for today's most advanced telescopes including the Hubble Space Telescope, and all of the new class of Extremely Large Telescopes, such as the upcoming Giant Magellan Telescope (GMT), being built today.

There has not been a revolutionary design to the telescope for 400 years. Until now.

A New Revolution

Be prepared, because what I am about to tell you is incredible.

From DSLR to iPhone cameras, to the world's largest telescopes capable of zooming in on stars beyond our galaxy, all of these technologies revolve around a simple concept, that being: gathering, bending, and focusing light.

For nearly 400 years, we have understood that, in order to gather and focus light to retain an image, we had to use curved lenses, or curved mirrors. But what if there was another way? What if a curved lens or curved mirror are not the only way to gather and focus light to retain an image?

Today, I am going to introduce you to a Company whose founders have broken the basic fundamental of optics: that apertures need to be curved and circular.

The implications for this discovery are startling. It all begins with...

NexOptic Technology Corp.
TSX VENTURE: NXO

NexOptic Technology Corp. has an option to acquire 100% of Spectrum Optic, a Company developing technologies relating to imagery and light concentration applications. The full details of this deal can be found by CLICKING HERE.

Spectrum's core technology, the patent-pending Blade Optics™, ***contains flat lenses*** and aims to disrupt conventional lens and image capture-based systems. This includes everything from telescopes, to cameras, and mobile devices, by creating a lens system that reduces the depth (relative to aperture size) currently required in many traditional curved lens stacks.

Last week, NexOptic announced that, together with Spectrum Optic, they have successfully completed the "Trade Study" phase of their proof of concept (POC) prototype development program.

The completion of the Trade Study showed the following achievements:

- Lens stack depth to aperture ratio of near 1:1
- Use of flat lenses
- Square or rectangular aperture as opposed to circular
- Significant effective focal length in a compact form factor
- Scalable to various sizes

Via NexOptic:

> "Spectrum's POC prototype is being designed as a fixed magnification digital telescope with a narrow field of view and will be similar in function to many conventional telescopes sold today.
>
> However, as a result of the application of Blade Optics™, a unique distinction of Spectrum's lens design is its compressed lens stack depth to aperture ratio compared to traditional curved lens systems for fixed magnification imaging.
>
> This could set Spectrum's patent pending Blade Optics™ technology apart from existing lens technologies in the fixed magnification lens market, which includes products such as spotting scopes, telescopes, binoculars, certain camera lenses and other imaging products."

News releases are rarely exciting, but if you look hard enough, you will realize that what Spectrum and NexOptic have achieved is absolutely incredible! Soon, the headline will draw expert inquiries from around the world.

Just as Newton significantly reduced the length of telescopes through his revolutionary design, Spectrum, with its Blade Optics™ technology, is able to reduce Newton's length even further.

How much further?

The Breakthrough

Newton's first telescope had a 1.5" aperture and was 6" long.

Based on a near 1:1 depth-to-aperture ratio, a Blade Optics™ telescope with a 1.5" aperture would be, well, around 1.5".

Just to show you how dramatic that really is, below is what a 5" aperture traditional telescope looks like when compared to a 5" aperture Blade Optics™ telescope:

Traditional Telescope vs. Blade Optics - Artist Conceptual Rendering

Absolutely incredible. But just as incredible is that the actual aperture of Blade Optics™ may be even bigger than what it claims when compared to a traditional lens aperture.

More Light, Better Image

In optics, an aperture is a hole or an opening through which light travels. Generally, the bigger the aperture, the more light it captures.

Via How Stuff Works:

> "A telescope's ability to collect light is directly related to the diameter of the lens or mirror -- the aperture -- that is used to gather light. Generally, the larger the aperture, the more light the telescope collects and brings to focus, and the brighter the final image."

But Blade Optics™ does not have a diameter because it does not have a circular aperture.

That means many of the formulas and equations, including aperture, have to be redefined when using Blade Optics™ technology.

For example, to determine aperture area, we use the following, via Wikipedia:

"The amount of light captured by a lens is proportional to the area of the aperture, equal to:

$$\text{Area} = \pi \left(\frac{D}{2}\right)^2 = \pi \left(\frac{f}{2N}\right)^2$$

Where the two equivalent forms are related via the f-number N = f / D, with focal length f and aperture diameter D."

A diameter relates to a circle; Blade Optics™ uses a square aperture. So how does that equation apply? It doesn't.

And neither does the F-Stop* equation that many photographers use.
*(*In optics, the f-number (sometimes called focal ratio, f-ratio, f-stop, or relative aperture) of an optical system is the ratio of the lens's focal length to the diameter of the entrance pupil)*

F-Stop Mathematics

We can transpose the f-stop formula :

$$f\text{-stop} = \frac{\text{Lens Focal Length}}{\text{Aperture Circle Diameter}}$$

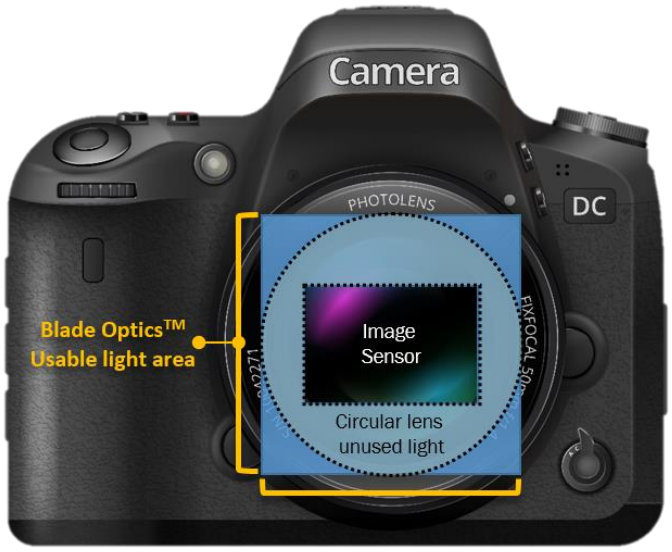
into a formula for Aperture Diameter:

$$\text{Diameter} = \frac{\text{Focal Length}}{f\text{-stop}}$$

We can then "do the math" for a 28mm lens versus a 55mm lens for the f1.4 to f16 values.

Why is this significant? Well, aside from eliciting the response of "breaking the laws of physics" by a senior executive from a global defense leader, it also allows more light to be gathered.

When you use a camera, the lens is circular. It gathers and focuses the image to a chip, which is square.



As you can see in the above picture, you lose a lot of light when using a camera lens because that circular lens projects the image onto a smaller, square microchip.

But since Blade Optics™ has a square aperture (*can we even call it an aperture?*), it naturally gathers more light. Not only can Blade Optics™ gather more light relative to aperture size, it significantly reduces depth size when compared to traditional telescopes.

Imagine what this could mean for entire industries.

ımagine the Possibilities

Size is crucial. Much of our current optics rely on reflective or refractive telescope fundamentals. That means in order to see further, we need bigger apertures and, thus, even longer devices to house the separation.

Size has been a limiting factor for many industries including drones, military, space, cameras, telescopes, and others. If Blade Optics™ can significantly reduce the length of the optical instruments used in these different applications, it could usher in a new wave of technological advances.

That is just the beginning. What about binoculars and scopes that fit in your pocket? What about pocket-sized microscopes? What about the future of cameras? What about the defense sector, such as drone surveillance?

Imagine the possibilities.

When NASA invested $3.5 billion to build the Webb telescope, ten innovative and powerful new technologies emerged as a result; technologies that have already been spun off to help advance other scientific, medical, and commercial endeavors.

Together, industries worth hundreds of billions of dollars could be disrupted and enhanced by Blade Optics™ technology.

Artist concept of Blade Optics Handheld Scope

In fact, Blade Optics™ technology uses conventional image sensors, which potential customers find very attractive. They do not need to develop entirely new image sensors to use Blade Optics™. Furthermore, the technology also uses conventional materials so clients have options in their supply-chain.

But that is not all.

What really excites me is the potential to learn things we never knew; the potential to see things beyond the limits of even the world's greatest telescopes.

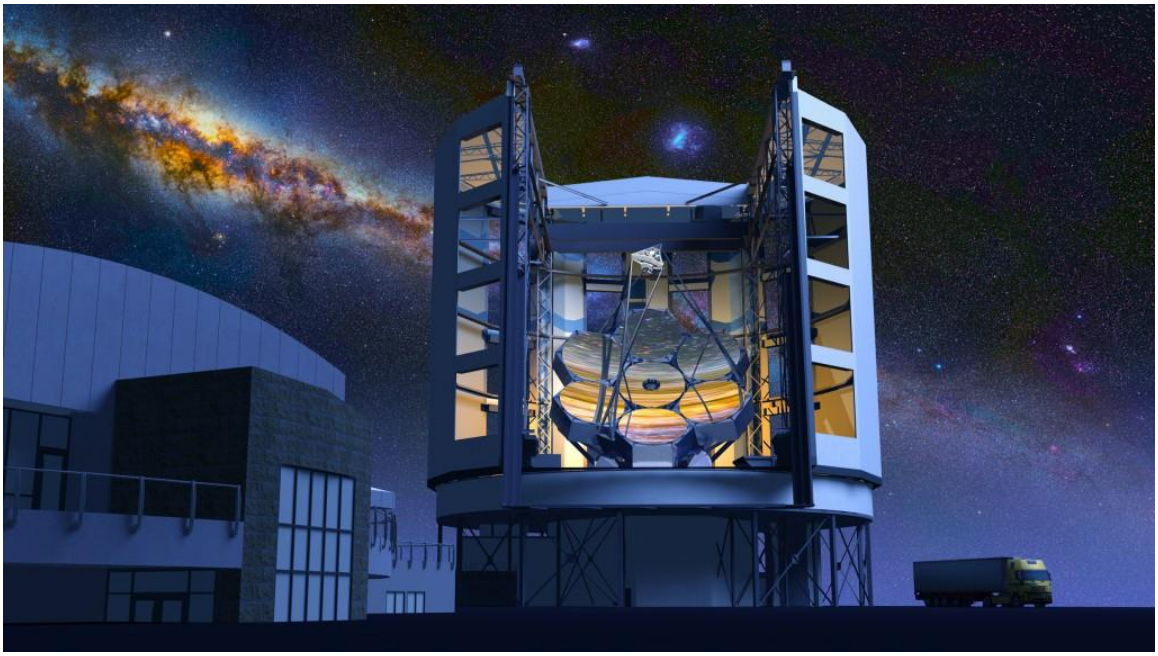
Extremely Large Telescopes

Over the next decade, we are going to see a new class of Extremely Large Telescopes (ELT) - all of which is based on Newton's reflective telescope design.

These include the following:

- European Extremely Large Telescope
- Thirty Meter Telescope
- Giant Magellan Telescope (GMT)

These telescopes all have an aperture of more than a whopping 20 meters! That means they will give us the ability to see far beyond what we have ever seen. In fact, it is expected that the GMT may be able to take spectra of the atmosphere of distant planets and determine if they have the potential to sustain life!



You might be wondering: if telescopes with such large apertures can see so far, why don't we just make even bigger telescopes?"

That is a great question, and the answer to that is what makes me so excited about Blade Optics™ Technology.

Limitations of Telescopes

Even with our technological advances, we are still limited by physics. Traditional telescopic lenses, or mirrors, need to be curved. Current fabrication technology only allows us to build a curved mirror or glass of just over 8 meters; any more and the glass would buckle under its own weight with movement.

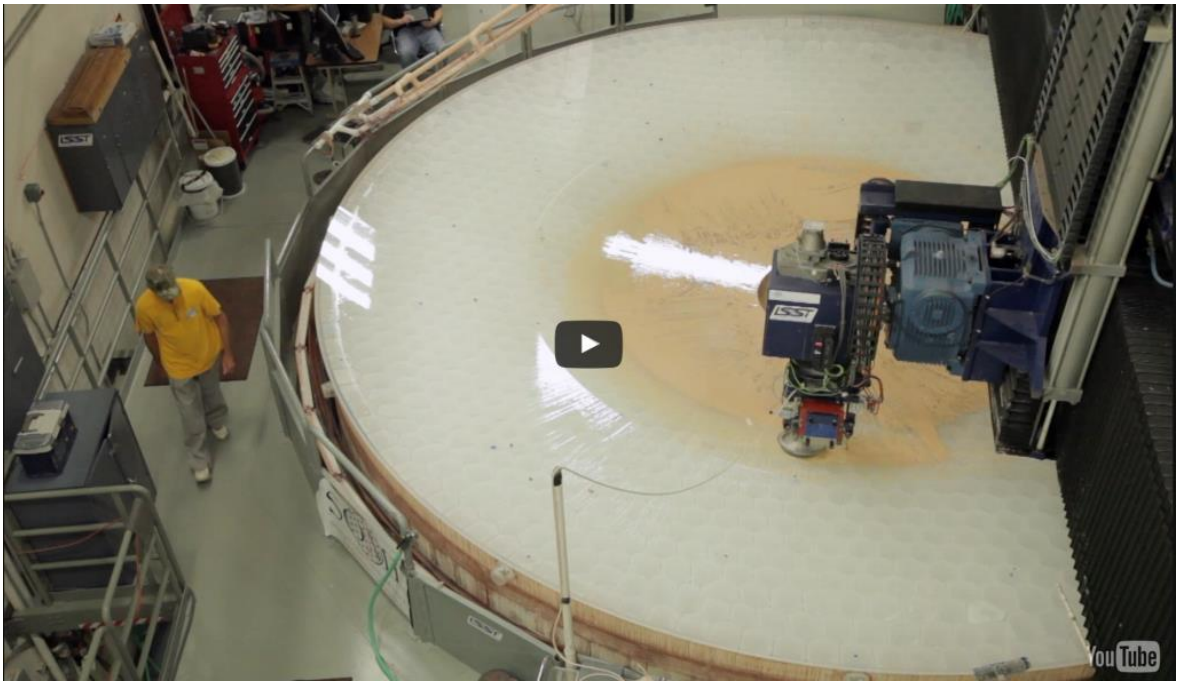
So how are they building these ELTs? With lots of engineering and computing. And multiple mirrors.

Take, for instance, the Giant Magellan Telescope (GMT) - the first in a new class of Extremely Large Telescopes, capable of exploring the cosmos with unprecedented clarity and sensitivity. Of all the ELT's, the GMT has the largest individual mirrors. The GMT's 24.5m (82 feet) primary mirror is actually comprised of seven separate 8.4m (27 feet) diameter segments. Each of these mirror segments weighs approximately 12.5 tons, or 25,000 pounds!

But get this. It takes a full year *just* to cast and cool each mirror. After casting, the fabrication of each segment requires more than three years of surface generation and meticulous polishing.

Why? Because each curved mirror needs to be polished down to a precision of 19 nanometers, with each spot on each curved mirror having a different dimension than the next. A whole bunch of new optical tests and laboratory infrastructure had to be developed just to polish each mirror.

Take a look:



click to play

When the GMT is finally built, it will be nearly 61 meters tall (equivalent to a 22 story building) with an aperture of just over 25 meters wide!

Here is the exciting part...

Could Blade Optics™ Be a Better Solution?

If we were to, hypothetically, use Blade Optics™ technology to build a telescope with the same aperture as the GMT, it would only be approximately 25 meters tall instead of the whopping 61 meters the GMT will be when it is finished. Common sense would suggest that it would be easier to construct a housing 25 meters tall, instead of 61 meters. Common sense would also suggest that it could be easier to polish something that is flat, as opposed to something that is curved - especially the asymmetric curve of the mirrors being created for the GMT.

I may be jumping the gun on this, but Blade Optics™ Technology just seems better because going bigger seems easier with a flat lens stack.

If This Could Change the World, Then Why...

You might be wondering: if this is such a ground-breaking technological discovery, why haven't scientists, astronomers, and the like gone crazy?

Let me explain that with a story.

The Story of the Discovery

John Daugela has always been interested in optics. Throughout his childhood and career, he always challenged conventional thinking. A few years ago, when solar energy became prominent, but not economic, he wanted to see if he could capture solar energy by using a plastic sheet that would cover an entire field. His mentality was simple, "Why not?" He never did get a good answer from the industry. But this didn't stop him.

Instead of giving up, he built his own software program - now known as Rocket Optix - to analyze and find ways to do what no one had done in the solar space. He put all kinds of geometries in his software and soon added an economic model, all with one goal in mind: to find out what repeatable design could make energy come out concentrated, in an economic way. He never did come to a conclusion that would solve his problem. But he did find something else.

During his research, he found one distinct design that could get energy to come out in a concentrated way. It was repeatable. And it used flat lenses. Since the idea of solar was no longer on his mind, he thought, "What if this same design could be used to retain an image?"

Of course, the idea of using flat lenses to retain an image was unheard of. In fact, when we speak of telescopes and camera lenses, there is no question if the lenses are curved; we know them to be curved, and we know them to be circular. But John's design did not use a circular curved lens; it used a square, flat lens. Since there was no previous research or basis for his discovery, there was only one way to see if what his math was telling him is real. He needed to make it work in real life.

John ordered materials to test his theory. What he discovered will change optics forever. His make-shift prototype worked; it retained an image. He knew he had something here, but couldn't quite grasp how, or why, it worked. It simply had never been done before.

His first thoughts were simple. Someone must have done this. NASA must have already figured this out. So he went to a NASA conference to find out.

At the conference, he raced up to the front of the stage where a retired NASA optics expert from NASA's Goddard Flight Centre had just given a speech. He asked, "When would someone use flat optics?"

The expert responded, "Well, you really only have three options: total internal reflection, Fresnel lenses, and Cassegrains (whereby after you do the initial concentration, you could use flat mirrors to bounce it back.) None of which are truly flat optics, but use some flat surfaces."

John persisted, "are you sure there isn't another way?" "Nope, trust me, there is no other way."

Eureka. John knew he had something special.

Giving his background of working with engineers, John's first goal was to punch as many holes into his discovery as possible. So he did just that: he brought his findings to people who have been studying, researching, and designing optics for years.

John first sent his design, under NDA (non-disclosure agreement), to an ex-NASA researcher with over 20 years of research and engineering experience in the field of optics. The next day, he got an email back. Thank you, John, but this won't work. But John knew it did.

So he forced a mathematical debate with her, trying to get her to understand that the math on conventional lenses was wrong. Being a professional, she took it in stride and again, came back, called John and told him it won't work. She told him there was no way he could see an image with his design. But John, staring at an image through his makeshift prototype, responded, "Of course it does...I am looking at it!"

"No, you're not," she said. A day later, she followed up with an email.

"Dear John,

Your design doesn't work. But I couldn't sleep last night. Can I keep working on this idea, but not under NDA?"

"Why would she say that?" John thought. "Why can't I get a straight answer from these so-called experts?" "What have I uncovered here, and what am I missing?"

This did not stop John. In fact, it made him even more obsessed. Finally, his obsession led him to Ruda-Cardinal, a company that is an internationally recognized leader in optical prototype construction and design. Instead of saying no to John, Ruda-Cardinal looked at the math and instantly got it. They accepted John's challenge and, together, they began the design of a first-of-its-kind imaging device that utilizes flat lenses.

By taking one piece of technology (meant for solar) and repurposing it for something else (the telescope), John may have changed the world - just like Galileo.

Now back to the question of why the science community has not gone crazy.

Challenging the Norm

When you tell scientists, engineers, and scholars that a fundamental concept in optics may not be true, it is very hard for them to digest. As we just saw with the ex-NASA researcher. It is like telling a math professor that 1+1 does not equal 2.

So, instead of trying to *tell* "experts" about the technological discovery, Spectrum and NexOptic are simply going to *show* them. That is precisely when the world of optics may be flipped upside down. In just a few months, NexOptic and Spectrum are expected to unveil a prototype for a revolutionary fixed-magnification imaging device. In just a few months, NexOptic and Spectrum could redefine optics.

Risks

Is there a chance the prototype will not work? Maybe. But it is unlikely now that the Trade Study has been completed.

The Blade Optics™ imaging device prototype is being designed using leading optical design software, and is being overseen by Ruda-Cardinal, one of the leaders in optical design and prototype construction.

I asked the guys at Ruda-Cardinal when I was in San Francisco why they were confident the Blade Optics™ technology works. They almost seemed shocked to think that I would think it doesn't. So, they tried to explain it to me in a way I would understand.

I am paraphrasing: "What we do is like putting formulas in an excel spreadsheet; if you know what you are doing, and you know your formulas, you will get the right answer every time."

Since the guys at Ruda-Cardinal design and create prototypes for government agencies, universities, and some of the most highly recognizable Fortune 500 companies in the world, how can I argue that they are wrong?

Then there is the risk of patents not being granted. Of course, that is precisely why NexOptic went with patent law firm, Lewis Roca Rothgerber Christie - a top-level U.S.-based Intellectual Property practice group serving clients across the entire spectrum of IP, including some of the world's most recognizable brands. Those in the IP world know this firm well. They have a great reputation, and I doubt they would take on a patent that they thought was not going to be granted.

Lastly, the biggest risk is financing. Can NexOptic raise enough money to finalize the 100% acquisition of Spectrum? My belief is yes. Not only is it less than CDN$3 million, but NexOptic's management has a long track record of successful capital raises in equity markets.

Ground Floor Investing

At a time when Canada could certainly use something to be proud of, this Canadian technological discovery could not be more special.

When I was at the SPIE Photonics conference in San Francisco a couple of weeks ago, there was a front-page article titled, "Canada Report Urges Strategic Focus."


TUESDAY, FEBRUARY 16, 2016

PHOTONICS WEST. SHOW DAILY

"Ultra" holography meets Fabergé eggs

Canada report urges strategic focus

It was about Canada's need to focus on light-based technologies, and the massive potential coming from Canada.

NexOptic and Spectrum not only have the ability to transform numerous industries, but it has the power to move human knowledge forward in ways we can only imagine.

The things that we thought, the things we put in text books and made people answer on exams, could very well be wrong. We have already proven this with the creation of every major new telescope. What else could we prove with Blade Optics™ Technology?

NexOptic and Spectrum could bring a new era of exploration and discovery to our world.

One day, I plan on looking at my son to tell him, "I was an early investor in a discovery that changed the world."

NexOptic Technology Corp

Canadian Trading Symbol: (TSX-V: NXO)

Share price: CDN$0.34; Market Cap: $13.2 m

Seek the truth,

Ivan Lo

The Equedia Letter
www.equedia.com

Disclosure: I am an early investor in the Blade Optics™ Technology, through my investment in NexOptics. We're biased towards NexOptic because they are an advertiser. We own shares which were purchased both in the open market and in the private placements announced on Feb. 14, 2014 and Sept. 21, 2015. You can do the math. Our reputation is built upon the companies we feature. That is why we invest in every company we feature in our Equedia Special Report Editions, including NexOptic. It's your money to invest and we don't share in your profits or your losses, so please take responsibility for doing your own due diligence. Remember, past performance is not indicative of future performance. Just because many of the companies in our previous Equedia Reports have done well, doesn't mean they all will. Furthermore, NexOptic and its management have no control over our editorial content and any opinions expressed are those of our own. We're not obligated to write a report on any of our advertisers and we're not obligated to talk about them just because they advertise with us.

NexOptic Investment Highlights

(TSX VENTURE: NXO)

The future of Telescopes

Artist Conception

NexOptic Investment Highlights

(TSX VENTURE: NXO)

BLADE OPTICS: Blade Optics™ is a disruptive, patent pending lens technology that differs vastly from conventional lens technologies as it makes use of flat lenses, rather than curved alone. Lens stack designs from our recently completed Trade Study revealed that Blade Optics™ should enable an estimated 1:1 lens stack to aperture ratio in our forthcoming optical imaging prototype.

Limitations of Curved Lenses

Conventional curved lens stacks are accompanied by a number of limitations:

- Aperture size: Increasing the aperture size of a curved lens stack requires increasing the depth of the stack. Aperture size is limited for many applications because increasing it results in the lens stack growing too deep and becoming impractical.
- Image quality: Because aperture size can be limited by the corresponding lens stack depth, it follows that resolution and image quality may be limited for many applications.
- Compactness: Deep lens stacks limit the compactness of products. For this reason, hobby telescopes can be several feet long and high-resolution cameras can have bulky lenses.

Benefits of Blade Optics™ Technology

Blade Optics™ could breakdown many of the limitations associated with conventional, curved lens stacks:

- Aperture size: Blade Optics™ has the potential to significantly reduce the lens stack depth to aperture ratio compared to traditional curved lens systems. This could allow for greatly increased aperture sizes without increasing the depth of the lens stack in many applications.
- Image quality: Fewer limitations on aperture size means that resolution and image quality could be much improved.
- Compactness: Decreasing the depth of the lens stack would create the possibility of much more compact imaging devices. Imagine a telescope that fits inside your backpack or a high performance lens system inside your mobile device.

Overview

- For more than five years, the founders of Spectrum were focused on developing technologies relating to imagery and light concentration for lens and image capture based systems. This led to the discovery of their core technology, Blade Optics, which by its physical nature offers a radical departure from traditional curved lens system for imaging.
- The central benefits of Blade Optics are that it contains flat lenses, can retain images, enables the use of square apertures as opposed to circular, and is scalable to various sizes.
- A prior art search was completed in 2015 by a leading Canadian IP law firm on Blade Optics; no conflicting patents were indicated.
- Provisional patent applications for Blade Optics have been filed and were overseen by leading US IP law firm Lewis Roca Rothgerber Christie.
- Advanced stages of delivering a proof of concept prototype are underway all stages are being overseen by Ruda-Cardinal Inc., an international leader in optical design and prototype construction. Ruda provides its expertise to Fortune 500 companies, top universities and government-funded projects.

Share Structure

Shares Issued: 38,821,449
$0.10 Warrants: 15,000,000 (Exp. Apr 2017)
$0.20 Warrants: 12,958,441 (Exp. Sept 2017)

Options: 3,888,332
Fully Diluted Generates: >$4,500,000

The Prototype

REVOLUTIONARY TELESCOPE

Since the days of Galileo, general optical design has remained virtually the same - and we believe it's time for a change.

Blade Optics™ has the potential to bring about a disruptive shift in optical design and, in order to demonstrate this, we have chosen to create a revolutionary digital telescope prototype utilizing Blade Optics™. The main intention of our proof-of-concept prototype is to demonstrate the marketable features of Blade Optics™ as well as its potential to be used in various other optical applications. We aim to pursue potential application-specific licensing agreements once the prototype is revealed.

The Trade Study phase of prototype development was completed in February 2016 and the next phase of the development has since been commenced.

NOVEL FEATURES

The prototype will be a fixed-magnification digital telescope with a narrow field of view. It will be similar in function to many of today's conventional telescopes, however, will be distinguished by several novel features, including an anticipated near 1:1 lens stack depth to aperture ratio, which is significantly smaller than what is seen in many of today's fixed-magnification lens systems.

Results from our Trade Study revealed that the prototype's lens stack designs have met the following criteria:

- Use of flat lenses
- Lens stack depth to aperture ratio of near 1:1
- Square or rectangular aperture as opposed to circular
- Significant effective focal length in a compact form factor
- Scalable to various sizes

LEADING PROTOTYPE DEVELOPERS

Ruda-Cardinal Inc. of Tucson, Arizona has been engaged to test and construct the lens stack for the prototype. Ruda-Cardinal is an internationally recognized industry leader in optical prototype construction and design and provides its expertise and services to fortune 500 companies, universities, government programs and start-ups.

Target Markets

NexOptic and Spectrum have identified multiple product and industry verticals that they aim to positively impact with Blade Optics™ technology. Near and medium term attention is being given to negotiating potential industry alliances, including licensing agreements with international industry leaders that represent the following products and industries:

Optical Viewing Instruments

The optical instrument and lens manufacturing industry is comprised of companies engaged in the areas of binoculars, microscopes, telescopes, prisms, lenses, coating or polishing lenses and mounting lenses.

Cameras

Driven by the significant demand for smartphones and tablet PCs, the global camera module market is forecasted to be valued at US$43.06 billion by 2019.

Smartphones and Tablets

With increased demand for smartphone cameras over traditional varieties and the growing use of photography in social media, camera quality has become a primary consideration for smartphone consumers.

Other Potential Verticals

There are numerous other markets and verticals that could be positively impacted by Spectrum's technologies in time. These include gaming, computer imaging, film, medical devices, surveillance equipment, flashlights and more.

The Team

John Daugela, CEO of Spectrum and Director of Nexoptic

Having managed several firms over his 25 year career, Mr. Daugela has been successful in many diverse leadership roles including President, Founder, Project Manager and Technology Development Lead. His prior experience includes co-managing the private engineering firm International Business and Engineering Corporation ("IBEC"), which was nominated for the Canadian export Achievement Award and was eventually acquired.

While at IBEC, Mr. Daugela was a key innovator in several core elements of intellectual property and helped bring dozens of industrial products to market, such as electronics, cookers, steamers, driers, sensors, and alarm systems. Mr. Daugela was also integral in international manufacturing and sales for IBEC. Additionally, through his passion for innovation, Mr. Daugela founded a firm that brought new camera technologies to the iconic Canadian Snowbirds jet formation team.

Mr. Daugela is a graduate of the University of Alberta. In addition to his Bachelor of Commerce degree (Dean's List Standing) he also holds a designation as a Project Management Professional (PMP).

Paul McKenzie, CEO of Nexoptic and Director of Spectrum Mr. McKenzie is also a founding Director of DeepMarkit Corp., a publicly traded company building sophisticated multilingual applications designed to service a broad spectrum of the $80 billion promotions market in terms of client profile and needs fulfillment. He has been instrumental in creating and managing a number of successful publically traded companies, several of which have made significant resource discoveries worldwide. He has acted in the capacity as Director, President and/or CEO and CFO of several public companies and has been hands on in raising in excess of US$60,000,000 for his publicly-traded companies. Mr. McKenzie's experiences with public companies spans more than 20 years and includes acquiring, selling, financing and developing projects in North America, and Asia and includes overseeing transactions with companies whose market capitalizations have exceeded US$1 billion.

Arnold Armstrong, Chairman of Nexoptic
Mr. Armstrong and his family own Armada Investments Ltd., the principal family management company through which he has built a diversified portfolio of assets and businesses including international real estate development, casinos, automobile dealerships, trucking and numerous others.
He has held the positions of Chairman, President, CEO and/or Director of several successful mining and exploration companies, including being one of the founding Directors of Silvercorp Metals Inc. (NYSE:SVM). Under his command, his group of public companies has made several significant coal, nickel, copper, gold and silver discoveries in the U.S., Canada, China and Mongolia. Mr. Armstrong has also fostered several joint ventures within his companies including those with Cameco Corp., AREVA and Phelps Dodge.

Rob D. Cardinal, B.Sc., Consultant, Senior Systems Designer
Mr. Cardinal holds a B.Sc. in Physics and Astronomy from the University of Victoria, Canada. As a member of the science team for NEOSSat, a Canadian planetary science microsatellite launched in 2013 for the Canadian Space Agency, he currently oversees the development of massively parallel software and high performance computer systems to search for asteroids in the data images returned from the satellite. Additionally, he developed unique automated moving object detection software for the Near Earth Space Surveillance (NESS) project with which he has discovered two comets which bear his name, and one near-Earth Asteroid.

Mr. Cardinal is an expert in photometry, astrometry, image analysis and reconstruction, and software development for massively parallel GPU computer systems. He is listed as an author on over 30 publications in astronomical literature.

Mr. Cardinal previously worked on projects ranging from variable star research at the University of Victoria, atmospheric water vapor content over Mauna Kea, HI, for the James Clerk Maxwell Telescope (JCMT), optical sensitivity analysis for Defence Research and Development Canada (DRDC), telescope retrofit and refurbishment at the Rothney Astrophysical Observatory (RAO), and near Earth space surveillance.

Ian Powell, Ph.D. Physics (Applied Optics), Consultant, Senior Systems Designer
Dr. Powell holds a B.Sc. Physics, 1st Class Honours, M.Sc. Applied and Modern Optics and a Ph.D. Physics (Applied Optics) from the University of Reading, England. He has been involved in advanced projects with JDS Uniphase, the National Research Council, in addition to working on projects sponsored by the Canadian Space Agency, Opcon Associates of Canada, and the Sira Institute, England.

Dr. Powell's previous projects range from telescope to microscope optics, including IMAX dual magnification view-finder, anamorphic camera lenses, optical instrumentation for space applications, 360 degree panoramic lenses, spectrograph optics, microlithographic optics, optics used in visual simulators, DOE optics and infra-red scanner systems. He has also worked on many non-imaging applications such as the development of a new concept for solar simulation and laser beam delivery optics. Additionally, Dr. Powell has published 60 optical industry papers and been issued 8 optical patents.

Raymond Tabandeh, Primary IP Counsel and US Corporate Strategy
Mr. Tabandeh is a Partner in the Intellectual Property practice group of the esteemed American legal firm Lewis Roca Rothgerber Christie. With more than 17 years of experience in US and international intellectual property law, multiple electrical engineering degrees and an MBA, Raymond specializes in helping clients with cybersecurity and Internet IP law, especially infrastructure, privacy and website policies.

Raymond also provides patent counseling, prosecution, and licensing for clients in the following fields: business methods counseling and protection of related intellectual property rights, evaluation of emerging high technologies, computer software and hardware, data and network security using various encryption/decryption methods and digital signatures, due diligence and evaluation of intellectual property portfolios; freedom-to-operate opinion letters, electronics and telecommunications, -trademark prosecution and opposition.

Prior to becoming a lawyer, Raymond was an engineering software manager and a senior hardware design engineer for Xerox Corporation. At K&R Investment Group, as a principal, he negotiated and structured deals, conducted due diligence and appraisals, and developed business plans, for acquisition of mid-size manufacturing companies. He was also a visiting lecturer in the School of Engineering at the University of California, Los Angeles.

Page Tucker, Advisor
Mr. Tucker is an entrepreneur in every sense of the word and has an extensive background in technology start-ups, including development, marketing, recruiting, capital financing and executive management of technology companies. Page is the CEO, President and Founder of Prostar Geocorp, a company with 15 international patents relating to its core business of providing the next generation of Geospatial Intelligent Solutions to large corporations. Formerly, Page was the founder of Impact Solutions, Inc., a company he formed to provide state-of-the-art customer acquisition and retention solutions to the automotive industry. Page is known as a technology visionary in the automotive industry for combining data mining and predictive modeling with Geographic Information Systems (GIS). Impact Solutions, Inc. successfully implemented its innovative database marketing & location services to automotive franchises throughout the US as well as the nation's largest dealer groups and automotive manufactures. Page was also the founder of e-autobusiness which was a pioneer in the development of a web-based CRM solution and provided services to well over 900 dealerships throughout the United States before being acquired.

Patents and Trademarks

Primary Intellectual Property Legal Counsel to both NexOptic Technology Corp. and Spectrum Optics are:

Lewis Roca Rothgerber Christie
Lewis Roca Rothgerber Christie is a top-level US based Intellectual Property practice group with broad industry and technical depth serving clients across the entire spectrum of IP. The firm represents clients across all industries, protecting and managing IP portfolios for organizations ranging in size from individual inventors to start-ups to Fortune 500 corporations, including some of the world's most recognizable brands.

Smart & Biggar
Specializing in Intellectual Property protection for technology companies, Smart & Biggar is one of only two Canadian IP firms to rank as a 'Top Tier' firm in the category of Intellectual Property - the highest ranking given to firms in the 2016 edition of The Legal 500 Canada. They are Canada's largest Intellectual Property legal firm.

Seek the truth,

Ivan Lo
The Equedia Letter

EQUEDIA

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