## <u>Defence Secretary keynote speech at</u> <u>the Air and Space Power Conference</u> 2020

Good morning. I'm delighted you've invited me, as a former soldier, to speak to you. As someone who had a relative in the Royal Flying Corps in the First World War it's amazing to see the development of the RAF from its birth over a hundred years ago.

This year we will be remembering the magnificent few... the 80th anniversary of the Battle of Britain coming up in a few months' time.

But today we want to focus on the future. We've recently seen the whole of Defence and the RAF, as part of that, responding and adapting.

During Corona you were instrumental in setting up helicopter hubs, delivering PPE, establishing airbridges and supplying medical reservists on the wards.

But you also showed essential resilience in maintaining our operations in the UK all over the world.

During Covid-19 our adversaries didn't have a ceasefire.

So you were out there stopping the threats that most people don't see…protecting the UK and Baltic airspace…supporting operations in Afghanistan…striking terrorists in the Middle East.

Thank you and thanks to your resilient families too…especially those who have found themselves overseas at this tough time.

The people of our Armed Forces have always been our greatest asset.

But we must think about what comes next. The global picture has changed. Threats are coming from all different angles.

Nor are they necessarily hard power dangers. Today we're facing Coronavirus...tomorrow it could be a high-level cyber strike. It's clear the binary distinctions between war and peace have disappeared. Our adversaries now wear many masks. They know we're dependent on IT. They know that Information Advantage is key. They know globalisation makes us more vulnerable. So there's a danger our competitors will use proxies and new technologies to outflank us

For too many years we simply sat back admiring the problem of hostile states and other actors outmanoeuvring us below the threshold of conventional conflict, instead of making the tough choices necessary to unmask and counter our opponents in the interests of promoting our national peace, purpose, and prosperity.

But we cannot pick and choose isolated battles any longer. We cannot be focused on fighting the last war. Instead, Global Britain must step in in an increasingly unstable world of constant competition

That means asking ourselves what the air and space environment of 2030, 2040 or even 2050 will look like. How will we operate? How will we fight? What are the attitudes? What are the ranges? What are the altitudes? What are sunset and sunrise capabilities that we need in the battle-space of tomorrow? What will be the role of our aircraft?

More particularly what will the role of our air and space forces be in the world of constant competition?

We need to think carefully about the threats and opportunities we face in the new domains of warfare, such as cyber, a theme that runs right through this conference.

We need to look at the lessons of others. Look how Turkey has been operating in Libya where it has used Bayraktar TB-2 UAVs since mid-2019

Those UAVs have conducted intelligence, surveillance and reconnaissance and targeting operations against frontlines, supply lines and logistics bases.

In July last year they struck the Libyan National Army controlled Jufrah airfield destroying several command and control nodes as well as two transport aircraft.

Or consider Turkey's involvement in Syria and its use of Electronic Warfare (EW), lightly-armed drones and smart ammunition to stop tanks, armoured cars and air defence systems in their tracks

According to reports, Assad regime suffered heavy losses "3000 soldiers, 151 tanks, eight helicopters, three drones, three fighter jets vehicles and trucks, eight aerial defense systems…and one headquarters, among other military equipment and facilities."

Even if only half of these claims are true the implications are game changing.

Similarly, consider Russian activity in the Ukraine where according to open source they've used electronic warfare to jam enemy communications locate and target troops with artillery, turn Ukrainian tech against their own operators, and sent out false GPS and even used psychological warfare by sending texts to individual Ukrainian soldiers

Even in the midst of Covid, our adversaries have continued using social media tools to spread malicious misinformation and muddy the narrative.

If we're to attain information advantage we must work out how we can be as nimble as our rivals.

Acting at pace in an era when disruptive capability is advancing exponentially through the aggressive application of machine learning,

artificial intelligence and quantum computing.

That's why we've just signed a £65m contract for the production of our first ground-breaking Protector aircraft.

It's a major gear shift, replacing Reaper with Protector, a remotely piloted aircraft with an incredible endurance which will give us global reach. It is due to be in service by 2024

As we look towards tomorrow we must also understand the new parameters we're operating in.

What is the philosophy of this new battle-space?

The doctrine of these new domains is embryonic and evolving rapidly. So what are the new rules?

What sort of kit will we need? What sort of people do we require? What should our aspirations be?

Our opponents are constantly seeking to go higher, faster and further

We know they've got thermobaric weapons.

We know they are developing hypersonic glide vehicles.

We know UAVs and deep strike pose us a lethal threat, however, dispersed your forces are.

We know increasing numbers of actors have the ability to hit us with precision and at range.

And we know, all the while, that Russia and China are developing offensive weapons in space, a major cause for concern given that satellites don't just provide our global communications, critical intelligence, and surveillance and navigation

But underpin our critical national infrastructure, from mobile phones to cashpoint to the stock market

That's why, in the future, what's above you will be often more important than what's in front of you.

So hiding and finding will be at the centre of tomorrow's battlefield.

If you can be found, you can be killed.

But if we're to prepare ourselves properly for the fight I need you to understand the High Command's intention and your role in it, and your role as a consequence.

I'm not just looking to you to keep up the excellent delivery in operations, I also want you to provide me with excellent military advice.

Don't try to second guess intentions from Head Office.

Instead give me a true perspective.

Tell me what the options are and outline the alternatives.

You're asking government to commit to your vision.

So paint a picture for me of the future battlespace.

That's the only way I can make the right decisions about our Future Combat Air Systems.

What's already clear to me is that we're no longer in the business of relying on one fighter, or on one type of aircraft that can do one thing.

You will need to defend, police, control and command the battlespace.

That requires multi-role capabilities.

But it also requires greater integration between the services. One question I know you're already asking is how can you integrate your new Poseidon with the submarine service to disrupt Russian underwater activities? But where and how else can we speed up integration?

To return to my theme of hiding and finding.

If you can't find your opponent whether in the physical world or in cyber space, it's no good.

If you can't hide up in the air, it's no good.

But if you can do both you'll win.

Developing my understanding of your vision for air and space will be vital as we head towards the Integrated Review.

While not wishing to prejudice the IR, I see this as a unique moment to repurpose UK Armed Forces and the RAF for an era of constant competition.

An opportunity to ensure your future structures and capabilities are relevant and sustainable in a security environment that demands proactive, campaigning mindsets.

That demands we deter threats and size opportunities every single day instead of holding capabilities in readiness for a 'rainy day'.

We need to do things differently, moving on from a joint force to an integrated force, with every asset and capability we have, seamlessly, in real time, with our partners and allies, to hold our adversaries to risk.

I have a vision of UK Defence, where we're able to join the dots between space, air, surface and sub-surface, so that the sum of the parts means much more than the value of the individual parts, and where we can do this in real

time at the time and place of our choosing.

That requires a rebalancing from Industrial Age to Information Age capabilities — investing in cyber, space, electronic warfare, AI, robotics and autonomy — coupled with their integration with the best of what already exists

It goes without saying that you have an important role to play in all of this.

Which brings me back to the point I started with — our people.

Mastering the airspace and new domains of the future will ultimately depend on your skills and your ingenuity.

But the RAF gets it. You put people first. I see that not only in the way you utilise the talents of your Whole Force — blending the skills of Reservist and Regulars. Not only in the way you encourage flexible working to meet the needs of families. But in the way you embed your values into everything you do. Values of clarity, persistence and resilience under pressure.

Values of innovation, imagination and ingenuity.

Values that have elevated our air men and air women since the days of the Royal Flying Corps and the Royal Naval Air Service.

Blending of Regulars and Reservists flexibly.

So have confidence in your values.

Keep asking the right questions.

Keep giving me that sage advice.

Keep maintaining the daredevil spirit, and I guarantee you will inspire Defence and the country as a whole to go higher, faster and further than we've ever gone before.

Thank you very much.

# Largest testing programme for coronavirus publishes its initial findings

• Health Secretary welcomes initial findings from Imperial College London suggesting there was a significant reduction of the virus before

lockdown restrictions were eased

• Findings provide a baseline for further research into how the virus is spreading in England

The Health Secretary has today welcomed the findings of the largest study to date into coronavirus rates of infection by Imperial College London.

The research, which examined levels of infection in the general population in England, has been posted by Imperial College London. The report will undergo peer review before a final report is published.

Imperial's research shows the rates of infection fell during May, the last month of lockdown, halving every 8 to 9 days. There were on average 13 positive cases for every 10,000 people, with an overall reproduction number of 0.57 — lower than previously reported.

These findings show the virus was circulating with relatively low prevalence and was declining in May, ahead of the decision being made to begin to lift lockdown restrictions.

Health and Social Care Secretary Matt Hancock said:

This ambitious testing programme will help us better understand the spread of the virus to date, predict how it may spread in the future and inform our response to the pandemic.

It shows the impact our national lockdown efforts have had and demonstrates that we have taken the right actions at the right time.

As a country we have made great strides towards beating this virus but we mustn't take our foot off the pedal, and such studies will be vital as we continue to fight this virus.

The report provides an insight into who was infected with the virus between 1 May and 1 June over lockdown, comparing geography, age, sex, ethnicity, key worker status and symptoms.

The key findings include:

- Young adults, aged 18 to 24, were more likely to test positive than other age groups, reinforcing the need for this age group to adhere to social distancing measures to protect vulnerable friends and family
- Those of Asian ethnicity were more likely to test positive than those of white ethnicity. It is possible that higher infection rates have contributed towards the higher death rates observed in this ethnic group
- Care home staff and healthcare workers were more likely to be infected with COVID-19 during lockdown than the general population, at a time when the public was following government advice to stay at home, therefore limiting their exposure to the virus. Those who had patient-facing roles were more likely to be in contact with known cases as part

of their work

The report also shows anyone who had recent contact with a known COVID-19 case was 24 times more likely to test positive than those with no such contacts.

The NHS Test and Trace service is therefore playing an integral role in stopping the virus from spreading further having already contacted 130,000 people at risk of unwittingly transmitting the virus and advising them to self-isolate.

The Real-time Assessment of Community Transmission (REACT-1) programme is the largest, most significant piece of research looking at how the virus is spreading across the country.

It was commissioned by DHSC and carried out by a world-class team of scientists, clinicians and researchers at Imperial College London, Imperial College Healthcare NHS Trust and Ipsos MORI.

Professor Paul Elliott, FMedSci, Director of the programme at Imperial College London, said:

Community testing is a vital step in ongoing efforts to mitigate the pandemic, but to be successful this must be based on robust scientific evidence and sound statistics.

Through this surveillance programme with DHSC and Ipsos MORI we're gathering the critical knowledge base necessary to underpin community testing and facilitate a greater understanding of the prevalence of COVID-19 in every corner of England.

Kelly Beaver, Managing Director, Public Affairs at Ipsos MORI, said:

At home community testing at this scale has not been delivered before across England. As a partnership between DHSC, Imperial College London, and Ipsos MORI it has taken significant innovation, perseverance and skill to ensure it has been a success, with lessons learned feeding into future phases of this study and shared with the wider academic community through a transparent publication process.

We want to thank all the study participants for their time, and contribution, it has been fantastic to be engaging with the public at this scale on an issue of such national importance.

This first report provides a baseline for further research and the information will provide local authorities with a clearer picture of the spread of the virus to help inform measures tailored to limit its spread and save lives.

The study has also been upscaled and repeated for the month of June, with a report expected within weeks.

In the second part of the programme (REACT-2), a number of different antibody tests have been assessed for their accuracy and ease of use at home. These tests look for evidence that someone has been infected in the past. This has been rolled out to 100,000 people to identify the levels of antibodies against the virus that causes COVID-19 in the general public.

- Other key findings include:
  - There were no significant differences seen between males and females and no significant evidence of geographic clustering although measured levels were highest in London and lowest in the South West
  - 69% of people testing positive reported no symptoms on the day of the test or the previous week. However, they may have developed symptoms later on and it doesn't show how infectious they might have been at this time
- In the first report from REACT-1, over 120,000 randomly selected people over the age of 5 from across England volunteered to provide nose and throat swabs. These were tested for antigens indicating the presence of the virus to show whether someone is currently infected with COVID-19
- In line with government guidance those with positive test results and their household were asked to self-isolate
- This study was upscaled and repeated at the end of June with 150,000 participants
- The pre-print report can be accessed at <a href="https://www.medrxiv.org">www.medrxiv.org</a>
- The report was commissioned by DHSC and carried out by a world-class team of scientists, clinicians and researchers at Imperial College London, Imperial College Healthcare NHS Trust and Ipsos MORI
- More information on the REal-time Assessment of Community Transmission (REACT) programme of work can be found at <a href="https://www.reactstudy.org">www.reactstudy.org</a>
- This study falls under pillar 4 of the COVID-19 National Testing Programme, which focuses on mass surveillance in the general population. This is the first study which looks at a representative cross-section of the whole population

## Scheme on Northumberland coast enlarged to protect environment from rising mine water

Following the completion of a £4 million second phase, the Coal Authority's Lynemouth mine water treatment scheme in Northumberland can now treat the equivalent of 2,400 Olympic-sized swimming pools of water every year —

removing more than 300 tonnes of iron in the process.

The extended scheme is protecting millions of litres of drinkable water in the north east and Carl Banton, operations director at the Coal Authority, said:

Our scheme will ensure rising water in the historical underground coal workings is effectively managed, protecting around 1.6 million cubic metres of groundwater and preventing uncontrolled discharges into rivers and the sea.

Built on the site of the former Lynemouth colliery, the treatment scheme is one of the Coal Authority's largest, pumping and treating iron-rich mine water before it is discharged into the North Sea.

#### Lynemouth mine water treatment scheme

Coal Authority project manager Jim Bagnall said:

The scheme was always intended to be completed in phases and the first 2 treatment lagoons were built in 2015. This slowed the rise of the mine water, allowing us to determine what long-term capacity was needed and the 5 new lagoons became operational at the beginning of this year.

Lynemouth Colliery was part of a larger mining block linked to Ellington Colliery, known as Ellington Combine, which worked reserves under the North Sea. The mining block extends from Morpeth in the west to West Chevington in the north.

Historically, mine water levels were controlled at a number of pumping stations in the area. However, pumping stopped in 1994, with Ellington colliery finally closing in 2005.

Once the pumps that keep a mine dry are switched off, the water levels recover and naturally occurring minerals are picked up from the rocks, such as iron, and these affect the water quality.

At Lynemouth, groundwater lies above the coal measures and if the mine water rises unchecked it could cause irreversible pollution to this good quality water source.

There is also a longer term risk, if the mine water is allowed to rise above sea level, of potential uncontrolled discharges into rivers or the sea. Although not harmful to people, the elevated levels of iron in the water could have a detrimental impact on local habitats and wildlife.

To treat the mine water, it is pumped to the top of cascades and flows down steps, which mixes in air to encourage dissolved iron to become solid. The water then flows through a series of lagoons, where the iron accumulates at the bottom as other.

To maintain the performance of the scheme, this ochre is periodically transferred to one of 2 sludge-drying beds. We are looking at opportunities to beneficially use the ochre waste produced at the site.

#### How it works:

- 1. Water is pumped from the colliery's old mine shaft to the top of a cascade
- 2. Air mixes with the mine water as it falls down the cascade steps, which causes the iron to oxidise and form particles
- 3. The water moves slowly through the lagoons, where large iron oxide particles fall out of solution and settle at the bottom as ochre
- 4. Air is added again by passing water over a second cascade to repeat the process and remove even more iron solids
- 5. To maintain the performance of the scheme, this ochre is periodically transferred to one of 2 sludge-drying beds and then a polytunnel, where excess water is removed to significantly reduce its volume, making it is easier to store or move
- 6. Water is discharged into the sea

The former Lynemouth colliery.

## <u>Defence Secretary Ben Wallace gives a</u> <u>speech at the Air and Space Power</u> Conference

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That means asking ourselves what the air and space environment of 2030, 2040 or even 2050 will look like. How will we operate? How will we fight? What are the attitudes? What are the ranges? What are the altitudes? What are sunset and sunrise capabilities that we need in the battle-space of tomorrow? What will be the role of our aircraft?

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Developing my understanding of your vision for air and space will be vital as we head towards the Integrated Review (IR)

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An opportunity to ensure your future structures and capabilities are relevant and sustainable in a security environment that demands proactive, campaigning mindsets.

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and Regulars. Not only in the way you encourage flexible working to meet the needs of families. But in the way you embed your values into everything you do. Values of clarity, persistence and resilience under pressure

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Keep maintaining the daredevil spirit and I guarantee you will inspire defence and the country as a whole to go higher, faster and further than we've ever gone before

Thank you very much.

### <u>Countering Drones Phase 2 competition</u> <u>gains extra funding</u>

An additional £1.5M funding is being allocated to the Defence and Security Accelerator's (DASA) <a href="Countering Drones">Countering Drones</a> competition.

The Home Office Counter-Drones Unit owns domestic counter-drones policy for the Government, working closely across the Government and operational partners to understand risk and operational requirements. The Government priority is to help industry and academia to deliver world-leading counter-drone solutions to support the safe and responsible use of drones in the UK. This DASA competition provides an immediate opportunity to help us further develop the critical counter-drone technical capabilities we need at pace, and to support counter-drone exploitation routes in the future.

It is critical that industry, academia and the Government work together to solve the counter-drone challenges of the future. In light of this, the Home Office and the Department for Transport (DfT) are working closely with the Defence Science and Technology Laboratory (Dstl) in support of Phase 2 of this DASA competition.

The Home Office and DfT putting in this additional funding brings the new total to at least £3M. We anticipate that this should more than double the number of proposals that the Government will be able to award for this DASA

competition.

In light of this additional funding, the deadline for this competition will be extended by 10 days: proposals for funding to meet these challenges must be submitted by Friday 31st July at midday (BST) via the DASA submission service for which you will be <u>required to register</u>.

For this new funding, we are particularly keen to hear from industry and academia who have innovative solutions to respond to domestic security needs, in addition to the needs already published. While the scope of the existing competition, and challenges within, in general reflect these broad requirements, a further scenario to illustrate some of the added considerations faced is as follows:

A scenario could include numerous drones being used at an important installation, major event or demonstration over a wide, complex geographic area, and over a prolonged period of time. The small UAVs (sUAVs) could be a mix of commercially available, high performance multirotor types, being operated directly in a planned and sophisticated manner. They could also include legitimate drones. The intent of the sUAVs could range from surveillance to malicious disruption or attack. There may be electronically sensitive infrastructure in the area.

We are interested in C-sUAS solutions that can be static, mobile, portable or temporarily deployable on vehicle(s), to:

- Detect presence of sUAVs
- Determine location, intent and assess the risk posed
- Locate operator
- Enforce a 'no-drone' zone

The impacts of COVID-19 have made it even more important for the Government to communicate with industry and academia as clearly and efficiently as possible. Despite the challenge of COVID-19 the Government is dedicated to continuing to collaborate closely with the drone and counter-drone industries. This work will therefore be in lieu of a separate Home Office Counter-Drone Unit Grand Challenge this financial year, to reduce the burden on industry that different competitions bring. The outputs from this enhanced DASA competition will still allow the Home Office and DfT to scope the focus for any potential future investment in developing counter-drone technologies.