ABSTRACTS FROM THE SCIENTIFIC AND TECHNICAL PRESS.

Issued by the
Directorates of Scientific Research and Technical Development, Air Ministry.
(Prepared by R.T.P.)

No. 91. June, 1941.

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Note.—As far as possible, the country of origin quoted in the items refers to the original source.

List of Abbreviations of Titles and Journals.

A.	Abstracts from the Scientific and Technical Press.
Aeron. Eng.	Aeronautical Engineering (U.S.S.R.)
Aer. Res. Inst. Tokyo	Aeronautical Research Institute of Tokyo.
A.C.I.C.	Air Corps Information Circular.
Ann. d. Phys.	Annalen der Physik
Army Ord.	Army Ordnance.
Autom. Eng.	Automobile Engineer
Autom. Ind.	Automotive Industries.
Autom. Tech. Zeit. ...	Automobile Technische Zeitschrift.
Bell Tele. Pubs. ...	Bell Telephone Publications.
Bur. Stan. J. Res. ...	Bureau of Standards (U.S.A.) Journal of Research.
Chem. Absts.	Chemical Abstracts.
Chem. and Ind. ...	Chemistry and Industry.
Comp. Rend.	Comptes Rendus de L'Académie des Sciences.
Eng. Absts.	Engineering Abstracts.
E.N.S.A.	Revenue Technique de l'Association des Ingénieurs de l'Ecole Nationale Supérieure de L'Aéronautique.
Forschung	Forschung auf dem Gebiete des Ingenieurwesens.
Fuel	Fuel in Science and Practice.
H.F. Technik.	Hochfrequenztechnik und Electroakustik.
Ind. and Eng. Chem. ...	Industrial and Engineering Chemistry.
Ing.-Arch.	Ingenieur-Archiv.
Inst. Autom. Eng. ...	Institute of Automobile Engineers (Research and Standardisation Committee).

https://doi.org/10.1017/S0368393100140167 Published online by Cambridge University Press

J. Aeron. Sci.	Journal of the Aeronautical Sciences.
J. App. Mech.	Journal of Applied Mechanics.
J. Am. Soc. Nav. Engs.	Journal of American Society of Naval Engineers.
J. Roy. Aero. Soc. ...	Journal of Royal Aeronautical Society.
J. Frank. Inst.	Journal of Franklin Institute.
J. Inst. Civ. Engs. ...	Journal of Institute of Civil Engineers.
J. Inst. Elec. Engs. ...	Journal of Institute of Electrical Engineers.
J. Inst. Petrol.	Journal of the Institute of Petroleum.
J. Met. Soc.	Journal of Meteorological Society.
J. Sci. Inst.	Journal of Scientific Instruments.
J.S.A.E.	Journal of Society of Automotive Engineers.
J. Soc. Chem. Ind. (Abstracts B)	Journal of the Society of Chemical Industry (British Chemical Abstracts B)
L'Aéron.	L'Aéronautique.
L.F.F.	Luftfahrt-Forschung.
Luschau.	Luftfahrt-Schrifttum des Ausiandes
Met. Mag.	Meteorological Magazine.
Met. Prog.	Metal Progress.
N.A.C.A.	National Advisory Committee for Aeronautics (U.S.A.).
Phil. Mag.	Philosophical Magazine.
Phil. Trans. Roy. Soc.	Philosophical Transactions of the Royal Society.
Phys. Berichte. ...	Physikalische Berichte.
Phys. Zeit.	Physikalische Zeitschrift.
Proc. Camb. Phil. Soc.	Proceedings of Cambridge Philosophical Society.
Proc. Inst. Rad. Engs.	Proceedings of Institute of Radio Engineers.
Proc. Roy. Soc. ...	Proceedings of Royal Society.
Pub. Sci. et Tech. ...	Publications Scientifiques et Techniques du Ministère de l'Air.
Q.J. Roy. Met. Soc. ...	Quarterly Journal of the Royal Meteorological Society.
R. and M.	Reports and Memoranda of the Aeronautical Research Committee.
Rev. de l'Arm. de l'Air	Revue de l'Armée de l'Air.
Riv. Aeron.	Rivista Aeronautica.
Sci. Absts. (A. or B.)	Science Abstracts (A or B.).
Sci. Am.	Scientific American.
Sci. Proc. Roy. Dublin Soc.	Scientific Proceedings of Royal Dublin Society.
Tech. Aéron.	La Technique Aéronautique.
Trans. A.S.M.E. ...	Transactions of the American Society of Mechanical Engineers.
Trans. C.A.H.I. ...	Transactions of the Central Aero-Hydrodynamical Institute, Moscow.
U.S. Nav. Inst. Proc.	U.S. Naval Institute Proceedings.
Verroffent · (Siemens)	Vercffentlichungen aus dem Gebtete der Nachrichtentecgnik (Siemens).
W.R.H.	Werft Reederei Hafen.
W.T.M.	Wehrtechnische Monatschefte.
Z.A.M.M.	Zeitschrift für Angewandte Mathematik und Mechanik.
Z.G.S.S.	Zeitschrift für Das Gesamte Schiess und Sprengstoffwessen mit der Sonderabteilung Gasschutz.
Z. Instrum.	Zeitschrift für Instrumentenkunde.
Z. Mech.	Zentralblatt für Mechanik.
Z. Metallk.	Zeitschrift für Metallkunde.
Z.V.D.I.	Zeitschrift des Vereines Deutscher Ingenieure.

Some Notes on the Ideal Efficiency of Airscrews. (W. Hoff, L.F.F., Vol. 18, No. 4, 22/4/41, pp. 114-121.) (91/4 Germany.)

According to the simple jet theory, the thrust is distributed uniformly over the actuator disc and there are no rotary losses. If the disc is replaced by rotating blade elements, rotary losses cannot be avoided. If it were possible to operate the blade elements at different angular velocities so that ω_r is constant along the blade, the axial losses distributed uniformly over the jet would remain unchanged and the additional rotary losses are also distributed uniformly. Such an arrangement has the greatest possible efficiency. In practice, however, the blade elements necessarily operate at constant ω irrespective of r, and the best thrust distribution with smallest losses is achieved when the induced efficiency of the ring elements varies between an inner and an outer limit. The author compares the resultant efficiency with the ideal case (ω_r constant) and notes a small loss, necessarily associated with the high v/u ratio for elements near the hub (v = translatory and u = circumferential speed).

In conclusion the author's results are compared with other theoretical investigation on lightly loaded propellers and in this connection extensive references are made to Glanert's article on "Airplane Propellers" in Vol. IV of Durand's "Aerodynamic Theory."

Dornier Do 18 Flying Boat Fitted with B.M.W. 132 Air-cooled Radial Engines. (Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 420-422.) (91/5 Germany.)

The Dornier flying boat was originally fitted with two liquid-cooled Diesel engines (Jumo 205) arranged in tandem on the central section of the wing surface, the front engine being fitted with a tractor airscrew, whilst the rear engine operates a pusher screw through an extension shaft. This arrangement provided small frontal resistance, high efficiency of the pusher screw and good performance when flying on one engine only. Moreover, the Diesel engines had a very small fuel consumption and this contributed to the exceptional range of the boat (record flight of 8,400 km.). With the coming of the war, increasing use was made of the machine for flight of relatively limited range. At the same time, the need for a catapult start was felt to be a drawback. Both these requirements were met by replacing the Jumo engines with 2 B.M.W. radials arranged in tandem as before and completely immersed in one engine nacelle. In this arrangement air enters the front engine in the normal manner through the centre of the cowl and is exhausted through two lateral and controllable ports in the nacelle immediately behind the engine. The cooling air for the rear engine enters a scoop at the rear of the nacelle, is turned through 90° and fed to a cooling fan. The air then impinges on the exhaust side of the rear engine (which is mounted in the reverse direction to the front engine) and after passing the engine is exhausted through a second pair of lateral ports placed behind the first pair. The cooling air stream to the second engine thus moves in a direction opposing that of flight. The two sets of lateral ports are so positioned that no hot air can enter the rear scoop. It is stated that the cooling of both engines is satisfactory and that the assistance of the fan provides sufficient cooling even if the rear engine (working the pusher airscrew) is operated alone.

The performance of the boat has been vastly improved since the change in engines. Whilst before an all up weight of 10 tons required a catapult start, weights up to 13.5 tons have been lifted without take-off assistance. In spite of the power absorbed by the cooling fan, the increased efficiency of the pusher screw is such that, for single engine take-off, the near engine alone will lift 400 kg. more than the front engine.

The relative power outputs of the old and new engines is given in the following table:—

	Take-off h.p.	Cruising h.p.	Sp. fuel consumption gm./b.h.p. hour.	Weight/power ratio kg./h.p.
Junno 205 ...	600	510	165	0.87
B.M.W. 132...	850	630	215	0.56

Material Investigations on Steel Fittings and Structural Parts of Some Captured British, American and French Aircraft. (H. Cornelius, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 78-81.) (91/6 Germany.)

The steel parts examined were taken from the following aircraft:—

British: Blenheim, Wellington, Hampden, Battle, Spitfire.
U.S.A.: Hudson.
France: Morane, Lioré-Olivier.
And covered wings, fuselage, engine supports, landing gear and armour plating.

Attention is called to the extensive use of high alloy Ni-Cr-Mo steels by the British and French. According to the author, equivalent performance can be obtained without Ni, and the resulting Cr-Mo steels have the additional advantage of being weldable. This is the German and also the American practice. It appears that welding is still not favoured by the British designer. British armour plate varies in thickness from 4.3 to 9.3 mm., with high Ni content (3.1 to 3.9 per cent.). The Fairey Battle used a non-magnetic Mn steel which is totally unsuitable for armour plating on account of its brittleness under bullet impact.

Automatic Riveting in Aircraft Construction. (C. H. Plock, Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 36-42.) (R.T.P. Translation No. 1,190.) (91/7 Germany.)

The article deals with flush riveting as practiced by the Focke-Wulf Company. Such rivets can either be of the mushroom or flat head type. In the former, the rivet is inserted from the inside and the countersunk head produced from the rivet shaft, previously cut to the exact length to produce a flush fit in the dimpled sheet. The flat head rivet is inserted from the outside, the closing head being produced on the inside without requiring exact dimensioning of rivet length. In plates over 1.2 mm. thickness, the countersink is normally produced by a special tool akin to a milling cutter, the operation being usually combined with the drilling of the rivet hole. For thinner plates, the necessary deformation for the countersink is produced mechanically (dimpling) either by the rivet itself or by means of special tools. If a thin outer skin is to be attached to a thicker plate, the latter is machine countersunk whilst the former is pressed to shape again either by the rivet itself or by a special tool prior to insertion of the rivet. Dimpling by means of the rivet is more economical, but the special tool furnishes a smoother surface. In the simple riveting machine, the operation is limited to the closing of the rivet, either by gradual pressure (air, oil, or a combination), a single blow or multiple blows. A semi-automatic riveting machine combines insertion with dimpling and clenching in one operation. An " automatic " riveter includes drilling the hole, whilst a fully automatic machine also incorporates a work feed. It is also possible for the machine to manufacture the rivets as wanted by cutting off suitable lengths of wire carried on a reel. Representative type of semi and fully automatic machines are illustrated, and an interesting optical device for facilitating alignment of rivet with previously drilled holes is described.

Whilst the simple closing press requires but little operative skill, automatic riveting machines are much more delicate and trained personnel is essential. In the author's opinion, however, the saving in time is such that the high first cost of the automatic is well worth while.

Efficient Design. (Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 48-49.) (91/8 Germany.)

In the past, production has been increased by employing more labour and working longer hours. Much can, however, be done by efficient design, which not only makes the labour more productive but also saves valuable material. Thus the Dornier works make considerable use of welded steel fittings for wings. Previously such fittings were made of die forgings, and in an example illustrated the original forging weighed 0.65 kg. reduced to 0.28 kg. after machining. By altering the design so that the flange consisted of two portions welded together, the quantity of material required was reduced to 0.20 kg. whilst the time taken to produce the finished article was 40 per cent. less. Tests have conclusively proved that such welded fittings are fully equal to the original product machined out of the solid. Another big saving in time and material can be brought about by the substitution of pressings for previously riveted wing ribs.

It is stated that by introducing 30 small design improvements of this type in a certain aircraft, 90 man hours were saved in labour and the finished machine weighed 42 kg. less, combined with a further saving of 64 kg. in material utilised.

https://doi.org/10.1017/S0368393100140167 Published online by Cambridge University Press

The Influence of Bending and Buckling on Stress Measurements Carried Out on Shell Structure of which Only One Side is Accessible. (A. Dose, L.F.F., Vol. 18, No. 2-3, 19/3/41, pp. 95-101.) (91/9 Germany.)

Stress calculations based on extensometer measurements carried out on the surface of stressed skins can be seriously affected by the even slight buckling of the skin. The corresponding extension due to bending can be eliminated if extensometer measurements are carried out on both sides of the skin. In many cases, however, the interior of the structure is not accessible and it is important to estimate the necessary correction by means of measurements confined to the outer surface.

On the assumption that the bulge is of circular shape, the corresponding strain $\epsilon = d/2 \times 1/R$ where d=thickness of skin and R=radius of curvature of the neutral fibre. The latter can be determined by measuring the height f of the bulge above a chord of length s. Provided f is small and $df/(s/2)^2 < 1$,

$$\epsilon = \frac{df}{(s/2)^2}$$

to a high degree of accuracy.

It is obvious that f can be measured by means of a suitably geared mechanical pointer similar to the spherometer employed in lens measurements and the author has incorporated such a device in the standard Huggenberg extensometer. In this case the extensometer base line coincides with the chord for the f measurements and corrections have to be applied to the strain determination in order to take into account the change in chord length with buckling. These corrections are tabulated by the author. The effect of a bulge of varying curvatures is also investigated. It appears that such changes can generally be neglected if the base line is less than 20 mm. in length. In conclusion, the author gives an example of the effect of buckling on stress distribution in the web of wing spar. (Light alloy skin, 0.75 mm. thick.) The table summarises the results.

	Uncorrected.	Ditto, corrected for buckling.
Principal stress σ_1 ...	-1060 kg./cm.^{2}	-678 kg./cm.^{2}
σ_2 ...	$+460$ kg./cm.^{2}	$+558$ kg./cm.^{2}
τ_{max} ...	760 kg./cm.^{2}	618 kg./cm.^{2}
α ...	$-36.4°$	$-37.5°$

The Landing Process (Length of Run, Braking Effort and Possibility of Tipping Over). (G. Matthias and R. Schaeff, L.F.F., Vol. 18, No. 2-3, 29/3/41, pp. 70-76.) (91/10 Germany.)

The principal object of the author is to determine the factors controlling the landing energy which must be absorbed by the brakes. The danger of tipping (nosing) over is also investigated. Other things being equal, the length of landing run varies as the square of the touch down speed. The principal factors influencing the run are the air resistance, weight, ground friction and brake operation. If a maximum length of run is stipulated for a given wing area and lift coefficient, the kinetic energy to be absorbed by the brakes varies as the square of the aircraft weight (fourth power of landing speed), besides depending on the air forces and friction coefficients during the run. The ratio of lift coefficients at touch down and during rolling on the ground is of primary importance and requires careful consideration when comparing the landing properties of nose wheel and tail wheel aircraft. Even if the brake operation is not limited by the heat generated, the possibility of nosing over puts an upper limit to its braking effort. Nosing over will occur if the ratio (total frictional force)/(weight) becomes greater than the tangent of the angle between the vertical and the line joining the point of contact of the main landing wheels with the C.G. of the aircraft. At the beginning of the run, the lift reduces the effective retarding forces and the danger of nosing over thus only arises towards the end of the run. The shortest landing run is obtained if the brakes are fully on at touch down and then gradually released so that (retarding force)/(weight) is always just smaller than the tangent of the above mentioned angle.

In the German Safety Regulation for Aircraft, the minimum value of this angle is fixed at 12° for the most forward position of the C.G., the longitudinal axis of the aircraft being assumed horizontal. According to the author this should be modified to cover the fuselage altitude corresponding to three-point landing.

Rate of Vertical Descent after Flattening Out Prior to Landing. (J. Carsens and H. Schaeffer, L.F.F., Vol. 18, No. 2-3, 29/3/41, pp. 77-81.) (91/11 Germany.)

The aircraft is assumed to be moving horizontally at a velocity v_0 so that

$$v_0^2 = G/c_a\,(\rho/2)\,F$$

where c_a = lift coefficient.
G = weight.
F = wing area.

There is no propeller thrust and the subsequent motion of the C.G. is investigated on the assumption that the angle of incidence remains constant, *i.e.*, c_w/c_a is independent of the path angle γ (c_w = drag coefficient).

The resulting equations of motion are integrated by the step by step method with the help of auxiliary functions and the rate of vertical descent v_z after a loss of altitude z as well as the corresponding path distance s along the trajectory are expressed graphically as functions of v_0 and z with c_w as parameter. For the practical range c_a at which flattening out should take place, the expression

$$v_z = \sqrt{\frac{c_w}{c_a}\,2\,gz}$$

holds with good approximation. The actual rate of descent does not increase indefinitely with z, but oscillates with gradually decreasing amplitude about a terminal value. A worked out example for the Fw. 159 aircraft gives the following results:—

$$\left.\begin{array}{l} G = 2{,}250 \text{ kg.} \\ F = 20.2 \text{ m.}^2 \\ c_w/c_a = 0.152 \\ c_a = 1.70 \\ v_0 = 31 \text{ m./sec.} \end{array}\right\} \text{Flaps down, landing wheels out.}$$

z	v_z	s
2	2.3	72
4	3.5	95
8	5.0	120
12	5.7	130
20	6.6	175
28	7.4 (max.)	202
36	7.0	270
40	6.6	260
50	4.8	318
~ 150	4.6 (terminal)	—

Dynamic Balancing of Airscrews. (Esher Wyss, Inter. Avia., No. 754-55, 15/3/41, pp. 10-11.) (91/12 Switzerland.)

The Escher Wyss Maschinenfabriken A.G., of Zurich, Switzerland, carry through the dynamic equilibration of their airscrews on a new type of test bench on which the airscrew is attached on a cantilever mount and supported on one side only. As a result, undisturbed flow conditions such as prevail around the airscrew mounted on the aeroplane are obtained and sources of error of conventional equilibration benches eliminated. The aerodynamic unbalance of the airscrew may be of the same magnitude as the mechanical unbalance caused by weight differences, the position of the axis and the blades' centre of gravity paths and is caused: (1) By small irregularities in the finish of the airscrew blades as well as the latters' angle of incidence. This type of unbalance could be separated from the mechanical type only by test runs in a vacuum chamber; together the two types result in a sinuous form of oscillation. (2) By the surroundings of the airscrew, *i.e.*, by irregularities in the air flow. The disturbances in the air flow in the vicinity of the airscrew cause, besides the fields of vorticity not depending upon the airscrew speed, pressure shocks every time a blade passes through the disturbed region; these shocks result in an oscillation corresponding to the number of blades and superimposed on the sinuous oscillation. These interfering oscillations may assume such a magnitude as to prejudice the calculation of the measuring results. The oscillations are measured by Escher Wyss not by mean value calculation but by direct optical observation, which provides a very reliable means of determining dynamic unbalances even in the region of great interference amplitudes.

Permanent Buckling Stress of Thin Sheet Panels Under Compression. (W. L. Howland and P. E. Sandorff, J. Aeron. Sci., Vol. 8, No. 7, May, 1941, pp. 261-269.) (91/18 U.S.A.)

In this report it has been shown that:—

1. The problems of skin buckles are of increasing importance to the airplane designer, particularly with high design stresses, low design load factors and greater aerodynamic efficiency.

2. The computed critical buckling stress has practical significance only once in the history of the structure.

3. Structure which buckles in service should be designed so that it will be free of objectionable buckles at a load factor of from 1 to 1.25 after the application of maximum anticipated service load.

4. Theoretical computations indicate a relation between the maximum stiffener stress for objectionable buckling and the critical buckling stress, and this relation is substantiated by experimental data.

5. In applying data on skin buckles to the design of monocoque structures, it is necessary to determine the relation of the stress at maximum service load to that at a load factor of 1.25. This can be expressed through a ratio of panel loads. For buckling materials, an accurate value of panel load is obtained through the use of van Kármán's effective width relation.

6. The relation of the maximum stiffener stress to the critical stress for objectionable buckling can be expressed by a family of curves as in Figs. 9 and 10.

Directional Stability and Vertical Surface Stalling. (G. S. Schairer, J. Aeron. Sci., Vol. 8, No. 7, May, 1941, p. 270.) (91/19 U.S.A.)

A vertical tail stall can only be obtained by yawing the aeroplane to angles at which fin stalling or rudder force reversal or both are obtained. This seldom occurs at less than 15° of yaw. Large aeroplanes are never yawed to any appreciable extent in normal operation and vertical tail stalls are never encountered in normal operation. On some classes of aeroplanes the use of the sideslip manœuvre is desirable, but even on these aeroplanes the sideslip angles normally used would not ordinarily produce a tail stall. Multi-engined aeroplanes, when operated with unsymmetrical power, are frequently flown with some yaw or sideslip, but even then the angle of yaw normally used will not produce a tail stall. There are probably only three ways in which an aeroplane is likely to be yawed sufficiently to produce a tail stall. These are as follows:—

1. Inadvertent engine failure at extremely low speeds on multi-engined aeroplanes on which the rudder is either incapable of supplying all the required restoring moment, or its action is delayed by the human element.
2. Inadvertent excessive sideslipping of manœuvrable aeroplanes.
3. Intentional excessive sideslipping for experimental, educational and other reasons.

On the original version of the Stratoliner at an angle of yaw of about fifteen degrees a noticeable reversal in the pedal force required to produce yaw was measured. This was as noticeable under symmetrical conditions as with one engine dead. The wind tunnel tests of this configuration showed no evidence of a fin stall, but did show a marked loss in stability with the rudder free at between ten and fifteen degrees of yaw.

A new tail surface including a dorsal fin was fitted to the machine and extensive flight tests carried out. At ninety miles per hour with the engines operating at take-off power, the left outboard engine was suddenly throttled. No rudder correction was made and equilibrium in yaw was reached at thirty degrees of yaw. The aeroplane has been flown with both left-hand engines throttled and the right engines at rated power at speeds below 85 miles per hour at zero yaw.

Adequate directional stability has been demonstrated repeatedly by simulating an engine failure during a landing approach with flaps full down at speeds below 85 miles per hour. While in this condition, the throttles on all engines except the left outboard engine are opened, the aeroplane is placed in a climb, and the landing approach abandoned. This is probably the supreme test for any aeroplane. A four-engine aeroplane would be a little safer than a two-engine aeroplane if it did not have the directional stability and control characteristics necessary to make such a manœuvre.

The Stressing of Circular Frames in Shell Structures. (H. Fahlbusch and W. Wegner, L.F.F., Vol. 18, No. 4, 22/4/41, pp. 122-127.) (91/20 Germany.)

The author investigates the stress distribution for frames of constant bending stiffness under four fundamental load conditions:—

A. Localised radial force acting on the frame.
B. Localised moment acting along a diameter of the frame.
C. Localised tangential force acting along the neutral fibre of the frame at a distance r from the centre.
D. Localised tangential force acting along the outer periphery of the frame at a distance R from the centre (=distance of shear flux in shell from centre).

The distribution of bending moment, normal and lateral forces are given in a series of diagrams.

Any arbitrary load can be built up from the above standard cases and the resultant stress distribution obtained by superposition, provided that:—

1. The depth of the circular frames is small compared with r.
2. The cross-section remain plane.
3. The influence of the longitudinal and lateral force on the displacement factors can be neglected.
4. The bending stiffness of the shell is small compared with that of the frame.
5. The frames remain practically circular.

A worked out example illustrates the method.

Aerodynamic Forces Acting on the Wing-Aileron-Tab Combination when Undergoing Harmonic Vibration. (F. Dietz, L.F.F., Vol. 18, No. 4, 22/4/41, pp. 135-141.) (91/21 Germany.)

This is an extension of a previous paper by the author published in L.F.F., Vol. 16 (1939), pp. 87-96, and which covered the two-dimensional case of the wing-aileron-tab on the supposition that the leading edge of both aileron and tab coincide with the axis of rotation. The formulæ already obtained are reformed so as to apply to the case of aerodynamic balanced surfaces, portions of the equivalent doubly hinged flat plate in front of the hinges, thus forming part of the aileron and tab respectively. These hinges, of course, will not in general coincide with the axis of rotation of either aileron or tab. This conception seems permissible provided the gap between wing and aileron or aileron and tab is small and that the total wing profile is not much affected by the deflection of aileron and tab.

Expressions for the resulting aerodynamic forces are given in tabular form, the use of which is illustrated by a worked out example. The case of a wing aileron combination undergoing harmonic vibrations varying between 0 and 160/sec. at airspeeds of 80 and 160 m. per sec. respectively is considered for two cases of hinge position, (*a*) hinge coincides with leading edges of aileron, (*b*) axis of rotation of aileron is situated at 1/5 chord behind leading edge. It appears that the reduction in aerodynamic moment with displacement of axis of rotation is practically independent of vibration frequency or air speed.

Design of Blade Feet for Airscrews. (G. Cordes, L.F.F., Vol. 18, No. 4, 22/4/41, pp. 128-134.) (91/22 Germany.)

The stressing of modern airscrews is steadily increasing due to the large h.p. employed and the increasing utilisation of the airscrew as a brake during high speed power dives. Not only must the hub be strong enough to carry the heavy loads, but even small deformations must be avoided as they may cause difficulties in the operation of the pitch changing mechanism. In addition the blade feet are subjected to a combination of static and dynamic load requiring careful investigation. The alternating stresses constituting the dynamic load are mainly induced by the engine torque variation, whilst the static load (combination of centrifugal and aerodynamic forces) depends on the operative conditions of the airscrew (take-off, normal flying, driving with engines throttled or full power dives with airscrew acting as a brake).

If

S_o = static thrust of complete propeller,
M_d = mean engine torque,
z = number of blades,
S = thrust per blade,
T = circumferential force per blade at 0.7 R,

we have

$$S = sS_o/z$$
$$T = t\frac{M_d}{0.7\,Rz}$$

when s and t are factors depending on operative conditions.

In addition we have :—

$$M_{dw} = aM_d$$

where M_{dw} = torque fluctuation at propeller shaft and a = constant depending mainly on the damping in the circuit. With the use of D.V.L. data on fatigue limits, the author works out minimum blade feet diameters as a function of h.p. absorbed for blades made of dural, electron and wood respectively.

Four different operative conditions are considered in each case corresponding to take-off and power dives for two values of the torque fluctuation, the corresponding values of the constants being given below :—

Case.	a	s	t
1	± 0.5	1	1
2	± 0.5	2	1
3	± 1.0	1	1
4	± 1.0	2	1

(1) and (3) correspond to take-off; (2) and (4) are power dives with propeller acting as a brake.

$a = \pm 1.0$ is representative for current engine installations; the smaller value of "a" can be obtained by efficient damping.

The results are given in a series of curves, from which the following values have been extracted for load case 3.

			H.P absorbed by complete propeller. Wood.	Electron.	Dural.
Effective blade foot diameter	140 mm.	$z=3$	1150	1400	1600
		4	1430	1700	2000
		5	1700	2000	2500
Effective blade foot diameter	160 mm.	$z=3$	1560	1850	2300
		4	1960	2300	2850
		5	2340	2750	3400

On the supposition that the hub is sufficiently strong the safe h.p. during a power dive with the airscrew acting as a brake is only 10 per cent. less than the figure given.

Reducing (a) from ± 1 to ± 0.5, increase the safe h.p. by about 50 per cent. under take-off conditions, but by only 20 per cent. when using engines as a brake during power dives.

Speaking generally, a propeller designed for take-off conditions will not absorb the same power when acting as a brake during a dive, unless either the number of blades or the blade foot diameter is increased.

From the point of view of production, the latter alternative is recommended.

Material and Design of Some Captured British, American and French Aero Motors. (P. Kotzschke, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 69-78.) (91/23 Germany.)

The engines examined covered the following types:—

British: Merlin, Mercury, Hercules, Tiger.
French: Hispano, Gnome-Rhone.
U.S.A.: Cyclone, Twin-Wasp.

All the highly stressed parts (crankshaft, connecting rods, bearings) were carefully examined as to composition and heat and surface treatment. The survey also included cylinder liner, piston rings, valves, valve seating, springs, gears and cylinder bolts. A special section is reserved for light alloys (pistons, cylinder heads and crankcase). (The Cyclone is the only engine examined possessing a steel crankcase.)

Special attention is called to the French process of die casting cylinder heads, which is described in some detail. The author is of the opinion that British and French designers use needlessly complex alloy steels containing varying proportions of Cr, Ni, Wo, etc. Low alloy steels give equivalent performance, as is also recognised by America. Whilst nitriding appears to be more common than in German designs, the author considers that the surface finish is generally below the German standards.

Three New Aero Engines of the B.M.W. 132 Series. (Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 57-59.) (R.T.P. Translation No. 1,204.) (91/24 Germany.)

The three engines described are known as Mark F, K and N respectively and are further developments of the well known 132 series, 9-cylinder radial, bore=155.5 stroke=162.0 mm. The main improvements concern increased finning of the cylinder head round the exhaust valve port (the inlet valve port has no fins), the substitution of epicyclic reduction gears of the spur wheel type for the conical level gear and the fitting of fully automatic fuel injection pumps. Details of the general lay out of the engines and reduction gears are given. It is stated that the cooling of the engine has also been improved by a new system of baffles attached to the outer ring cowling in such a way as to reduce flow losses to a minimum. No details of the cowling are given. Two valves per cylinder are fitted, inclined at 70°, the exhaust valve being sodium cooled. Both valves are fitted with a special spring clip to prevent the valve dropping into the cylinder in case of spring failure.

The auxiliary drives for injection pump, magneto, generator, air compressor, rev. counter and airscrew governor are neatly arranged on a separate plate at the rear of the engine.

Models F, K and N differ as regards supercharge layout and are rated as follows :—

	F	*K*	*N*
Maximum h.p. take-off ...	800	960	865
Continuous output ...	650	690	665
At altitude (M.)	4,300	1,800	4,500

Couplings and Clutches for Power Plant Machinery. (Engg. and B.H. Rev., May, 1941, pp. 352-358.) (91/25 Great Britain.)

This article gives particular prominence to the problems connected with the alignment of shafts in power plant drives, and formulæ are derived for correcting misalignment. The features and characteristics of a wide range of couplings for turbo-alternators and auxiliary drives of all kinds are dealt with to some length. (Abstract supplied by Research Dept., Met. Vick.)

Air-cooled v. Liquid-cooled Aircraft. (J. G. Lee, J. Aeron. Sci., Vol. 8, No. 6, April, 1941, p. 219-229.) (91/27 U.S.A.)

Data are presented on the drag, weight, cooling and fuel consumption of air-cooled and liquid-cooled power plant installations. Based upon these data the design of three groups of air-cooled and liquid-cooled aeroplanes is postulated. When these groups are compared upon a basis of equal size and weight, the air-cooled aircraft are found to be superior in the pursuit, bomber and transport types. In the author's words: "The U.S.A. are in an extremely fortunate position to have in production 2,000 h.p. air-cooled engines—30 per cent. more powerful than anything available abroad. The foreign nations would match them if they could, but they are learning, as some Americans have already learned, that to develop a really satisfactory 2,000 h.p. liquid-cooled engine is truly a monumental task."

Possibilities of the Two-Stroke Cycle for Small Aircraft. (A. R. Rogowski, J. Aeron. Sci., Vol. 8, No. 6, April, 1941, pp. 230-235.) (91/28 U.S.A.)

In order to reduce the first cost and maintenance of the small aeroplane, and thus making private flying universally available, there is need for a simple, reliable, low-cost engine performance equal to the present four-stroke unsupercharged power plant. The piston-ported loop-scavenged two-stroke engine is considered for this purpose, using as a basis the results of tests on an experimental cylinder of this type. It is concluded that this engine would be most satisfactory, provided the fuel consumption at high outputs could be reduced by means of relatively inexpensive fuel-injection equipment.

The Dynamic Absorber and its Application to Multi-Throw Crankshafts. (Bailey and Bullied, J. Inst. Mech. Engrs., May, 1941, pp. 73-82.) (91/30 Great Britain.)

The dynamic absorber is stated to be the special case of a tuned absorber in which the natural frequency of oscillation is directly proportional to the rotational speed of the shaft which carries it. Four typical absorbers are studied in detail. In each case the tuning and amplitude equations are derived and, for the roller types, expressions are obtained for the maximum roller amplitude which may be attained without the occurrence of slipping. It is stated that the method is quite general; and can be applied to any other type of engine as desired.

(Abstract supplied by Research Dept., Met. Vick.)

Method of Computing the Dimensions of Airplane Engine Coolers. (J. K. Thornton and J. G. Beerer, J. Aeron. Sci., Vol. 8, No. 7, May, 1941, pp. 292-299.) (91/31 U.S.A.)

A theoretical analysis of the aeroplane engine air-air intercooler has been developed. As a result of this study, three simultaneous equations are obtained, which are solvable for the three linear dimensions of the intercooler. Certain constants in these equations can be obtained only from experimental tests data of the particular type of cooler under consideration. However, once these constants have been obtained, then the size of intercooler required to satisfy a given set of operating conditions may be correctly predicted.

The operating conditions are determined by specifying the following values:—(1) Engine air weight flow, initial temperature and pressure, required temperature drop and allowable pressure drop; (2) cooling air weight flow, initial temperature and pressure and allowable pressure drop.

If all these conditions are fixed, then the dimensions and volume of a given type of intercooler satisfying them are uniquely determined.

But in a practical case, considerable latitude may often be taken in the value of the weight flow of cooling air, in which case many different intercoolers will satisfy the remaining operating conditions. As the weight flow increases, all three dimensions of the intercooler change, but in such a manner that the volume decreases, consequently the final choice must be a compromise between the space available for the intercooler, the weight of the intercooler and ducting problems.

Analysis of the experimental and structural data of a commercially available intercooler gave the necessary coefficients for this type of cooler. These co-efficients were inserted in the theoretical equations and then, assuming operating conditions corresponding to the test data, the equations were solved for dimensions and volume. The volumes computed in this manner, checked within 6 per cent. of the volumes used in the test data.

Identification of Oils by Means of Interfacial Surface Tension Determinations (Oil/Water or Oil/Aqueous Solution). (F. Seclich, Fette and Seifen, Vol. 48, No. 1, Jan., 1941, pp. 15-20.) (91/32 Germany.)

All liquids are subject to internal pressure due to intermolecular attraction. As a result the liquid tends to occupy the smallest possible space and any attempt to increase the surface of the liquid is resisted by the force of surface tension. In the case of mixtures, the surface layer will consist predominantly of those molecules which have the least intermolecular attraction, the more "active" molecules being relegated to the interior. Thus the addition of oleic acid (characterised by polar molecules of high internal pressure) does not markedly change the surface tension of paraffin oil (low internal pressure). If, however, instead of determining the surface tension in air (as is usual) the interfacial surface tension of such mixtures against water or aqueous solutions is determined, a large reduction (especially for the first minute additions) is observed. The effect does not only depend on the nature of the "active" constituent present, but also on the time, temperature and exposure to light. The author suggests that investigations of this type not only throw light on questions of molecular constitution and stability of emulsions, but are also useful in checking constancy of oil supplied to specification, degree of refining, etc. For this purpose the author has designed an interfacial tensometer based on an instrument previously described by Lecomte du Norry (J. Gen. Physiol., Vol. 7, 1925, p. 625). In this instrument the force exerted by the interfacial layer on a platinum ring is measured by means of a torsion balance. The main difference between the author's and the original instrument consists in the fact that the critical force is now measured without breaking the film. It has been found that the breaking away of the ring from the film is never sudden but always preceded by a so-called "super-tension" phase, during which extension of the film is not accompanied by any further increase in the reading of the balance. By means of a simple optical device the approach of this stage is indicated and repeated readings can then be taken over long periods on the same film. (If the film breaks, the ring will traverse the oil and will have to be cleaned before reinsertion.)

Relationship of Viscosity to Rate of Shear. (L. J. Bradford and F. J. Villforth, Trans. A.S.M.E., Vol. 63, No. 4, pp. 359-362.) (91/33 U.S.A.)

This paper reports tests designed to check the validity of the assumption that lubricating oils belong to the class of a Newtonian fluid, which is defined as one in which the force required to shear it is directly proportional to the rate of shear. It is on this assumption, which in recent years has been questioned, that equations for the behaviour of bearings have been based. Experimental evidence is produced in support of Petroff's equation which states that the torque required to rotate a journal, concentric with its bearing, is directly proportional to the product of the absolute viscosity and the rate of shear of the fluid separating the journal and the bearing. The agreement of the results with those predicted by the Petroff equation upon the assumption of the independence of viscosity from the rate of shear holds for all of the oils investigated.

The Effect of Holes Provided with Screw Threads or Longitudinal Serrations on the Endurance and Fatigue Strength of Flat Light Alloy Strips. (H. Burnheim, L.F.F., Vol. 18, No. 2-3, 29/3/41, pp. 102-106.) (91/34 Germany.)

The alloy strips (6 mm. thick) were made of dural and electron respectively and were tested under pulsating load (0 to max.) at a frequency of 25 cycles per sec. Wohler curves of max. stress on a basis of total load cycles required for fracture were plotted over the range of 10^4 to 10^7 cycles. After 10^7 cycles, the curve becomes practically horizontal, *i.e.*, the fatigue limit is reached and the corresponding stress variations can be supported indefinitely. The higher stresses corresponding to smaller number of permissible load cycles are called "endurance" stress. Experiments were carried out with undrilled and drilled strips, the holes being either plain, threaded, or serrated. The effect of loading the holes by means of a transverse pin was also investigated. In addition to endurance and fatigue limits, the ratio of endurance of plain sample to drilled sample as well as the ratio ultimate tensile of sample to endurance was determined over a range of load cycles. The former ratio is defined as the notch sensitivity β_k, and is a maximum for both materials for the serrated holes. β_k for the threaded hole is greater than for the plain hole. The relative order of β_k is the same whether the holes are pin loaded or not, but the absolute values are considerably greater in the former case.

For dural β_k does not vary much with number of load cycles (*i.e.*, over the range endurance-fatigue) provided the holes are not pin loaded (average value 2). In the case of pin loading, β_k increases from about 2 to 4 over the load cycle range 10^4 to 10^7.

For electron (unloaded holes) β_k varies from 2 to 3 over the same load cycle range, but from 2.5 to 9.5 in the case of pin loaded serrated holes.

Similarly, over the load cycle range 10^4 to 10^7 the ratio of ultimate tensile to endurance increases from about 3 to 21 from pin loaded serrated holes in the case of magnesium, but only from 3 to 14 for the corresponding case of duralumin.

It is therefore concluded that pin loaded points of electron are unsatisfactory if the holes are serrated. The following table gives the strength characteristics of the plain (undrilled) material.

	Dural.	Electron.
Ultimate tensile, kg./mm.^{2}	42.6	31.5
Yield point, kg./mm.^{2} (permanent extension 0.2 per cent.)	29.4	21.5
Extension, per cent. ($l/d=5$)	19.9	14.4
Fatigue strength, kg./mm.^{2}	15.0	14.0

A New Use for X-Rays in Industry. (Woods and Kenner, Electronics, April, 1941, pp. 29-31.) (91/36 Great Britain.)

Particulars are given of an industrial process which uses the ionisation of air caused by the presence of X-rays to pass a minute current which controls a pass-or-reject relay. This new process is automatic in operation and it is suggested that for inspection of large numbers of articles it will prove more efficient and practical than the normal visual fluorescent inspection methods. The apparatus described is stated to be readily capable of inspecting 1,400 table knives an hour.

(Abstract supplied by Research Dept. Met. Vick.)

Effect of Temperature on Coiled Steel Springs Under Various Loadings. (F. P. Zimmerli, Trans. A.S.M.E., Vol. 63, No. 4, May, 1941, pp. 363-368.) (91/37 U.S.A.)

In the author's opinion the experiments justify the following conclusions:—

1. The usual spring steels are reliable when stressed 80,000 psi or less up to temperatures of 350 F. Between 350 F and 400 F and, at stresses up to 120,000 psi, the same continuity of results is lacking, but with proper forethought some commercial success might be expected.
2. The use of ordinary spring steels over 400 F is not possible.
3. Steels, hardened and tempered after coiling into springs, at the same hardness value, have no advantage over springs made of pretempered wire properly blued, under the conditions investigated.
4. Stainless steel of the 18-8 type resists temperature and stress better than other spring steels, except perhaps high-speed steel.
5. A middle hardness range in quenched-and-drawn springs is preferable to either high or low ranges.
6. An optimum temperature to heat springs after coiling for heat resistance is the highest one which will not render the hardness or other physical properties of the material objectionable.
7. The present Swedish valve-spring wire stands heat very poorly, in fact, is less satisfactory than many other steels.
8. Both high manganese and silicomanganese steels equal the chrome-vanadium steel tested and may have commercial advantages.

Unit Method of Beam Analysis. (F. R. Shanley and F. P. Cozzone, J. Aeron. Sci., Vol. 8, No. 6, April, 1941, pp. 246-255.) (91/38 U.S.A.)

Various improvements in the methods of analysis for determining axial and shear stresses in box beams have been combined into a practical tabular method which permits a considerable saving of time. The method also eliminates some of the errors often made through injudicious use of the classical methods of analysis and offers a means of extending the process to include secondary effects, such as caused by " shear lag " and cutouts.

Fabric Bearings. (Procter, Mech. World, 30/5/41, pp. 369-370-380.) (91/39 Great Britain.)

The question of lubrication is considered, and it is stated that bearing pressures up to 6,000 lb. per sq. in. have been dealt with successfully by suitable lubrication with water and grease. For light loads graphitic impregnation without external lubrication may be employed. Mention is made of the application of fabric linings to footstep and collar thrust bearings.

(Abstract supplied by Research Dept. Met. Vick.)

X-Ray Analysis in Industry. (J. Sci. I., May, 1941, pp. 69-102.) (91/40 Great Britain.)

This issue contains the first part of a symposium on X-ray analysis in industry sponsored by the Institute of Physics, The industrial applications of X-ray analysis form the subject matter for the ten papers in this section, and included are such titles as—Some application of the X-ray powder methods in industrial laboratory problems, an X-ray examination of mechanical wear products and some examples of industrial testing of materials by X-ray diffraction. The second part of the symposium is planned to be published in the July issue.

(Abstract supplied by Research Dept. Met. Vick.)

Least Work Solution of Shear Lag Problems. (E. Reissner, J. Aeron. Sci., Vol. 8, No. 7, May, 1941, pp. 284-291.) (91/41 U.S.A.)

The problem of the distribution of stresses in the cover sheets of box-beams, acted upon by bending loads, is treated by assuming parabolic bending stress distributions across the sheets and by determining the spanwise variation of the shape of these paraboles with the help of the method of least work (Castigliano's principle). A second order differential is obtained for the spanwise variation of the vertex curvature of the stress parabolas (which in the ordinary beam theory are straight lines). The equation has constant coefficients if there is no taper in sheet width and thickness, variable coefficients for tapered sheets. The equation is found to be integrable in terms of elementary functions for untapered beams and for a rather general class of tapered beams. The solution for beams of constant cross-section is worked out explicitly and applied to the analysis of a series of beams having different load distributions. For beams of constant cross-section an approximate formula is developed for the amount of shear lag at the most highly stressed section, this being in general also the section of greatest shear lag. This formula depends on the ratio of sheet width and distance of the centre of gravity of the load curve from the root section, on the elastic moduli and on the relative stiffness of flanges and sheets. Further it is shown that a design is possible such that no shear lag occurs. The method developed, and extensions of it, should permit a relatively simple solution for most practical problems in this field of stress analysis.

Harvey Directional Control. (Inter. Avia., No. 753, 6/3/41, p. 6.) (91/42 U.S.A.)

A promising direction-finding instrument has been developed by the Harvey Machine Co., Los Angeles, Calif. The Harvey Directional Automatic Radio Control fully automatically flies an aeroplane along a straight-line course passing through two radio stations, the manufacturers guaranteeing an accuracy to within one degree at any point of the course, regardless of meteorological conditions. The range of the equipment is said to exceed 1,000 miles. The new Harvey instrument consists of a combination of two independent homing devices, the signals of which are opposed to each other. As long as the aircraft is on course, the difference between the two angles formed by the intersection of the plane's longitudinal axis with the line of the course will be zero, no matter how the machine may be headed to correct for wind drift. As soon as the aircraft departs from true course these angles are no longer equal and the signal of one station will overbalance the other. By means of an amplification system these signals operate a servo motor actuating the directional rudder control; hunting along the course is avoided by making the amplification inversely proportional to the signal strength. The equipment weighs 60 lb.

Devices for Locating Airliners on Their Respective Courses. (Inter. Avia., No. 753, 6/3/41, p. 15.) (91/43 U.S.A.)

At about the same time two of the big American airlines, United Air Lines and Transcontinental and Western Air, announced new devices for the automatic supervision of the location of the airliners on their respective courses. The device of T.W.A. is very simple and consists for each schedule of a small aircraft model moving along an electrically operated worm at a speed regulated according to the pilot's flight plan. The main advantage of the invention is that the dispatching office is automatically warned by an alarm signal in case an aircraft passes over one of the check points along its course without making its radio report. Of much greater interest and representing much more than a technical plaything is the invention of United Air Lines. Without the aid of the pilot and even without his knowledge the location of every aircraft is determined by several ground stations taking bearings on the machine as soon as the crew gets into short-wave radio telephone communication with any ground station. The installation makes it possible to inform the ground personnel of any deviation from the true course and to warn the pilot accordingly.

Photo-Electric Humidity Measurement. (C. Strobel, E.T.Z., 6/6/40, pp. 515-518.) (91/44 Great Britain.)

The author describes a new photo-electric method of measuring the dew point, and permitting of exact measurement of the humidity in the air and other gases within the temperature range of -10 to $+250°C$. He also gives an electric circuit which, without the use of vapour pressure or psychrometer charts, makes possible direct and linear indication of the relative humidity as a percentage on an electrical pointer instrument or recording apparatus.

(Abstract supplied by Research Dept. Met. Vick.)

Flight Level Indicator. (R. W. Knight, J. Aeron. Sci., Vol. 8, No. 6, April, 1941, pp. 242-245.) (91/45 U.S.A.)

1. Flight level indicators, uniformly measuring pressure altitudes above a non-adjustable base, provide a solution to the universal problem of maintaining cruising and holding altitudes.

2. Relating flight levels to compass directions assures maximum vertical distance between aeroplanes on intersecting courses.

3. Relating flight levels to compass directions provides a simple easy rule for pilots to follow.

4. The use of this instrument would permit great simplification of air traffic rules. Fewer and simpler rules mean less violation and greater safety.

5. The absence of any adjustments eliminates the possibility of incorrect settings.

6. Even though all pilots do not maintain the pointer in exact agreement with the magnetic compass, the danger of collisions will be substantially reduced.

7. While the flight level indicator may be used to check the altimeter it does not take the place of the altimeter. The function of the altimeter is the maintenance of terrain clearance, while that of the flight level indicator is the maintenance of interplane clearance.

8. The cost of such instruments built in volume would be relatively low.

9. The weight of 1.17 pounds and space occupied in the instrument panel are justified.

10. The flight level indicator may be used in connection with the autopilot as a means of automatically controlling cruising altitudes.

An Electro-Optic Pressure Indicator. (Robertson, Rev. Sci. Instr., March, 1941, pp. 142-148.) (91/46 Great Britain.)

The author describes improvements on a diaphragm type of engine pressure indicator. The indicator takes advantage of the fact that a polished metal diaphragm forming part of the combustion chamber wall will be deflected in the form of a spherical mirror when there is a pressure difference across it. The intensity of a beam reflected from this diaphragm will vary with the pressure and by measuring the changes in intensity of the beam an indication of the change of engine pressure is obtained. It is stated that the indicator may be used at any engine speed and that a special direct-current amplifier has been constructed for this purpose.

(Abstract supplied by Research Dept. Met. Vick.)

A Ballistic Meter for Measuring Time and Speed. (Reich, Toomim Rev. Sci. Instr., Feb., 1941, pp. 96-99.) (91/47 Great Britain.)

This paper describes a speedmeter in which a ballistic galvanometer serves as the indicating and recording element. Current flow through the galvanometer is initiated and stopped by means of a thyratron controlled by two switches. It is stated that the instrument was designed primarily for the measurement of automobile speeds in traffic studies, and should have other applications.

(Abstract supplied by Research Dept. Met. Vick.)

Night Photography by Means of Mg. Flare. (Inter. Avia., No. 752, 27/2/41, p. 11.) (91/48 U.S.A.)

The possibility of taking perfect photographs at night by means of extremely powerful flares is described as a new, very effective weapon adopted by the U.S. Army Air Corps. The method has been developed by Major G. W. Goddard in co-operation with the Eastman Kodak Co. and consists mainly of heavy, cylindrical flares about 32 in. high and 7 in. in diameter which are dropped without parachute. Following its release the flare is fired automatically and the magnesium content burns up in an explosion, developing a flash of several million candlepower. The combustion is completed within one-sixth of a second, during which period an area of about 19 sq. miles can be sufficiently illuminated. The shutter of the camera is operated via a relay by a photo-electric cell activated by the explosion of the flare; the negative (8 by 10 in.) is exposed at the peak of the flash which is attained 1/5,000 of a second after the explosion. The period of illumination, which lasts only a fraction of a second, and the strong blinding effect of the flare is said to prevent the betrayal of the position of the reconnaissance aeroplane.

Influence of War Experiences on the Development of A.R.P. Lighting. (E. Kämmerer, E.T.Z., 13/6/40, pp. 537-541.) (91/49 Great Britain.)

The author discusses black-out measures for work-rooms under the following sub-headings: (a) mechanical black-out; (b) paritally mechanical black-out in conjunction with technical lighting measures; (c) partially mechanical black-out in conjunction with brushing paints which are impervious to light; (d) suppression filter method as black-out (complimentary colours); (e) technical lighting measures; (f) luminous substances. In conclusion the question of external lighting is discussed.

(Abstract supplied by Research Dept. Met. Vick.)

A Study of the Development of Skill During Performance of a Factory Operation. (R. M. Barnes and J. S. Perkins, Trans. A.S.M.E., Vol. 63, No. 4, May, 1941, pp. 319-328.) (91/50 U.S.A.)

While in general the many studies into the nature of skill have been concerned with the total time required to accomplish a given task and the influence on time values of varying conditions pertaining to a specific operation, this paper is primarily devoted to a time study of the elements entering into the performance of an industrial task. The investigation constitutes a pioneer effort to study the effect of practice on a typical factory operation, conducted under laboratory conditions.

The various aspects of the study on which information was sought are as follows:—

1. The effect of practice on a typical factory operation carried on under laboratory conditions.
2. The learning curves of the various elements of the operation as they were performed by each of the different subjects.
3. The consistency between subjects in learning the same element.
4. The effects of "speeding."
5. The dispersion and its relation to the average performance time.
6. The effects of fumbling on the normal learning curve.
7. The several ways in which a transport load and pre-position element was performed.
8. The effectiveness of several rating techniques on data of known quality.
9. The effect of practice on the relation of eye movements to hand motion.

Summing up the discussion the paper seems to prove the desirability of establishing time standards from data as compared with individual time studies; and indicates that jobs should be planned to avoid, as much as possible, conditions which might cause fumbles. Two-thirds of the improvement noted was in the elimination of fumbling and one-third was due to faster movements and better co-ordination.

On the Technique of Forecasting Low Ceiling and Fog. (J. J. George, J. Aeron. Sci., Vol. 8, No. 6, April, 1941, pp. 236-241.) (91/51 U.S.A.)

As far as the formation of fog is concerned, air loses its maritime properties on being exposed to sunshine over land for only a few hours. Accordingly fog which forms over land may be called "radiation" when the trajectory of the air has been mostly continental, and "advection" when it has not been over land during the day preceding the formation of the fog. It is found that radiation fog forms only when the air has been under a cloud cover a part of the previous day, and a forecasting method for such formations is developed. The forecasting of advection fog is shown to be more complex, and various methods necessary in such work are discussed. Examples of each type are presented.

An analysis of the causes of errors being made at present in the forecasting of fog and low ceilings is made, and indicates that substantial improvement in short range forecasts of such conditions is possible at this time. Suggestions for the elimination of present faults are made and a systematic method of forecasting described.

Examples and Outline of Certain Modifications in Upper Air Analysis. (R. B. Montgomery and A. T. Spilhaus, J. Aeron. Sci., Vol. 8, No. 7, May, 1941, pp. 276-283.) (91/53 U.S.A.)

The first part of this paper deals with methods of isentropic analysis based on the scaled values of data transmitted for the purpose by the United States Weather Bureau. The practical application of shear-stability ratio vectors is demonstrated. A logical order of analysis is presented, designed to make the fullest possible use of all data available. The preferred isopleths for direct representation are those of temperature, acceleration potential and specific humidity; a system of isopleth spacing convenient in conjunction with surface weather maps is employed.

In the second part the properties of various surfaces for upper air analysis are systematically studied. It is found that severe restrictions exist in the use of surfaces of constant entropy or potential temperature. All the properties discussed are, however, adequately satisfied by a surface of constant potential virtual temperature, a quantity newly introduced and defined as the potential temperature of matter of standard composition, in this case dry air, at the same pressure and density as the sample. The thermodynamic configuration of this surface is described by isotherms of virtual temperature.

Infra-Red Radiation. (Koller, G.E. Rev., March, 1941, pp. 167-173.) (91/52 Great Britain.)

This paper collects information on the production, transmission, reflection and measurement of infra-red radiation. The fundamental laws of radiation are outlined and detailed consideration is given to the various sources of infra-red and to the characteristics of the radiation when passing through different media. Mention is made of the several methods of detection and it is suggested that the high-vacuum thermopile and galvanometer is the most suitable for measuring infra-red radiation.

(Abstract supplied by Research Dept. Met. Vick.)

Pilot Balloons Made Out of Transparent Plastic Film. (K. Eisele, L.F.F., Vol. 18, No. 4, 22/4/41, pp. 147-154.) (91/54 Germany.)

It has been noted that pilot balloons made of rubber and designed for really high altitudes ($\sim$40 km.) seldom pass 30 km. without bursting. The author considers that the main reason for this difficulty is the deterioration of the rubber at the low temperatures existing at these altitudes. Replacing rubber by a very thin transparent plastic has not been successful, as these synthetic substances become very brittle at low temperatures. The difficulty can be overcome by spraying the foil with a dark cellulose varnish, provided the thickness of the deposit is suitable (if the deposit is too thin, insufficient radiation is absorbed; if too thick the inner layers of the film are shielded). The film material used by the author has a cellulose base and is known under the trade name of Cuprophan. The thickness is .0065 mm. and its weight 1.0 gm./m.^{2}. It is obvious that the construction of a balloon made of such thin, and moreover inelestic material, presents considerable difficulties. Some of these, as well as the method of launching finally adopted, are described. Preliminary tests with balloons of this type have proved promising. Several larger designs were in hand when the advent of the present war stopped further experiments.

The Resistance Coefficient of Commercial Types of Wire Grids. (B. Eckert and F. Pfluger, L.F.F., Vol. 18, No. 4, 22/4/41, pp. 142-146.) (91/55 Germany.)

The grids examined were made of round wire varying between 0.1 and 0.7 mm. diameter with number of meches/cm. ranging from 1.5 to 63. The grids were supported in a tube of 45 cm. diameter and the resistance coefficient C_w determined from the equation

$$C_w = \Delta p/(\rho/2)\, V^2$$

when Δp = pressure drop across grid.
V = air speed at entry to grid.

The results are expressed in the form of graphs giving C_w as a function of air speed, Reynolds number and solidity (at constant Re) respectively. Solidity is defined as (projected area of wire)/(area of grid boundary). Maximum air speed (m./sec.) and Re were of the order of 30 and 1,000 respectively.

Under the conditions of the test (flow at entry mainly laminar) C_w undergoes a marked diminution with increase in air speed between 2 and 100 m. per sec. At higher speeds C_w is practically constant.

From the data provided it is easy to construct wire grids having a given resistance coefficient for a certain grid boundary area. In conclusion, the authors attempt to obtain theoretical values of C_w and with the help of certain assumptions, agreement with experimental values can be obtained.

LIST OF SELECTED TRANSLATIONS.

No. 34.

NOTE.—Applications for the loan of copies of translations mentioned below should be addressed to the Secretary (R.T.P.3), Ministry of Aircraft Production, and not to the Royal Aeronautical Society. Copies will be loaned as far as availability of stocks permits. Suggestions concerning new translations will be considered in relation to general interest and facilities available.

Lists of selected translations have appeared in this publication since September, 1938.

MATERIALS.

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
1188	Kotzochke, P.	*Materials and Design Features of Captured (i.e., non-German) Aero Engines.* (Luftwissen, Vol. 8, No. 3, March, 1941, pp. 69-78.)
1189	Cornelius, H.	*Investigations of Some Steel Fittings in Captured Non-German Aircraft.* (Luftwissen, Vol. 8, No. 3, March, 1941, pp. 78-81.)
1196	Hollbach 6 ...	*Aircraft Materials.* (Deutscher Flugzeugbau (Handbook of the German Aircraft Industry), 1939, pp. 176-179.)
1200	Perkuhn ...	*Behaviour of Laminated Pressed Synthetic Resins Under Creep.* (L.F.F., Vol. 18, No. 1, 28/2/41, pp. 32-37.)

AIRCRAFT AND ACCESSORIES.

1191	——	*D.F.S. Two-Seater High Performance Sail Plane Kranich for High Altitude Flight.* (Flugsport, Vol. 30, No. 19, 14/9/38, pp. 49-50.)
1192	——	*(E.W.2) Four-Seater Sail Plane* 108-116. (Flugsport, Vol. 32, No. 4, 14/2/40, pp. 51-54.)
1193	Hollbach 6 ...	*Safety Devices.* (Deutscher Flugzeugbau (Handbook of the German Aircraft Industry), 1939, pp. 111-116.)

INSTRUMENTS.

1194	Hollbach 6 ...	*Meteorological Instruments.* (Deutscher Flugzeugbau) (Handbook of the German Aircraft Industry), 1939, pp. 117-122.)
1195	Hollbach 6 ...	*Flight Instruments.* (Deutscher Flugzeugbau) (Handbook of the German Aircraft Industry), 1939, pp. 117-122.)

MISCELLANEOUS.

1201	Wieghardt, K.	*Comprehensive Survey of Research on the Statistical Theory of Turbulence.* (L.F.F., Vol. 18, No. 1, 28/2/41, pp. 1-7.)
1205	Beringer, A.	*A Mechanical Method for Blacking-out Large Factory Skylights.* (V.D.I. Zeitschrift, Vol. 85, No. 13, 29/3/41, p. 306.)

TITLES AND REFERENCES OF ARTICLES AND PAPERS SELECTED FROM PUBLICATIONS RECEIVED IN R.T.P.3 DURING MAY, 1941.

Notices and abstracts from the Scientific and Technical Press are prepared primarily for the information of Scientific and Technical Staffs. Particular attention is paid to the work carried out in foreign countries, on the assumption that the more accessible British work (for example, that published by the Aeronautical Research Committee) is already known to these Staffs.

Theory and Practice of Warfare.

76/1	Germany ...	*Air Force Targets in Germany: No. 18 Bremen.* (Engineer, Vol. 171, No. 4,444, 14/3/41, pp. 179-180.)
76/2	Great Britain	*Sound Detector for Roof Spotting.* (Engineer, Vol. 171, No. 4,444, 14/3/41, p. 184.)
76/3	Germany ...	*Focke-Wulf F. W. 187 Zerstorer (Two-Seat Fighter).* (Flight, Vol. 39, No. 1,680, 6/3/41, p. 187.)
76/4	Great Britain	*Blackburn "Skua" and Junkers Ju 87. Comparison of External Appearance.* (Flight, Vol. 39, No. 1,680, 6/3/41, p. a.)
76/5	U.S.A. ...	*Douglas "Boston" Attack Bomber.* (Flight, Vol. 39, No. 1,680, 6/3/41, pp. f-h.)
76/6	Japan ...	*Japan's Air Strength.* (Aeroplane, Vol. 60, No. 1,554, 7/3/41, pp. 280-284.)
76/7	Italy ...	*Caproni Ca 133 Colonial Bomber.* (Aeroplane, Vol. 60, No. 1,554, 7/3/41, p. 286.)
76/8	U.S.A. ...	*Details of Current U.S.A. Military Aircraft Types and Table of Specifications.* (Aviation, Vol. 40, No. 2, Feb., 1941, pp. 76-95, 115-116.)
76/9	U.S.A. ...	*Design Details of American Aircraft (Sketches).* (Aviation, Vol. 40, No. 2, Feb., 1941, pp. 120-137.)
76/10	Great Britain	*Explosives: Lecture to Royal Institution, 11/2/41.* (G. I. Finch, Engineering, Vol. 151, No. 3,922, 7/3/41, pp. 214-215.)
76/11	U.S.A. ...	*New R.A.F. Types III. Curtis P-40A. Tomahawk Single-Seat Fighter Monoplane.* (Airc. Eng., Vol. 13, No. 145, March, 1941, pp. 60 and 67.)
76/12	Great Britain	*Training Types.* (M. de Bunsen, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 38-40.)
76/13	Great Britain	*Mass Production of Military Aircraft.* (H. J. Wilson, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 81-82.)
76/14	Great Britain	*New Tactics for New Aircraft.* (Aeronautics, Vol. 4, No. 2, March, 1941, pp. 55-56.)
76/15	Great Britain	*Shadow of Night Bomber. (Tables giving Hours of Darkness for Various Localities and Seasons.)* (N. McMillan, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 58-61.)
76/16	Great Britain	*Notes on the Duties of the Air Council.* (J. M. Spaight, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 74-78.)
76/17	U.S.A. ...	*American Help for Britain, Factory and Labour Organisation, etc.* (Inter. Avia., No. 746, 23/1/41, pp. 1-9.)

76/18	Germany ...	*Focke-Wulf "Kurier" (Military Version of F.W. 200).* (Inter. Avia., No. 746, 23/1/41, p. 10.)
76/19	Great Britain	*New British Equipment (Botha I, Spitfire III, Hawker Tornado, Short Stirling).* (Inter. Avia., No. 746, 23/1/41, p. 11.)
76/20	Great Britain	*Fairey Fulmar Two-Seater Fighter.* (Inter. Avia., No. 746, 23/1/41, p. 12.)
76/21	U.S.A. ...	*Douglas A-20A, Attack Bomber (R.A.F. "Boston") (Development of D-B7).* (Inter. Avia., No. 746, 23/1/41, p. 14.)
76/22	U.S.A. ...	*Speed of American Fighters.* (Inter. Avia., No. 746, 23/1/41, pp. 14-15.)
76/23	Great Britain	*Development of the Night Bomber During the Last 26 Years.* (Flight, Vol. 39, No. 1,683, 27/3/41, pp. a-g.)
76/24	Italy ...	*Caproni Ca 310 Libeccio Reconnaissance Bomber.* (Aeroplane, Vol. 60, No. 1,556, 21/3/41, p. 336.)
76/25	U.S.A. ...	*NA-40A Two-Motor Bomber.* (Aeroplane, Vol. 60, No. 1,556, 21/3/41, p. 338.)
76/26	U.S.A. ...	*Arms and the American Aeroplane.* (G. Herrick, Aeroplane, Vol. 60, No. 1,556, 21/3/41, p. 338.)
76/27	Italy ...	*Caproni Ca 311 Reconnaissance Bomber.* (Aeroplane, Vol. 60, No. 1,557, 28/3/41, p. 368.)
76/28	Great Britain	*Repairs to Service Aircraft.* (G. H. G. Garbett, Aeroplane, Vol. 60, No. 1,557, 28/3/41, pp. 370-372.)
76/29	Italy ...	*The Ghost of General Douhet.* (By Caldwell, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 43-48 and 196.)
76/30	U.S.A. ...	*Consolidated "Liberator" Heavy Bomber.* (Engineer, Vol. 171, No. 4,446, 28/3/41, p. 216.)
76/31	Great Britain	*The Hawker Hurricane—Production Methods.* (W. E. Goff, Airc. Prod., Vol. 3, No. 30, April, 1941, pp. 126-134.)
76/32	Great Britain	*High Speed Fire Alarm for Detecting Incendiary Bombs.* (The Engineer, Vol. 171, No. 4,447, 4/4/41, p. 225.)
76/33	Great Britain	*Machining of H.E. Shells (Note).* (The Engineer, Vol. 171, No. 4,447, 4/4/41, p. 227.)
76/34	Great Britain	*Fire Protection of Structural Steelwork: Wartime Building Bulletin No. 13.* (D.S.I.R., London: Stationery Office, 1/-.) (Engineer, Vol. 171, No. 4,447, 4/4/41, p. 229.)
76/35	U.S.S.R. ...	*On the Transmission of Detonation from Cases to Explosives.* (J. B. Chariton and E. V. Rdultovskaja, Compt. Rend. Acad. Sci., U.S.S.R., Vol. 23, No. 6, 1939, pp. 530-531.) (Abstract available.)
76/36	U.S.S.R. ...	*On the Transition of the Combustion of Explosives into Detonation.* (J. B. Chariton and B. M. Stapanov, Compt. Rend. Acad. Sci., U.S.S.R., Vol. 23, No. 6, 1939, pp. 527-529.) (Abstract available.)
76/37	U.S.A. ...	*Curtiss Tomahawks (Sectional Drawing).* (Flight, Vol. 39, No. 1,682, 20/3/41, p. 224.)
76/38	Great Britain	*The Slip Wing Bomber (A Reply to Criticism).* (N. Pemberton Billing, Flight, Vol. 39, No. 1,682, 20/3/41, pp. 225-226.)
76/39	U.S.A. ...	*Revelations of "Secrets." (Notes on American Aircraft from Model Airplane News, and Flying and Popular Aviation, Feb., 1941.)* (Aeroplane, Vol. 60, No. 1,555, 14/3/41, pp. 305-307.)

76/40	Italy ...	*Caproni Ca 135 bis Bomber.* (Aeroplane, Vol. 60, No. 1,555, 14/3/41, p. 308.)
76/41	Germany ...	*The Focke-Wulf Kurier Fw 200K.* (Aeroplane, Vol. 60, No. 1,555, 14/3/41, p. 310.)
76/42	U.S.A. ...	*Photographs and Simplified Data of Renamed American Types in the R.A.F.* (Flight, Vol. 39, No. 1,681, 13/3/41, pp. b-g.)
76/43	Germany ...	*The September Attacks on British Military Objectives.* (Luftwissen, Vol. 7, No. 10, Oct., 1940, pp. 333-337.)
76/44	Germany ...	*E. Zindel, The Designer of Ju. 52 and Ju. 88.* (Luftwissen, Vol. 7, No. 10, Oct., 1940, p. 358.)
76/45	Germany ...	*The Influence of the Power Plant on the Design of the Aircraft Structure.* (Luftwissen, Vol. 7, No. 10, Oct., 1940, pp. 355-357.)
76/46	Germany ...	*Air Academy Gatow (Staff College) Five Years Old.* (Luftwissen, Vol. 7, No. 10, Oct., 1940, p. 358.)
76/47	Germany ...	*Dornier Do. 172. Refuelling (Photograph).* (Aeroplane, Vol. 60, No. 1,559, 11/4/41, p. 407.)
76/48	Germany ...	*Ground Hot Air Heater for Do. 215 (Photograph).* (Aeroplane, Vol. 60, No. 1,559, 11/4/41, p. 408.)
76/49	Great Britain	*Production of Spitfire Mark II.* (Aeroplane, Vol. 60, No. 1,559, 11/4/41, pp. 411-412.)
76/50	Italy ...	*The Meridionali RO. 43 Reconnaissance Seaplane.* (Aeroplane, Vol. 60, No. 1,559, 11/4/41, p. 418.)
76/51	U.S.S.R. ...	*Calculation of the Ballistic Elements for Firing in the Air.* (V. S. Pugatcher and B. K. Blinov, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 129-138.)
76/52	U.S.S.R. ...	*Use of Aircraft in Preparing for a Break-Through by the Army in Modern Conditions of Warfare.* (N. A. Vlasov, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 102-109.)
76/53	U.S.S.R. ...	*Manœuvring to Avoid Anti-Aircraft Fire.* (M. N. Nikolski, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 110-116.)
76/54	U.S.S.R. ...	*Tactics of Photographic Reconnaissance in the Defence Zone.* (Buss, P. E., Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 117-119.)
76/55	U.S.S.R. ...	*Time Calculations as a Means for Bombing Invisible Targets.* (V. E. Smirnov, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 123-125.)
76/56	U.S.S.R. ...	*Use of Parachute for Escape Purposes.* (L. G. Mienov, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 126-128.)
76/57	U.S.S.R. ...	*Ground Training of Gunner-Radio Operators.* (G. N. Gaponenko, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 139-141.)
76/58	U.S.S.R. ...	*Ground Training of Gunner-Radio Operators.* (Moskalenko, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 141-142.)
76/59	Germany ...	*The Air Force and the Meteorological Service (Luftwelt, Vol 3).* (Air Fleet News, U.S.S.R., Vol, 23, No. 2, Feb., 1941, pp. 143-146.)
76/60	Germany ...	*Armament of Enemy Aircraft.* (J. Beseler, Luftwissen, Vol. 7, No. 3, March, 1940, pp. 46-53.) (Available as M.A.P. Trans. 1,069.)

76/61	Germany ...	*Focke Wulf "Kurrier" (Photograph).* (Aeroplane, Vol. 60, No. 1,558, 4/4/41, p. 381.)
76/62	Yugoslavia ...	*Yugoslavia's Air Arm.* (Aeroplane, Vol. 60, No. 1,558, 4/4/41, p. 384.)
76/63	Italy ...	*The Caproni Ca. 312 Reconnaissance Seaplane.* (Aeroplane, Vol. 60, No. 1,558, 4/4/41, p. 386.)
76/64	Germany ...	*Layout Diagrams as Affixed to German Aircraft Should be Adopted by the R.A.F.* (Aeroplane, Vol. 60, No. 1,558, 4/4/41, p. 397.)
76/65	Great Britain	*Notes on Evolution of the Spitfire and Hurricane Fighter.* (Aeronautics, Vol. 4, No. 1, Feb., 1941, pp. 26-31.)
76/66	U.S.A. ...	*Consolidated Liberator Long-Range Bomber (Photograph).* (Aeronautics, Vol. 4, No. 1, Feb., 1941, pp. 35 and 38.)
76/67	U.S.A. ...	*Grumman G-36 and Bell Airocobra (Aerobonita Bicycle Undercarriage).* (Aeronautics, Vol. 4, No. 1, Feb., 1941, p. 39.)
76/68	Great Britain	*Fighter Manœuvre.* (W. E. Hick, Aeronautics, Vol. 4, No. 1, Feb., 1941, p. 41.)
76/69	U.S.A. ...	*Photographs of Some American Aircraft Used by the R.A.F. (Boston, Buffalo, Martlet, Tomahawk).* (Aeronautics, Vol. 4, No. 3, April, 1941, pp. 54-55.)
76/70	Great Britain	*Principle of A.A. Gunnery.* (F. Griffen, Aeronautics, Vol. 4, No. 3, April, 1941, pp. 64-65.)
76/71	Germany ...	*Focke Wulf Kurrier (Photograph).* (Die Flieger, Vol. 20, No. 2, Feb., 1941, p. 39.)
76/72	Great Britain	*War Cost in Great Britain. Germany.* (Inter. Avia., No. 750, 13/2/41, p. 4.)
76/73	U.S.A. ...	*Lockheed P. 38 Twin Engine Interceptor Fighter.* (Inter. Avia., No. 750, 13/2/41, p. 6.)
76/74	Great Britain	*Sliding Bomb Racks on "Sunderland" Flying Boat.* (Inter. Avia., No. 750, 13/2/41, p. 8.)
76/75	U.S.A. ...	*Man Power and Training in the U.S.A. Air Force.* (Inter. Avia., No. 750, 13/2/41, pp. 11-12.)
76/76	Germany ...	*German Assistance for Spanish Air Training.* (Inter. Avia, No. 750, 13/2/41, p. 19.)
76/77	Germany ...	*Focke-Wulf "Kurrier" (Photograph).* Inter. Avia., No. 750, 13/2/41, p. 1.)
76/78	U.S.A. ...	*Republic P.43 High Level Interceptor Fighter (Photograph).* (Inter. Avia., No. 750, 13/2/41, p. 1.)
76/79	France ...	*Bombing by Day.* (C. Rougeron, Inter. Avia., No. 747, 30/1/41, pp. 1-5.)
76/80	U.S.A. ...	*Boeing Flying Fortress B-17 (A, B, C, D, E).* (Inter. Avia., No. 747, 30/1/41, pp. 7-9.)
76/81	U.S.A. ...	*Bell "Airacuda," YFM-1A Twin-Engined Multi-Seater Fighter.* (Inter. Avia., No. 747, 30/1/41, p. 9.)
76/82	U.S.A. ...	*Republic P-43 "Lancer" (Pursuit Interceptor).* (Inter. Avia., No. 747, 30/1/41, p. 9.)
76/83	U.S.A. ...	*Martin B-26 Twin-Engined Bomber.* (Inter. Avia., No. 747, 30/1/41, p. 9.)
76/84	Germany ...	*Experimental Training at Staff College "Gatow."* (Luftwelt, Vol. 8, No. 4, 15/2/41, pp. 74-75.)
76/85	Germany ...	*Attaching Bomb to Me 109 (Photograph).* (Luftwelt, Vol. 8, No. 4, 15/2/41, Cover Page.)
76/86	Germany ...	*Photograph of Heinkel III Showing Bullet Holes.* (Luftwelt, Vol. 8, No. 3, 1/2/41, pp. 52-53.)

76/87	Germany ...	*Photograph of Dive Bomber—" Stuka."* (Luftwelt, Vol. 8, No. 3, 1/2/41, p. 41.)
76/88	Germany ...	*Hedge Hopping by Do 215 (Photograph).* (Luftwelt, Vol. 8, No. 2, 15/1/41, pp. 34-35.)
76/89	Germany ...	*Focke Wulf " Condor " (Photograph).* (Luftwelt, Vol. 8, No. 5, 1/3/41, pp. 86-87.)
76/90	Germany ...	*Manufacture of Aircraft Bombs (Photographs).* (Luftwelt, Vol. 8, No. 5, 1/3/41, pp. 94-95.)
76/91	U.S.S.R. ...	*Aviation Tactics (Text Book for Students at the Red Army Training School (Voieneezdat, Moscow, 1940, p. 408). (Book Review.)* (Aeroplane, No. 22, Nov., 1940, pp. 24-25.)
76/92	U.S.S.R. ...	*Tactical and Constructional Requirements of Fighters, I.* (M. P. Stroev, Aeron. Eng., U.S.S.R., Vol. 14, No. 12, Dec., 1940, pp. 18-24.)
76/93	Germany ...	*The Rapid Calculation of Internal Ballistic Processes.* (F. Gabriel, Z.G.S.S., Vol. 36, No. 2, Feb., 1941, pp. 25-27.)
76/94	U.S.A. ...	*American Plans for Speeding Production.* (J. H. Jouett, Canadian Aviation, Vol. 14, No. 2, Feb., 1941, pp. 31-33 and 67.)
76/95	Canada ...	*Production of Bristol " Bolingbroke " in Canada.* (E. Crawford, Canadian Aviation, Vol. 14, No. 2, Feb., 1941, pp. 15-17, 36-43 and 48.)
76/96	Canada ...	*Sabotage Methods.* (Canadian Aviation, Vol. 14, No. 2, Feb., 1941, pp. 44 and 48.)
76/97	Germany ...	*Do 215 as a Develop of Do 17.* (Flughafen, Vol. 8, No. 9-10, Sept.-Oct., 1940, pp. 9-11.)
76/98	Great Britain	*Scientific Utilisation of Resources and Man Power.* (Nature, Vol. 147, No. 3,726, 29/3/41, pp. 365-367.)
76/99	Great Britain	*Science and the National Effort.* (Lord Sankey, Nature, Vol. 147, No. 3,728, 12/4/41, pp. 432-437.)
76/100	U.S.S.R. ...	*New Air Force Tactics in the Present War.* (N. Juravlev, Aeroplane, U.S.S.R., Vol. 18, No. 1, Jan., 1941, pp. 31-34.)
76/101	U.S.A. ...	*Vought Sikorsky XF4U-I Single-Seat Fighter Fitted with a Radial Engine.* (Sci. Am., Vol. 164, No. 1, Jan., 1941, p. 161.)
76/102	U.S.A. ...	*Curtis P.36-A Mowhawk Single-Seat Fighter Monoplane (Photograph).* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 102 and 106.)
76/103	Great Britain	*Fairey Albacore Reconnaissance Biplane (Photograph).* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 103 and 106.)
76/104	Germany ...	*Focke Wulf FW. 187 Twin-Engined Fighter.* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 105-6.)
76/105	U.S.A. ...	*Detail of New Deliveries of U.S.A. Aircraft to Great Britain (with special reference to Long-Range Bombers).* (Inter. Avia., No. 744-745, 16/1/41, pp. 7-9.)
76/106	Great Britain	*Blackburn " Botha " Torpedo Bomber.* (Inter. Avia., No. 744-745, 16/1/41, p. 10.)
76/107	Italy ...	*Reggiane Re 2,001 Single-Seat Fighter.* (Inter. Avia., Nos. 744-745, 16/1/41, pp. 10-11.)
76/108	Germany ...	*Dornier Do-18 fitted with B.M.W. 132 Radial Engine and Fan Cooling.* (Inter. Avia., No. 744-745, 16/1/41, p. 11.)

76/109	U.S.A. ...	*Douglas 8A-5 Single Engine Attack Bomber.* (Inter. Avia., No. 744-745, 16/1/41, p. 12.)
76/110	Great Britain	*The Vulnerability of the British Armament Industry.* (M. Stark, W.T.M., Vol. 45, No. 2, Feb., 1941, pp. 25-33.)
76/111	Germany ...	*Aircraft Types Utilised by Poland, France and Great Britain.* (M. Stark, W.T.M., Vol. 45, No. 2, Feb., 1941, pp. 33-40.)
76/112	Germany ...	*Improved Firing Table Based on Muzzle Velocity and Trajectory Times.* (E. Ractsch, W.T.M., Vol. 45, No. 2, Feb., 1941, pp. 45-48.)
76/113	Great Britain	*Armoured Target Boats for Bombing Practice.* (Flight, Vol. 39, No. 1685, 10/4/41, p. f-g.)
76/114	Great Britain	*Building a Spitfire.* (Flight, Vol. 39, No. 1685, 10/4/41, pp. 271-273.)
76/115	Italy ...	*Cant Z. 501 Single Motor Flying Boat.* (Aeroplane, Vol. 60, No. 1,560, 18/4/41, p. 442.)
76/116	Great Britain	*D.H. 91 Albatross (Photograph).* (Aeroplane, Vol. 60, No. 1,560, 18/4/41, p. 443.)
76/117	Great Britain	*Consolidated "Catalina" Flying Boat Used by the R.A.F. (Photograph).* (Flight, Vol. 39, No. 1,687, 24/4/41, p. 296.)
76/118	U.S.A. ...	*Boeing 314 Clipper Reconditioned.* (Flight, Vol. 39, No. 1,687, 24/4/41, pp. 294 and 302.)
76/119	Germany ...	*The Technical Problems of Anti-Aircraft Artillery.* (K. Becker, Luftwissen, Vol. 8, No. 1, Jan., 1941, pp. 8-13.) (Abstract available.)
76/120	U.S.A. ...	*PB2Y-2 (Consolidated Model 29) (Photograph).* (American Aviation, Vol. 4, No. 20, 15/3/41, p. 3.)
76/121	U.S.A. ...	*Air Transport by Means of Towed Gliders.* (W. Sheehan, American Aviation, Vol. 4, No. 20, 15/3/41, p. 18.)
76/122	U.S.A. ...	*Douglas B-19 Bomber (Photograph).* (Sci. Am., Vol. 164, No. 4, April, 1941, p. 215.)
76/123	U.S.A. ...	*Fire Resistant Paint for Wood.* (Sci. Am., Vol. 164, No. 4, April, 1941, p. 239.)
76/124	Germany ...	*Focke Wulf FW. 189 Fighter Reconnaissance (Photograph).* (Flight, Vol. 39, No. 1,688, 1/5/41, p. 308.)
76/125	Germany ...	*The Rapid Calculation of Internal Ballistic Processes.* (F. Gabriel, Z.G.S.S., Vol. 36, No. 3, March, 1941, pp. 49-52.)
76/126	Germany ...	*The Explosive Qualities of Tetranitromethan-Nitrobenzol Mixture as a Confirmation of the Hydrodynamic Theory of Detonation.* (J. F. Roth, Z.G.S.S., Vol. 36, No. 3, March, 1941, pp. 52-55.)
76/127	Great Britain	*The Physics of Air Raids.* (J. D. Bernal, Engineer, Vol. 171, No. 4,449 18/4/41, pp. 262-264.)
76/128	U.S.A. ...	*Characteristics of Typical U.S. Military Aeroplane.* (Autom. Ind., Vol. 85, No. 5, 1/3/41, pp. 198-199.)
76/129	U.S.A. ...	*Efficiency Report on the German Air Force.* (W. Lockwood Marsh, Aviation, Vol. 40, No. 3, March, 1941, pp. 30-31.)
76/130	U.S.A. ...	*Automotive Methods to Applied to Aircraft Production.* (D. R. Berlin and P. F. Rossman, Aviation, Vol. 40, No. 3, March, 1941, pp. 46-47.)
76/131	U.S.A. ...	*Engine Nacelle of DO. 26 Seaplane.* (Aviation, Vol. 40, No. 3, March, 1941, p. 50.)

76/132	U.S.A. ...	*Aviation's Battle of Production.* (S. Altschul, Aviation, Vol. 40, No. 3, March, 1941, p. 73.)
76/133	U.S.A. ...	*B. 17C for G.B. (Photograph).* (Aviation, Vol. 40, No. 3, March, 1941, p. 81.)
76/134	Great Britain	*Canopy Unit for Protecting Vital Plant During Raids.* (The Engineer, Vol. 171, No. 4,450, 25/4/41, p. 275.) (Abstract available.)
76/135	Great Britain	*Explosives.* (G. I. Finch, Nature, Vol. 147, No. 3,730, 26/4/41, pp. 501-504.)
76/136	Great Britain	*Caproni Bergamaschi Ghibli Colonial Monoplane.* (Aeroplane, Vol. 60, No. 1,561, 25/4/41, p. 468.)
76/137	Great Britain	*Quick Release Buckle on German Parachute Harness (Photograph).* (Aeroplane, Vol. 60, No. 1,561, 25/4/41, p. 470.)
76/138	Great Britain	*Air Transport of Gliders.* (W. Stepniewski, Aeroplane, Vol. 60, No. 1,561, 25/4/41, p. 476-477.)
76/139	Great Britain	*Naval Aircraft.* (Aeronautics, Vol. 4, No. 4, May, 1941, pp. 62-63.)
76/140	U.S.A. ...	*Curtis Wright Interceptor Fighter, Model 21B (Photograph).* (U.S. Air Services, Vol. 26, No. 3, March, 1941, p. 32.)
76/141	U.S.A. ...	*Boeing B-17D Bomber (Flying Fortress).* (U.S. Air Services, Vol. 26, No. 3, March, 1941, p. 41.)
76/142	U.S.A. ...	*Aircraft Armour.* (H. J. Alter, Army Ordnance, Vol. 21, No. 125, March-April, 1941, pp. 497-498.) (Abstract available.)
76/143	Switzerland...	*Wireless Telegraphy and Telephony for Communications between Fighter Aircraft (from the Italian).* (Flugwehr und Technik, Vol. 2, No. 3, March, 1941, pp. 59-61.)
76/144	Switzerland...	*Sperry Automatic Bomb Sight.* (Flugwehr und Technik, Vol. 2, No. 3, March, 1941, p. 71.)
76/145	Switzerland...	*Tactical Employment of A.A. Artillery in the Spanish Civil War.* (W. M. Graf, Flugwehr und Technik, Vol. 2, No. 4, April, 1940, pp. 83-88.)
76/146	Switzerland...	*Me. 109 and Jaguar.* (Flugwehr und Technik, Vol. 2, No. 4, April, 1940, pp. 92-93.)
76/147	Switzerland...	*Mass Production of Ju. 87 at the Junker Works (Photograph).* (Flugwehr und Technik, Vol. 2, No. 4, April, 1940, p. 95.)
76/148	Switzerland...	*Ju. 87 Damaged by A.A. Artillery (Photograph).* (Flugwehr und Technik, Vol. 2, No. 4, April, 1940, p. 81.)
76/149	Switzerland...	*German Parachute Troops (Photograph of Mass Descent).* (Flugwehr un Technik, Vol. 2, No. 5-6, May-June, 1940, p. 105.)
76/150	Switzerland...	*Heavy German A.A. Artillery at Trondhjem (Photograph).* (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, p. 107.)
76/151	Switzerland...	*Ju. 87 in Flight (Photograph).* (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, p. 109.)
76/152	Switzerland...	*HE. 113 Fighter.* (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, pp. 123.)
76/153	Switzerland...	*New German Focke Wulf Military Aircraft (F.W. 198, Single-seat Fighter; F.W. 187, Two-seat Destroyer; F.W. 189, Three-seat Reconnaissance).* (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, pp. 123-124.)

76/154	Italy ...	*Organisation of the Italian Air Force.* (W. Zuerl, Flugwehr und Technik, Vol. 2, No. 8, Aug., 1940, pp. 170-175.)
76/155	Switzerland...	*The Air Force in the Norwegian Campaign (from the Italian).* (Flugwehr und Technik, Vol. 2, No. 8, Aug., 1940, p. 175.)
76/156	Switzerland...	*Efficiency Criterions of Sight A.A. Weapons, taking into Account their Arming Devices.* (A. Baasch, Flugwehr und Technik, Vol. 2, No. 8, Aug., 1940, pp. 176-177.) (Translation available, No. 1,130.)
76/157	Switzerland...	*Arado A.R. 96 B Multi-Purpose Two-Seater.* (Flugwehr und Technik, Vol. 2, No. 8, Aug., 1940, pp. 181-182.)
76/158	Switzerland...	*F.W. 187 Destroyer (Photograph).* (Flugwehr und Technik, Vol. 2, No. 8, Aug., 1940, pp. 182.)
76/159	Switzerland...	*American Arm Corporation 37 mm. Aircraft Cannon.* (Flugwehr und Technik, Vol. 2, No. 11-12, Nov.-Dec., 1940, p. 267.)
76/160	Germany ...	*The Attack on London, Nov., 1940.* (Luftwissen, Vol. 7, No. 11, Nov., 1940, p. 365-369.)
76/161	Germany ...	*The Air Power of Japan.* (Luftwissen, Vol. 7, No. 11, Nov., 1940, pp. 365-369.)
76/162	Germany ...	*The Attack on Coventry.* (Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 397-403.)
76/163	Germany ...	*Effect of Machine Gun Fire on Air-cooled Radial Engines.* (K. Kress, Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 415-419.)
76/164	Germany ...	*DO 18 Fitted with B.M.W. 132 Radial Engine.* (Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 420-421.)
76/165	Germany ...	*Some Notes on Messerschmitt Aircraft.* (Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 422-423.)
76/166	Germany ...	*Bomb Attachment in Ju. 87 (Photograph).* (Luftwissen, Vol. 8, No. 3, March, 1941, p. 67.)
76/167	Germany ...	*He. 111 Starting in a Night Flight (Photograph).* (Luftwissen, Vol. 8, No. 3, March, 1941, p. 67.)
76/168	Germany ...	*Heavy German Aircraft Bomb (Photograph).* (Luftwissen, Vol. 8, No. 2, Feb., 1941, p. 35.)
76/169	Switzerland...	*Aircraft versus Battleship.* (T. Webber, Flugwehr und Technik, Vol. 3, No. 1, Jan., 1941, pp. 9-14.)
76/170	Switzerland...	*Method for Judging the Effectiveness of Light A.A. Weapons of Various Calibres.* (Baasch, Flugwehr und Technik, Vol. 3, No. 1, Jan., 1941, pp. 14-18.)
76/171	Switzerland...	*Methods of Firing Employed with the Russian 75 mm. A.A. Gun "S.K. 1935."* (W. M. Graf, Flugwehr und Technik, Vol. 3, No. 2, pp. 33-36.)
76/172	Switzerland...	*Further Development of Fighter Aircraft (from Revista Aeronautica, Sept., 1940).* (A. C. Robotti, Flugwehr und Technik, Vol. 3, No. 2, Feb., 1941, pp. 43-44.)
76/173	Switzerland...	*Some Notes on American Aircraft Production.* (A. R. Seversky, Flugwehr und Technik, Vol. 3, No. 3, March, 1941, pp. 68-70.)
76/174	Switzerland...	*Some Notes on the Employment of an Air Force in Mountainous Districts (from the French).* (G. Berroist, Flugwehr und Technik, Vol. 3, No. 4, April, 1941, pp. 78-80.)
76/175	Switzerland...	*Dive Bombing Attacks.* (W. Juldiman, Flugwehr und Technik, Vol. 3, No. 4, April, 1941, pp. 80-83.)

76/176	Switzerland...	*Long Distance Raiders, Focke Wulf Kurier, Ju 89 and B.V. 142.* (Flugwehr und Technik, Vol. 3, No. 4, April, 1941, p. 93.)
76/177	Switzerland...	*The Development of the Twin-Engined "Destroyer" Aircraft.* (O. Hostettler, Flugwehr und Technik, Vol. 3, No. 4, April, 1941, pp. 86-89.)

AERODYNAMICS AND HYDRODYNAMICS.

76/178	Great Britain	*The Design of Wing Tunnel Fans.* (A. R. Collar, R. and M., No. 1,889, 10/8/40.)
76/179	Great Britain	*Mechanics of Liquids (Book Review) (London: MacMillam and Co., 1941, price 15/-).* (R. W. Powell, Engineering, Vol. 151, No. 3,922, 7/3/41, p. 203.)
76/180	Great Britain	*Waves in an Open Oscillating Tank.* (A. M. Binnie, Engineering, Vol. 151, No. 3,923, 21/3/41, pp. 224-226.)
76/183	Germany ...	*Variation in Velocity Profile with Change in Surface Roughness of Boundary.* (W. Jacobs, Z.A.M.M., Vol. 19, No. 2, April, 1939, pp. 87-100.) (Translation available as T.M. 951.)
76/184	Germany ...	*General Relationships between the Various Systems of Reference Axes Employed in Flight Mechanics.* (H. J. Rautenberg, L.F.F., Vol. 17, No. 4, 20/4/40, pp. 106-122.) (Translation available as T.M. 958.)
76/185	Germany ...	*Note on the Calculation of Boundary Layers.* (L. Prandtl, Z.A.M.M., Vol. 18, No. 1, 1/2/38, pp. 77-82.) (Translation available as T.M. 959.) (Available as M.A.P. Trans. 1,064.)
76/186	U.S.A. ...	*Standard Aeronautical Symbols Approved by N.A.C.A.,* (28/5/40). (Abstract available.)
76/187	Germany ...	*Review of Researches on the Statistical Theory of Turbulence.* (K. Wieghardt, L.F.F., Vol. 18, No. 1, 28/2/41, pp. 1-7.) (Abstract available.)
76/188	Germany ...	*Symmetrical Potential Flow of a Compressible Gas Round a Circular Cylinder in a Channel (Subcritical Region) (Addendum).* (E. Lamba, L.F.F., Vol. 18, No. 1, 28/2/41, p. 37.) (Abstract available at 26,759.)
76/189	Germany ...	*Two-Dimensional Lift Distribution for Arbitrary Unsteady Motion.* (H. Sohngen, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 401-420.) (Abstract available.)
76/190	Germany ...	*The Two-Dimensional Problem of a Wing Undergoing Arbitrary Displacement in "Gusty" Air.* (H. G. Kussner, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 355-361.) *The Evaluation of U(s) and U2(s) Functions for Large Values of s.* (L. Schwarz, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 362-369.) (Abstract available.)
76/191	Germany ...	*General Aerofoil Theory.* (H. G. Kussner, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 370-378.) (Abstract available.)
76/192	Germany ...	*Calculation of the Pressure Distribution of a Two Dimensional Aerofoil Undergoing Harmonic Deformations.* (L. Schwarz, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 379-386.) (Abstract available.)

https://doi.org/10.1017/S0368393100140167 Published online by Cambridge University Press

76/193	Germany ...	*The Potential Theory of the Vibrating Circular Aerofoil. Part I—Analytical Considerations.* (T. Schode, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 387-400.) (Abstract available.)
76/194	Germany ...	*Graphical Determination of the Discharge Process of a Gas from a Container.* (O. Lietz, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 332-335.) (Abstract available.)
76/195	Germany ...	*The Symmetrical Potential Flow of a Compressible Gas about a Circular Cylinder in a Straight Channel (Sub-critical Region of Flow).* (F. Lamba, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 329-331.) (Addendum—L.F.F., Vol. 18, No. 1, 28/2/41, p. 37.) (Abstract available.)
76/196	Great Britain	*On the Flow of a Viscous Fluid Past a Flat Plate Using Elliptic Co-ordinates.* (T. V. Davies, Phil. Mag., Vol. 31, No. 207, April, 1941, pp. 283-313.)
76/197	Great Britain	*Relaxation Methods Applied to Engineering Problems. VII—Problems Relating to the Percolation of Fluids Through Porous Materials (Digest).* (T. S. Shaw, R. V. Southwell, Proc. Roy. Soc., Vol. 177, No. 971, 18/3/41, pp. 10.)
76/198	Italy ...	*The New Balance of the Breda Wind Tunnel.* (M. Pittoni, Auto Moto Avio, Vol. 19, No. 37, 15-28 Feb., 1941, pp. 43-47.)
76/199	U.S.S.R. ...	*Faster than Sound—the Problem of Supersonic Velocities.* (V. Duakov, Aeroplane, U.S.S.R., Vol. 18, No. 1, Jan., 1941, pp. 13-14.)
76/200	Great Britain	*Liquid Jets of Annular Cross Section.* (A. M. Binnie, H. B. Squire, Engineer, Vol. 171, No. 4,448, 11/4/41, pp. 236-238.)
76/201	Great Britain	*The Calculations of Terminal Speeds of Spherical Particles Falling in a Fluid.* (E. S. Dennison, Engineering, Vol. 151, No. 3,926, 11/4/41, p. 294.)
76/202	Germany ...	*Boundary Layer Control by Suction.* (O. Schrenk, Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 409-414.) (Translation available 1,178.)
76/203	Germany ...	*The Large Wind Tunnel at Chalais Meridon (Paris).* (Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 50-56.)

AIRCRAFT AND AIRSCREWS.

76/204	U.S.A. ...	*Stainless Steel Trainer—Fleetwings XBT-12.* (American Aviation, Vol. 4, No. 18, 15/2/41, p. 14.)
76/205	U.S.A. ...	*Details of Current U.S.A. Civil Aircraft Types and Table of Specifications.* (Aviation, Vol. 40, No. 2, Feb., 1941, pp. 53-73, 105-106, 110.)
76/206	France ...	*The Balancing of Airscrews: Methods Employed by the Hispano Suiza Firm.* (H. Castaing, Rev. Techn. Hispano Suiza, No. 4, April, 1939.) (Airc. Eng., Vol. 13, No. 145, March, 1941, pp. 61-65.)
76/207	Poland ...	*The Influence of Span on Wing Flutter.* (*Z. Leliwa-Krzywoblocki, Lecture at the Istus Congress, Lwon, May*, 1939.) (Airc. Eng., Vol. 13, No. 145, March, 1941, pp. 66-67.)
76/208	Germany ...	*Gradient-Assisted Take-off.* (R. Isermann and E. Beck, Jahrb. dents. Luftfahrtforsch., 1938, Vol. 1, pp. 306-312.) (Airc. Eng., Vol. 13, No. 145, March, 1941, pp. 68-71 and 75.) (M.A.P. Translation No. 856.)

76/209	U.S.A. ...	*Flight Load Factors. Part I—Large Aeroplanes.* (C.A.A., Aircraft Airworthiness Section Rept., No. 6, 1940.) (Airc. Eng., Vol. 13, No. 145, March, 1941, pp. 72-75.)
76/210	Great Britain	*The Jigging of Modern Airframes (contd.).* (Airc. Eng., Vol. 13, No. 145, March, 1941, pp. 77-83.)
76/211	U.S.S.R. ...	*Calculation of Control Rods for Rudders and Ailerons Under Resonance Vibrations.* (E. V. Ananiev, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 13-26.)
76/212	U.S.S.R. ...	*Longitudinal Dynamic Stability of an Aircraft having an Automatic Pilot.* (V. A. Kotelnikdv, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 27-31.)
76/213	U.S.S.R. ...	*Use of Variable Pitch Propellers as Aerodynamic Brakes when Testing Aero Engines on Balancing Benches.* (A. V. Evdokimov, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 37-43.)
76/214	U.S.S.R. ...	*Experimental Research on Undercarriage Loading and the Efficiency of Shock Absorbers.* (V. P. Toulyakov, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 44-52.) (Abstract available.)
76/215	U.S.S.R. ...	*Test Stand for Investigation of Aircraft Shock Absorbers.* (Z. Z. Goubrinovich, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 65-74.)
76/216	Great Britain	*The Naval Aspect of Aircraft Design.* (H. C. Thursfield, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 26-28.)
76/217	Great Britain	*Choice of Aircraft Materials for Aircraft Construction.* (F. T. Hill, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 34-36.)
76/218	Germany ...	*Stresses in Single-Span Wing Construction with Incompletely Built-up Ribs.* (Reprint N.A.C.A. Tech. Memo. No. 937.) (F. Reinetzhuber, J. Roy. Aer. Soc., Vol. 45, No. 2, March, 1941, pp. 104-116.)
76/219	Great Britain	*Pemberton Billing Composite Aircraft Project.* (Inter. Avia., No. 746, 23/1/41, pp. 12-13.)
76/220	U.S.A. ...	*Boeing A-314 Super Clipper.* (Inter. Avia., No. 746, 23/1/41, p. 13.)
76/221	U.S.A. ...	*Hamilton 33D Controllable Pitch Airscrew (1,200 h.p. at 1,800 r.p.m.).* (Inter. Avia., No. 746, 23/1/41, p. 14.)
76/222	U.S.A. ...	*Arctic Service in the U.S.S.R.* (Inter. Avia., No. 746, 23/1/41, p. 21.)
76/223	U.S.A. ...	*Range Control at Laguardia Field (An Experiment in Speeding up Air Traffic.* (D. S. Little, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 42 and 154.)
76/224	U.S.A. ...	*Boeing Clippers Refitted for Long Range.* (Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 72, 158.)
76/225	U.S.A. ...	*Balancing of Aircraft Propellers.* (M. C. Beebe, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 113-118, 166.)
76/226	U.S.A. ...	*Down-Wind and Up-Wind Turns.* (L. F. Moth, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 121, 196.)
76/227	U.S.A. ...	*Some Aspects and Possibilities of Flying Boat Design.* (M. Walter, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 125-133.)
76/228	U.S.A. ...	*Fletcher Basic Trainer (All-Plywood Skin-Stressed Airplane).* (Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 165-166.)

76/229	Great Britain	*Epicyclic Gear Trains.* (H. E. Merrett, Engineer, Vol. 171, No. 4,446, 28/3/41, pp. 213-215.)
76/230	Great Britain	*The Welding of Air Frames. Part III—Directional Welding.* (W. Corns, Airc. Prod., Vol. 3, No. 30, April, 1941, pp. 135-138.)
76/232	Great Britain	*The Cost of Speed.* (W. Tye, Aeroplane, Vol. 60, No. 1,559, 11/4/41, pp. 422-423.)
76/233	U.S.A. ...	*New American Aircraft for the Trans-Atlantic Service.* (Aeroplane, Vol. 60, No. 1,559, 11/4/41, p. 424.)
76/234	Great Britain	*Three-Wheel Chassis.* (W. O. Manning, Aeronautics, Vol. 4, No. 1, Feb., 1941, pp. 44-46.)
76/235	Great Britain	*Rotol Four-Bladed Full Feathering Airscrew.* (Aeronautics, Vol. 4, No. 1, Feb., 1941, p. 64.)
76/236	Great Britain	*A Note of Wing Design—Theory of Lift Distribution.* (W. E. Hick, Aeronautics, Vol. 4, No. 3, April, 1941, pp. 42-44.)
76/237	Great Britain	*Assisted Take-off (An Interview with Major Mayo).* (Aeronautics, Vol. 4, No. 3, April, 1941, pp. 68-70.)
76/238	U.S.A. ...	*Problems Relating to the Control of Flow in Engine and Cabin Superchargers.* (N. E. Price, J.S.A.E., Vol. 48, No. 3, March, 1941, pp. 118-124.) (Abstract available.)
76/239	Switzerland...	*Airscrew Development Maximum Speeds.* (Inter. Avia., No. 750, 13/2/41, pp. 1-3.) (Abstract available.)
76/240	U.S.A. ...	*U.S.A. Airport Statistics.* (Inter. Avia., No. 750, 13/2/41, p. 16.) (Abstract available.)
76/241	Germany ...	*Air Freight Insurance Rates in Germany.* (Inter. Avia., No. 750, 13/2/41, p. 17.)
76/242	U.S.A. ...	*Photo Lofting in the U.S.A.* (Inter. Avia., No. 747, 30/1/41, pp. 9-10.) (Abstract available.)
76/243	U.S.A. ...	*Airship Development in the U.S.A.* (Inter. Avia., No. 747, 30/1/41, pp. 11-12.)
76/244	U.S.A. ...	*Allocation of Commercial Flying Equipment in the U.S.A.* (Inter. Avia., No. 747, 30/1/41, pp. 16-17.)
76/245	U.S.S.R. ...	*Fuel Economy in Flight.* (V. A. Plakson, Civil Aviation, U.S.S.R., Vol. 11, No. 1, Jan., 1941, pp. 6-7.)
76/246	U.S.S.R. ...	*Notes on the Maintenance of Aircraft in Winter.* (V. C. Alexandrov, Civil Aviation, U.S.S.R., Vol. 11, No. 1, Jan., 1941, pp. 11-12.)
76/247	U.S.S.R. ...	*Experiences of Take-off from Aerodromes in Winter.* (P. A. Semenov, Civil Aviation, U.S.S.R., Vol. 11, No. 1, Jan., 1941, pp. 13-14.)
76/248	U.S.S.R. ...	*Aircraft Manœuvrability Coefficient.* (V. S. Pishnov, Aeron. Eng., U.S.S.R., Vol. 14, No. 12, Dec., 1940, pp. 26-30.)
76/249	U.S.S.R. ...	*Airscrews for High Power Engines and Choice of the Best Reduction Ratio.* (B. N. Egorov, Aeron. Eng., Vol. 14, No. 12, Dec., 1940, pp. 31-43.)
76/250	U.S.S.R. ...	*Application of the Three-Moment Theorem in Strength Calculations for the Horizontal Tailplane.* (S. M. Zvonanev, A. F. Fredfanov, Aeron. Eng., U.S.S.R., Vol. 14, No. 12, Dec., 1940, pp. 43-47.)
76/251	U.S.S.R. ...	*Normal Strains During Torsion of an Aeroplane Wing.* (A. A. Umanski, Aeron. Eng., U.S.S.R., Vol. 14, No. 12, Dec., 1940, pp. 48-65.)

76/252	Germany ...	*The Effect of Centrifugal Force on the High Order Bending Vibrations of Airscrews at Various Angles of Blade Incidence.* (J. Meyer, L.F.F., Vol. 18, No. 1, 18/2/41, pp. 24-25.) (Abstract available.)
76/253	Germany ...	*The Vibration of a Wing Fitted with an Aerodynamically Balanced Aileron.* (H. G. Kussner and L. Schwarz, L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 337-354.) (Abstract available.)
76/254	Germany ...	*The Calculation of Wing Vibrations by the Use of Special Replacement System.* ((W. Biermann and W. Dissecker, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 314-319.) (Abstract available.)
76/255	Germany ...	*Report of German Lufthansa for* 1939. (Flughafen, Vol. 8, No. 9-10, Sept.-Oct., 1940, pp. 11-12.)
76/256	U.S.S.R. ...	*Winter Flying.* (V. Tchiriev, Aeroplane, U.S.S.R., Vol. 18, No. 1, Jan., 1941, pp. 29-30.)
76/257	U.S.A. ...	*Plastic Tabs for Ailerons, Rudder or Elevator.* (Sci. Am., Vol. 164, No. 1, Jan., 1941, pp. 160-161.)
76/258	U.S.A. ...	*Tapered Spar Frames (An Approximate Method for the Determination of the Stresses, in, and Deflections of, a Fuselage.* (H. M. J. Kittelsen, Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 90-94.)
76/259	Great Britain	*The Jigging of Modern Airframes.* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 107-114.)
76/260	Germany ...	*The Junkers Constant Speed Unit (Unusual Governor Used with Junkers Airscrew).* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 95-96 and 101.) (See also Airc. Eng., Feb., 1941, pp. 32-34.)
76/261	U.S.A. ...	*Flight Load Factors (issued by U.S. Civil Aeronautics Authority for Information of Pilots).* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 97-101.)
76/262	Switzerland...	"*Cant. Z.* 511" *Commercial Seaplane.* (Supplement, Inter. Avia., No. 744-745, 16/1/41, pp. 1-2.)
76/263	Italy ...	*Fiat G.* 12 *Commercial Transport.* (Inter. Avia., No. 744-745, 16/1/41, pp. 10-11.)
76/264	U.S.A. ...	*The Fowler Flap.* (H. D. Fowler, Flight, Vol. 39, No. 1,686, 17/4/41, p. f.)
76/265	Great Britain	*Electric Hydraulic Equipment for Aircraft.* (Science Library Bibliography No. 544.)
76/266	Great Britain	*Modern Wing Loading (the Desirability of High Loading in Civil Transport Design.* (C. L. Johnson, Flight, Vol. 39, No. 1,687, 24/4/41, pp. 299-302.)
76/267	Great Britain	*New Four-Bladed Rotol V.P. Airscrew.* (Flight, Vol. 39, No. 1,687, 24/4/41, p. 303.)
76/268	Germany ...	*Results Obtained by Measurement of Wing Stresses in Flight.* (H. W. Kaul and B. Filzek, Luftwissen, Vol. 8, No. 1, Jan., 1941, pp. 20-25.) (Abstract available.)
76/269	Germany ...	*Spring Type Shock Absorbers.* (Luftwissen, Vol. 8, No. 1, Jan., 1941, pp. 25-26.) (Abstract available.)
76/271	U.S.A. ...	*Seaplane or Landplane for Transoceanic Service.* (M. E. Gluharoff, Aviation, Vol. 40, No. 3, March, 1941, pp. 38-39.)
76/272	U.S.A. ...	*Eliminating Propeller Failures. Experimental Stress Determination by Means of Carbon Resistors Attached to Blades.* (C. Martin, Aviation, Vol. 40, No. 3, March, 1941, pp. 40-41.)

76/273	U.S.A. ...	*Landing Gear of Douglas D.C. 4, 5, and B. 19.* (Aviation, Vol. 40, No. 3, March, 1941, pp. 50-51.)
76/274	U.S.A. ...	*Shock Absorbing Systems. (Part II—Large Aircraft.)* (W. A. Sanion, Aviation, Vol. 40, No. 3, March, 1941, pp. 54-55.)
76/275	U.S.A. ...	*Mitsubishi M.C. 20 Commercial Transport.* (P. H. Wilkinson, Aviation, Vol. 40, No. 3, March, 1941, pp. 66-67.)
76/276	Great Britain	*Aerodrome Construction.* (Engineering, Vol. 151, No. 3,926, 11/4/41, p. 293.)
76/277	Great Britain	*Glide Control by Means of Flaps.* (G. H. Miles, Aeronautics, Vol. 4, No. 4, May, 1941, p. 50.)
76/278	Great Britain	*Air Brakes.* (W. O. Manning, Aeronautics, Vol. 4, No. 4, May, 1941, p. 51.)
76/279	Great Britain	*Rates of Climb in 1918 and 1940.* (Aeronautics, Vol. 4, No. 4, May, 1941, pp. 60-61.)
76/280	U.S.A. ...	*' Firestone " Light Weight Tyres for Aircraft (Photograph).* (Ind. and Eng. Chem. (News Edition), Vol. 19, No. 7, 10/4/41, p. 436.)
76/281	Switzerland...	*Flying Laboratory Junkers Ju. 52-53 m.* (Flugwehr und Technik, Vol. 2, No. 1, Jan., 1940, pp. 21-22.)
76/282	Switzerland...	*Electrically Conducting Aircraft Tyre.* . (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, pp. 126-127.)
76/283	Germany ...	*Aircraft Structure—Simplified Methods for Checking Dimensions of Components.* (H. Cestry, Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 404-408.)
76/284	Germany ...	*Material Investigation on Steel Fittings of Captured Foreign (Non-German) Aircraft.* (H. Cornelius, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 78-81.) (Translation available.)
76/285	Germany ...	*Polishing Hubs of Junkers Airscrews (Photographs).* (Luftwissen, Vol. 8, No. 3, March, 1941, p. 81.)
76/286	Germany ...	*Simple Deviation of Characteristic Equations for the Take-off and Landing of Aircraft.* H. Wenke, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 91-95.)
76/287	Germany ...	*The Gyroscopic Moment of an Airscrew.* (G. Bock, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 96-97.)
76/288	Germany ...	*Automatic Riveting in Aircraft Construction.* (C. H. Ploek, Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 36-42.) (Translation available.)
76/289	Germany ...	*Problem of Airscrew Design.* (G. Cordes, Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 43-48.)
76/290	Germany ...	*Efficient Aircraft Construction (" Maximum Output with Minimum Effort ").* (Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 48-49.)
76/291	Switzerland...	*The Elastic Deflection of a Wing Under Load.* (A. Datwyler, Flugwehr und Technik, Vol. 3, No. 3, March, 1941, pp. 65-67.)

Engines and Accessories.

76/292	Great Britain	*The Case for the Carburettor: A Comparison of the Fuel Economy and High Altitude Performance of Petrol Injection and Carburettor Engines.* (Flight, Vol. 39, No. 1,680, 6/3/41, pp. b-e.)

76/293	Great Britain	*Comparison of Direct Injection Engine (Ju. 211 D) and Carburettor Engine (Rolls-Royce Merlin X) as regards Performance at Altitude.* (Aeroplane, Vol. 60, No. 1,554, 7/3/41, pp. 289-292.) (Abstract available.)
76/294	U.S.A. ...	*Effect of Atmospheric Conditions on (Two-Stroke) Diesel Engine Performance.* (J. S. Doolittle, Oil Gas Journal, Vol. 39, No. 12, 1/8/40, p. 42.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 63A.)
76/295	U.S.A. ...	*American Aircraft Engines for 1941 with Sketches and Photographs and Table of Specifications.* (Aviation, Vol. 40, No. 2, Feb., 1941, pp. 101-103, 113-114.)
76/296	U.S.A. ...	*Four New Lycoming Engines (100-175 h.p.).* (Aviation, Vol. 40, No. 2, Feb., 1941, p. 139.)
76/297	Great Britain	*Stresses Resulting from Valve-Spring Surge.* (L. H. Dawtrey, Autom. Eng., Vol. 31, No. 48, March, 1941, pp. 73-78.)
76/298	Great Britain	*Engine Bearings—Efficiency and Life.* (W. D. B. Brown, P. T. Holligan, D.F.C., B.Sc., J. W. Warrington, Autom. Eng., Vol. 31, No. 408, March, 1941, pp. 83-88.)
76/299	U.S.A. ...	*Six-Cylinder Horizontally Opposed Light Aeroplane Engine (Air-Cooled Motors Corporation).* (Autom. Eng., Vol. 31, No. 408, March, 1941, p. 94.)
76/300	U.S.A. ...	*Buick Three-Jet Dual Carburettor.* (Autom. Eng., Vol. 31, No. 408, March, 1941, p. 102.)
76/301	Great Britain	*The Efficiencies of the Centrifugal Pump.* (G. U. Reid, Engineering, Vol. 151, No. 3,922, 7/3/41, p. 215.)
76/302	U.S.S.R. ...	*Investigation of the Effect of Excess Air Coefficient on the Indicated Efficiency of a Diesel Engine.* (T. M. Melkumdo, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 53-64.) (Abstract available.)
76/303	Great Britain	*High Power Aircraft Engines.* (A. W. Judge, Aeronautics, Vol. 4, No. 2, March, 1941, pp. 48-57.)
76/304	U.S.A. ...	*Aircraft and Engine Production Problems.* (G. de Freest Larner, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 42 and 154.)
76/305	U.S.A. ...	*Lycoming Horizontally Opposed Four- and Six-Cylinder Air-Cooled Engines.* (Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 141-145.)
76/306	U.S.A. ...	*Thermostatic Control in Liquid Cooling.* (W. Warfield, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 150, 178.)
76/307	U.S.A. ...	*Improved Methods for Machining Engine Parts.* (Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 153-154.)
76/308	U.S.A. ...	*An Efficient System of Testing Power Plant Installations.* (F. Kalliss, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 161-162.)
76/309	U.S.A. ...	*Anti-Corrosion Treatment for Engines.* (Aero Digest, Vol. 38, No. 2, Feb., 1941, p. 173.)
76/310	Great Britain	*Hispano Suiza Wind Tunnel and Observations on Current Aero Engine Problems.* (M. Massuger, Airc. Prod., Vol. 3, No. 30, April, 1941, pp. 115-119.)
76/311	Great Britain	*Petrol Pump versus Carburettor.* (Airc. Prod., Vol. 3, No. 30, April, 1941, pp. 142-143.)
76/312	U.S.A. ...	*Air-Cooled v. Liquid-Cooled Aircraft.* (J. D. Lee, Flight, Vol. 39, No. 1,682, 20/3/41, pp. c-f.)

76/313	Great Britain	*Air-Cooled v. Liquid-Cooled Aircraft (I).* (J. G. Lee, Flight, Vol. 39, No. 1,681, 13/3/41, pp. h-210.)
76/314	Germany ...	*Pistons of Foreign (Non-German) Aero Engines.* (E. Koch, Luftwissen, Vol. 7, No. 10, Oct., 1940, pp. 340-349.) (Translation available.)
76/315	U.S.A. ...	*Two-Stage Supercharging.* (R. S. Buck, N.A.C.A. Tech. Note, No. 794, Feb., 1941.) (Abstract available.)
76/316	U.S.A. ...	*Effect of Several Supercharger Control Methods on Engine Performance.* (E. W. Wasielewski and J. A. King, N.A.C.A. Tech. Note No. 795, Feb., 1941.) (Abstract available.)
76/317	U.S.S.R. ...	*Methods for Regulating the Coupling of Electro-Inertia Starters.* (A. E. Musierko, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 168-171.)
76/318	Germany ...	*Pressure and Temperature Measurement in Supercharger Investigations.* (A. Franz, Jahrbuch der Deutschen, L.F.F., Vol. 2, 1938, pp. 215-218.) (Translation available as T.M. 953.) (Available as M.A.P. Trans. 1,095.)
76/319	Germany ...	*Limits of Single-Stage Compression in Centrifugal Superchargers for Aircraft.* (K. Kollmann, Luftwissen, Vol. 7, No. 3, March, 1940, pp. 54-61.) (Translation available as T.M. 954.) (Available as M.A.P. Trans. 1,059.)
76/320	Germany ...	*Resonance Vibrations in Intake and Exhaust Pipes of In-Line Engines. (Part III—The Inlet Process of a Four-Stroke Engine.)* (O. Lutz, L.F.F., Vol. 17, No. 4, 20/4/40, pp. 123-128.) Translation available as T.M. 957.) (Available as M.A.P. Trans. 1,088.)
76/321	Great Britain	*Some Thoughts on Aero Motor Problems (and Submerged Wing Installation).* J. W. Morrison, Aeroplane, Vol. 60, No. 1,558, 4/4/41, pp. 395-397.)
76/322	U.S.A. ...	*Supercharged Aircraft Ignition Harnesses (Ventilation of Contaminated Air) (with Discussion).* (C. E. Swanson, J.S.A.E., Vol. 48, No. 3, March, 1941, pp. 107-116.) (Abstract available.)
76/323	U.S.S.R. ...	*Effect on Detonation of Addition of Combustion Products to the Working Mixture in a Carburettor Aero Engine.* (A. V. Krasnikov, Civil Aviation, U.S.S.R., Jan., 1941, pp. 21-24.)
76/324	U.S.S.R. ...	*Choice of Baffles for Controlling Mixture Composition in Aero Engines.* (E. A. Dvanov, Aeron. Eng., U.S.S.R., Vol. 14, No. 12, Dec., 1940, pp. 48-65.)
76/325	U.S.S.R. ...	*Advantages of Diesels by Comparison with Carburettor Engines for Aircraft.* (N. S. Shiebaev, Aeron. Eng., U.S.S.R., Vol. 14, No. 12, Dec., 1940, pp. 48-65.)
76/326	Germany ...	*A New Method of Determining the Gas Temperature Cycle in a Four-Stroke Spark Ignition Engine.* (H. Graff, L.F.F., Vol. 18, No. 1, 28/2/41, pp. 8-17.) (Abstract available.)
76/327	Germany ...	*The Development of Direct Fuel Injection for Spark and Compression Ignition Engines by the Junker Works during the period 1916-1921.* (A. Lichte, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 291-296.) (Abstract available.)

76/328	Germany ...	*Some Notes on the Engine Airscrew Combination.* (W. Hoff, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 299-305.) (Abstract available.)
76/329	Canada ...	*Aircraft Accessories to Ensure Easy Starting.* (A. Jordanoff, Canadian Aviation, Vol. 14, No. 2, Feb., 1941, pp. 59-61.)
76/330	U.S.A. ...	*Fuel Vapour Lock (C.F.R. Report).* (Inter. Avia., No. 744-745, 16/1/41, pp. 13-14.) (Abstract available.)
76/331	Great Britain	*Test of a Kadensey High Duty Moderate Speed Experimental Unit.* (S. J. Davies, Engineer, Vol. 171, No. 4,448, 11/4/41, pp. 238-240.)
76/332	Great Britain	*The High Speed Compression Ignition Engine (Book Review).* (C. B. Dicksee, London and Glasgow; Blackie and Son, Ltd., 1940, 16/-.) (Engineer, Vol. 171, No. 4,448, 11/4/41, p. 243.)
76/333	Germany ...	*Travelling Hot Air Oven Used by the Luftwaffe (Photograph).* (Flight, Vol. 39, No. 1,686, 17/4/41, p. 282.)
76/334	Italy ...	*Electric Petrol Injection (Caproni Fuscaldo).* (Flight, Vol. 39, No. 1,686, 17/4/41, p. c.)
76/335	Great Britain	*Exhaust Efflux Propulsion—V.* (F. W. Lanchester, Flight, Vol. 39, No. 1,686, 17/4/41, pp. 285-286.)
76/336	U.S.A. ...	*Cooling of Engine Cylinders Improved by Enamelling.* (Scie. Am., Vol. 164, No. 4, April, 1941, p. 207.)
76/337	Great Britain	*Recent Developments in Internal Combustion Engines.* (S. J. Davies, Nature, Vol. 147, No. 3,729, 19/4/41, pp. 487-488.)
76/338	Great Britain	*The Efficiencies of Centrifugal Pumps.* (J. Jennings, Engineering, Vol. 151, No. 3,925, 4/4/41, p. 276.)
76/339	Great Britain	*The Merit of the 20-Cylinder Liquid-Cooled Multibank Engine.* (J. W. Morrison, Flight, Vol. 39, No. 1,688, 1/5/41, pp. 313-315.)
76/340	Great Britain	*Epicyclic Gear Trains.* (H. E. Merritt, Engineer, Vol. 171, No. 4,445, 21/3/41, pp. 190-192.)
76/341	U.S.A. ...	*List of American Aircraft Engines (Dimension and Output).* (Autom. Ind., Vol. 84, No. 5, 1/3/41, pp. 240-241.)
76/342	U.S.A. ...	*List of American Diesel Engines (Dimension and Output).* (Autom. Ind., Vol. 84, No. 5, 1/3/41, pp. 252-255.)
76/343	U.S.A. ...	*Increasing Fatigue Life of Valve Springs by Shot-Blasting.* (Autom. Ind., Vol. 84, No. 5, 1/3/41, pp. 301-302.)
76/344	U.S.A. ...	*Rear Engine Installation, Part I.* (R. J. Woods, Vol. 40, No. 3, Aviation, March, 1941, pp. 36-37.)
76/345	U.S.A. ...	*Ice Free Carburettors for Light Planes.* (S. W. Kimball, Aviation, Vol. 40, No. 3, March, 1941, p. 48.)
76/346	U.S.A. ...	*Reduction Gear of Wright G. 100 Series Engine.* (Aviation, Vol. 40, No. 3, March, 1941, p. 51.)
76/347	U.S.A. ...	*Air Heater for Engine Starting (Photographic).* (Aviation, Vol. 40, No. 3, March, 1941, p. 97.)
76/348	Great Britain	*Non-Dimensional Characteristic Design Factors for Turbo Machines.* (J. R. Finniecombe, The Engineer, Vol. 171, No. 4,450, 25/4/41, pp. 276-277.)
76/349	Great Britain	*Ignition Lag in a Supercharged Compression Ignition Engine.* (A. C. West and D. Taylor, Engineering, Vol. 151, No. 3,926, 11/4/41, p. 281.)

76/350	Great Britain	*Granolite Treatment for Piston Rings.* (Engineering, Vol. 151, No. 3,926, 11/4/41, p. 286.)
76/351	Great Britain	*Free Wheels in Motor Cars.* (No. 550, Lib. Biblog. Series.)
76/352	Great Britain	*Allison V 1,710 Aero Engines.* (R. H. Rogers, Aeronautics, Vol. 4, No. 4, May, 1941, pp. 58-61.)
76/353	U.S.A. ...	*Aircraft Diesels.* (P. H. Wilkinson. Pitman, Pub. 60, New York, $6.) (U.S. Air Services, Vol. 26, No. 3, March, 1941, p. 38.)
76/354	Switzerland...	*Mass Production of Radial Engine at B.M.W. Works (Photograph).* (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, p. 115.)
76/355	Switzerland...	*Hirth H.M. 515 50 h.p. Aero Motor.* (Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, p. 125.)
76/356	Germany ...	*Liquid Pressure Cooling for Aircraft Engines.* (H. Caroselli, Luftwissen, Vol. 7, No. 11, Nov., 1940, pp. 373-381.) (Translation available.)
76/357	Germany ...	*Materials and Designs of Foreign (Non-German) Captured Aero Engines.* (P. Kotzschle, Luftwissen, Vol. 8, No. 3, March, 1941, p. 67.) (Translation available.)
76/358	Germany ...	*Material for Aero Engine Gears.* (E. Rosson, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 86-90.)
76/359	Germany ...	*Three New Air-Cooled Radials of the B.M.W. 132 Series.* (Luftwissen, Vol. 8, No. 2, Feb., 1941, pp. 57-59.)
76/360	Switzerland...	*Problems of Aero Engine Construction (Part I—Fuels, Lubricants, Cooling Agents).* (H. Varrone, Flugwehr und Technik, Vol. 3, No. 1, Jan., 1941, pp. 21-23.)
76/361	Switzerland...	*Problems of Aero Engine Construction (Part II—Design).* (H. Varrone, Flugwehr und Technik, Vol. 3, No. 2, Feb., 1941, pp. 38-41.)

Fuels and Lubricants.

76/362	Great Britain	*Methane: its Production and Utilisation (Book Review).* (J. P. Lawrie. London: Chapman and Hall, 1940, 66 pp., price 6/-.) (Nature, Vol. 147, No. 3,723, 8/3/41, p. 281.)
76/363	Great Britain	*Conserving Lubricating Oil by Regeneration of Used Oils.* (C. I. Kelly, Petroleum, Vol. 2, No. 4, Aug., 1940, pp. 111-122.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 63A.)
76/364	Great Britain	*Progress in Recovery of Used Lubricating Oils.* (A. T. Wilford, Petroleum, Vol. 2, No. 4, Aug., 1940, p. 123.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 63A.)
76/365	U.S.A. ...	*Viscosity and Constitution.* (G. Hugel, Refiner, Vol. 29, No. 8, Aug., 1940, pp. 294-296.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 69A.)
76/366	U.S.A. ...	*Calculating Gasoline Octane Rating from Gravity and A.S.T.M. Distillation.* (R. B. Cox, Refiner, Vol. 19, No. 2, Feb., 1940, pp. 31-36.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, pp. 72-73A.)
76/367	U.S.A. ...	*Determination of Tetra-Ethyl Lead in Gasoline.* (G. Calingaert and C. M. Gambrill, Refiner, Vol. 19, No. 2, Feb., 1940, pp. 58-60.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 73A.)

76/368	U.S.A. ...	*High Anti-Knock "Safety" Aviation Fuel.* (M. G. van Voorhis, Refiner, Vol. 19, No. 1, Jan., 1940, pp. 19-21.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, pp. 73-74A.)
76/369	U.S.A. ...	*Non-Fluid Lubrication. Part III.* (S. Kyropoulos, Refiner, Vol. 19, No. 3, March, 1940, pp. 85-92.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, pp. 74-75A.)
76/370	U.S.A. ...	*Effect of Engine Metals on the Determination of Motor Oils.* (B. F. Downing, Oil Gas Journal, Vol. 38, No. 5, 15/6/39, p. 70.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 75A.)
76/371	U.S.A. ...	*Factors Involved in Lead Susceptibility.* (A. W. Trusty, Refiner, Vol. 19, No. 4, April, 1940, pp. 93-96.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, pp. 79-80A.)
76/372	U.S.A. ...	*Behaviour of Gasoline-Coal (Suspension) Fuel in Spark-Ignition Engines.* (J. E. Hedrick, Refiner, Vol. 19, No. 8, Aug., 1940, pp. 285-286.) (J. Inst. Petrol., Vol. 27, No. 208, Feb., 1941, p. 81A.)
76/373	Great Britain	*Fuel and War. The Need of National Planning.* (F. C. Sheffield, Autom. Eng., Vol. 31, No. 408, March, 1941, pp. 89-91.)
76/374	U.S.A. ...	*Oxidation of Lubricating Oils (Apparatus and Analytical Methods).* (M. R. Fenske, Ind. and Eng. Chem. (Analytical Ed.), Vol. 13, No. 1, Jan., 1941, pp. 51-60.) (Abstract available.)
76/375	Great Britain	*Lubrication Technique with Special Reference to Colloidal Graphite.* (Nature, Vol. 147, No. 3,724, 15/3/41, p. 324.)
76/376	U.S.A. ...	*Lubricating Oils for Internal Combustion Engines.* (L. H. Mulit, F. W. Kavanagh, J.S.A.E., Vol. 48, No. 3, March, 1941, pp. 98-106.) (Abstract available.)
76/377	Germany ...	*Explosive Properties of a Mixture of Tetranito Methane and Nitrobezol (Confirmation of Hydrodynamic Theory of Detonation.)* (J. F. Roth, Z.G.S.S., Vol. 36, No. 2, Feb., 1941, pp. 28-30.)
76/378	Great Britain	*A Study of Sensitised Explosions, V. (Some New Experiments on the Hydrogen-Oxygen Reaction Sensitized by NO_2.)* (F. S. Dainton, R. G. W. Norrish, Proc. Roy. Soc., Vol. 177, No. 971, 18/3/41, pp. 393-400.)
76/379	Great Britain	*Experimental Observations on the Hydrogen-Oxygen Reaction Sensitised by Nitrosyl Chloride.* (F. S. Dainton, R. G. W. Norrish, Proc. Roy. Soc., Vol. 177, No. 971, 18/3/41, pp. 411-420.)
76/380	Great Britain	*A Chain Thermal Theory of the Reaction between Hydrogen and Oxygen Sensitised by NO_2 or Nitrosyl Chloride.* (F. S. Dainton and R. G. W. Norrish, Proc. Roy. Soc., Vol. 77, No. 971, 18/3/41, pp. 421-447.)
76/381	Italy ...	*The Use of Acetylene as a Motor Car Fuel.* (M. Medici, Auto Moto Avio, Vol. 19, No. 34, 15-28 Feb., 1941, pp. 16-17.)
76/382	Italy ...	*Compressed Charcoal Produces Gas as a Motor Fuel.* (Auto Moto Avio, Vol. 19, No. 34, 15-28 Feb., 1941, p. 16.)

76/383	U.S.A. ...	*Essolube H.D.—New Type of Engine Lubricant.* (Ind. and Eng. Chem. (News Ed.), Vol. 19, No. 5; 10/3/41, p. 282.) (Abstract available.)
76/384	France ...	*French Tank Wagons for Fuel Oil.* (Flughafen, Vol. 8, No. 11-12, Nov.-Dec., 1940, pp. 14-16.)
76/385	U.S.A. ...	*Fuel and Oil for Motor Transport (Future Needs).* (T. A. Boyd, Ind. and Eng. Chem. (Ind. Ed.), Vol. 33, No. 3, March, 1941, pp. 324-330.)
76/386	U.S.A. ...	*Separation and Composition of a Lubricating Oil Distillate.* (M. R. Fenske, R. E. Hersh, Ind. and Eng. Chem. (Ind. Ed.), Vol. 33, No. 3, March, 1941, pp. 331-338.)
76/387	U.S.A. ...	*Oxidation of Petroleum Lubricants.* (L. L. Davis and others, Ind. and Eng. Chem. (Ind. Ed.), Vol. 33, No. 3, March, 1941, pp. 339-350.) (Abstract available.)
76/388	U.S.A. ...	*Lubricating Oil Addition Agents.* (O. M. Reiff, Ind. and Eng. Chem. (Ind. Ed.), Vol. 33, No. 3, March, 1941, pp. 351-357.) (Abstract available.)
76/389	U.S.A. ...	*Spontaneous Ignition of Hydrocarbons.* (C. W. Sortman and others, Ind. and Eng. Chem., Vol. 33, No. 3, March, 1941, pp. 357-360.) (Abstract available.)
76/390	Rumania ...	*The Oil Situation in Rumania.* (Engineer, Vol. 171, No. 4,449, 18/4/41, pp. 259-262.
76/391	U.S.A. ...	*Fuels and Lubricants for Trucks and Buses.* (Autom. Ind., Vol. 84, No. 5, 1/3/41, pp. 304-305.)
76/392	U.S.A. ...	*Essolube H.D., a New Lubricant for Heavy Duty Engines.* (Autom. Ind., Vol. 84, No. 5, 1/3/41, pp. 313-316.)
76/393	Great Britain	*Temperature and Latent Energy in Flame Gases.* (W. T. David, The Engineer, Vol. 171, No. 4,450, 24/4/41, pp. 268-270.) (Abstract available.)
76/394	Great Britain	*Quarterly Biblog. of Lubrication.* (Sci. Lib. Biblog. Series, Jan.-March, 1941, No. 33.)
76/395	U.S.A. ...	*Catalytic Petroleum Refining by the Hydroforming Process (40 Octane Converted to 80 Octant).* (D. J. Smith, L. W. Moore, Ind. and Eng. Chem. (News Edition), Vol. 19, No. 7, 10/4/41, pp. 428-432.)

INSTRUMENTS.

76/396	U.S.A. ...	*The "Rose" Cathode Ray Engine Indicator.* (G. C. Wilson, Autom. Eng., Vol. 31, No. 408, March, 1941, p. 92.)
76/397	Great Britain	*Optical Protractor (Messrs. Bausch and Lamb).* (Engineering, Vol. 151, No. 3,922, March 7, 1941, p. 210.)
76/398	Great Britain	*Brinell Microscope (Messrs. Bausch and Lamb).* (Engineering, Vol. 151, No. 3,922, 7/3/41, p. 210.)
76/399	Great Britain	*Measurement of Surface Tension by the Ripple Method.* (E. Tyler, Phil. Mag., Vol. 31, No. 206, March, 1941, pp. 209-221.)
76/400	U.S.A. ...	*Ultra-Violet Photometer (Quantitative Measurement of Small Traces of Solvent Vapours in Air).* (V. F. Hanson, Ind. and Eng. Chem., Vol. 13, No. 2, Feb., 1941, pp. 119-123.)
76/401	Great Britain	*Tool Dynamometer for Measuring Rapid Force Fluctuations.* (R. N. Arnold, Engineering, Vol. 151, No. 3,923, 21/3/41, pp. 221-222.)

76/402	Great Britain	*Statigraph Graph Drawing Machine (for Statistical Records).* (Engineering, Vol. 151, No. 3,923, 21/3/41, pp. 226-228.)
76/403	Great Britain	*The Brush Surface Analyser (Automatic Record of Surface Irregularities by Means of Piezo Electric Stylus).* (Engineer, Vol. 171, No. 4,447, 4/4/41, p. 231.)
76/404	Germany ...	*Vibration Characteristics of Piezo Electric Pressure Recorders.* (W. Gohlke, Luftwissen, Vol. 7, No. 10, Oct., 1940, pp. 353-354.)
76/405	U.S.S.R. ...	*Correction of the Speed Indicator at High Speeds of Flight.* (V. Bolotnikov, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 159-166.)
76/406	U.S.S.R. ...	*Experience of the Operation of the A.F.A. Aerial Camera Under Winter Conditions.* (P. G. Timofeyer, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 154-158.)
76/407	Germany ...	*Standards for Discharge Measurement with Standardised Nozzles and Orifices.* (German Industrial Standard 1952.) (V.D.I.-Verlag, G.m.b.H., Berlin, 1937.) (Translation available as T.M. 952.) (Abstract available.)
76/408	Holland ...	*Corrections on the Thermometer Reading in an Air Stream.* (H. J. Van der Maas and S. Wynia, National Aerodynamic Laboratory, Amsterdam, No. 8, 1939, Report V. 834, pp. 28-33.) (Translation available as T.M. 956.) (Abstract available.)
76/409	Germany ...	*D.V.L. Research Instruments.* (R. A. Saville-Sneath, Aeronautics, Vol. 4, No. 3, April, 1941, pp. 56-57.)
76/410	Great Britain	*Petrol Proof Boost Gauge.* (Aeronautics, Vol. 4, No. 3, April, 1941, pp. 64-65.)
76/411	U.S.A. ...	*A Micro Hardness Testing Machine.* (Hanemann, Engineer's Digest, Feb., 1941, pp. 42-44.) (Abstract available.)
76/412	Germany ...	*Safety Devices on a Modern Air Port.* (E. Miessner and others, Flughafen, Vol. 8, No. 9-10, Sept.-Oct., 1940, pp. 1-5.)
76/413	Germany ...	*The Electron Microscope and Investigation on Surface Structure.* (Helios, Vol. 47, No. 9, 1/3/41, pp. 263-264 and XLI-XLII.)
76/414	Germany ...	*Modern German Calculating Machine.* (Helios, Vol. 47, No. 9, 1/3/41, pp. 270-273.)
76/415	U.S.A. ...	*Industrial Uses of the Electron Microscope.* (Sci. Am., Vol. 64, No. 1, Jan., 1941, p. 155.)
76/416	Great Britain	*The Behaviour of the Compass in a Turn.* (Aeroplane, Vol. 60, No. 1,560, 18/4/41, pp. 449-450.)
76/417	Germany ...	*Importance of Suitable Direction of Deflection of Flight Control Instruments.* (E. Everling, Luftwissen, Vol. 8, No. 1, Jan., 1941, pp. 26-27.) (Abstract available.)
76/418	U.S.A. ...	*Magnetic Gauge for Measuring Thickness of Car Body Enamel.* (Scie. Am., Vol. 164, No. 4, April, 1941, pp. 207-208.)
76/419	U.S.A. ...	*Selsyn Counter for Aircraft Ammunition.* (Scie. Am., Vol. 164, No. 4, April, 1941, p. 225.)
76/420	U.S.A. ...	*Ultra High Speeds of Rotation Utilising Magnetic Suspension.* (Scie. Am., Vol. 164, No. 4, April, 1941, pp. 237-238.)

76/421	Germany ...	*Safety Devices on a Modern Aerodrome.* (E. Miessner, Flughafen, Vol. 8, No. 11-12, Nov.-Dec., 1940, pp. 8-14.)
76/422	U.S.A. ...	*Discharge Orifice Nomograph.* (D. S. Davis, Ind. and Eng. Chem. (Ind. Ed.), Vol. 33, No. 3, March, 1941, p. 420.)
76/423	Great Britain	*Improved Dynamic Balancing Machine.* (Engineer, Vol. 171, No. 4,445, 21/3/41, p. 199.)
76/424	U.S.A. ...	*Instrument Landing of Aircraft.* (Engineer, Vol. 171, No. 4,449, 18/4/41, pp. 255-257.)
76/425	U.S.A. ...	*Condenser Type of Electric Indicator Developed by General Motors.* (Autom. Ind., Vol. 84, No. 5, 1/3/41, p. 306.)
76/426	U.S.A. ...	*The Crowall Trainer.* On the ground training machine for teaching beginners co-ordinations of flight controls. (Aviation, Vol. 40, No. 3, March, 1941, p. 56.)
76/427	U.S.A. ...	*Films Teaching Flying.* (Aviation, Vol. 40, No. 3, March, 1941, p. 106.)
76/428	Great Britain	*Instrument Landing of Aircraft (II).* (The Engineer, Vol. 171, No. 4,450, 25/4/41, pp. 271-272.)
76/429	Great Britain	*Observer's Book on Astro-Navigation, Part I and II.* (F. Chichester, G. Allen and Unwin, Ltd. (2/6 each). Nature, Vol. 147, No. 3,730, 26/4/41, pp. 493-494.)
76/430	Great Britain	*New Ideas in Aircraft Instruments.* (E. B. Moss, Aeronautics, Vol. 4, No. 4, May, 1941, pp. 40-42.)
76/431	U.S.A. ...	*Instrument Flying.* (P. V. H. Weems and C. A. Zweng. Weems System of Navigation, Annapolis, M.D., $4. U.S. Air Services, Vol. 26, No. 3, March, 1941, p. 26.)
76/432	Switzerland...	*Blind Flying Hood Opening Automatically in Case of Danger (for the U.S.A.).* (Flugwehr und Technik, Vol. 2, No. 11-12, Nov.-Dec., 1940, pp. 267.)
76/433	Germany ...	*Flight Speed Determination by Means of Drift Angles.* (M. Miller, Luftwissen, Vol. 7, No. 11, Nov., 1940, pp. 386-387.)
76/434	Germany ...	*Geared Down Revolution Counter* (40/1) *for Ultra High Speed.* (H. Phan, Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 424-425.)

MATERIALS.

76/435	Great Britain	*Properties of Synthetic Rubbers.* (Plastics, Vol. 5, No. 46, March, 1941, pp. 44-47.)
76/436	Great Britain	*Adhesives and Cements (Nitro-Cellulose and Cellulose-Acetate Types).* (E. E. Halls, Plastics, Vol. 5, No. 46, March, 1941, pp. 48-50.)
76/437	Great Britain	*Machinery Hardened Nickel Alloy Steel of Type S.A.E.* 4,340. (Autom. Eng., Vol. 31, No. 408, March, 1941, p. 82.)
76/438	U.S.A. ...	*Leaf Springs Employing Grooved Sections.* (Autom. Eng., Vol. 31, No. 408, March, 1940, pp. 93-94.)
76/439	Switzerland...	*Brown Boveri Method for Testing Gear Materials (Plain Cylindrical Test Piece).* (Autom. Eng., Vol. 31, No. 408, March, 1941, pp. 97-99.)
76/440	U.S.A. ...	*Review of American Practice in Grading Surface Finish.* (Autom. Eng., Vol. 31, No. 408, March, 1941, pp. 101-102.)

76/441	Great Britain	*Large Scale Hardness Testing.* (Airc. Eng., Vol. 13, No. 145, March, 1941, p. 86.)
76/442	Great Britain	*Practical Solution of Torsional Vibration Problems (Book Review).* (Vol. 1, Second Ed., Chapman and Hall, price 42/-.) (W. Kerr Wilson, Airc. Eng., Vol. 13, No. 145, March, 1941, p. 76.)
76/443	U.S.S.R. ...	*Notes on the Determination of Centres of Rigidity.* (A. U. Romashevski, Aeron. Eng., U.S.S.R., Vol. 15, No. 1, Jan., 1941, pp. 31-36.) (Abstract available.)
76/444	Italy ...	*The Torsion of Box Beams with One Side Lacking.* (Reprint of N.A.C.A. Tech. Memo. No. 939.) (E. Cambilargiu, J. Roy. Aer. Soc., Vol. 45, No. 363, March, 1941, pp. 89-103.)
76/445	U.S.A. ...	*Production of Aluminium in the U.S.A.* (Inter. Avia., No. 746, 23/1/41, pp. 15-16.)
76/446	U.S.A. ...	*Effect of Low Temperature on the Properties of Aircraft Metals.* (S. J. Rosenberg, Bur. Stan. J. Res., Vol. 25, No. 6, Dec., 1940, pp. 673-701.) (Abstract available.)
76/447	U.S.A. ...	*Effect of Composition and Other Factors on the Specific Refraction and Dispersion of Glasses.* (J. C. Young and A. N. Finn, Bur. Stan. J. Res., Vol. 25, No. 6, Dec., 1940, pp. 758-782.)
76/448	Great Britain	*Corrosion of Iron and Steel (Book Review).* (Dr. J. C. Hudson. Chapman and Hall, Ltd. 1940.) (Nature, Vol. 147, No. 3,724, 15/3/41, pp. 307-308.)
76/449	U.S.A. ...	*Influence of War Development in New Paint Products.* (F. W. Fuller, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 59-60.)
76/450	U.S.A. ...	*Compounding of Plastics Wood.* (R. Decat, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 146-149.)
76/451	Great Britain	*Deterioration of Structures in Sea Water.* (Engineer, Vol. 171, No. 4,446, 28/3/41, pp. 204-207.)
76/452	Great Britain	*Plastics in Industry (Book Review).* (Plastes. Chapman and Hall, 1940.) (Engineer, Vol. 171, No. 4,446, 28/3/41, p. 212.)
76/453	Great Britain	*Graphical Calculation of Right Angle Helical Gearing.* (P. Grodzinski, Engineering, Vol. 151, No. 3,923, 21/3/41, p. 239.)
76/454	Great Britain	*Milling Cutters. Effect of the Helix Angle on Cutting Capacity and Surface Quality.* (Airc. Prod., Vol. 3, No. 30, April, 1941, p. 123.)
76/455	Great Britain	*Surface Finish (Metallurgical Construction of Surfaces. The Profilometer and its Use: Lapping, Honing, Superfinishing.* (Airc. Prod., Vol. 3, No. 30, April, 1941, pp. 144-148.)
76/456	Great Britain	*Synthetic Resin Cement for Wood.* (Engineering, Vol. 151, No. 3,924, 28/3/41, pp. 246-247.)
76/457	Great Britain	*Inserted-Blade Milling Cutters "Zeclock."* (Engineering, Vol. 151, No. 3,924, 28/3/41, pp. 247-248.)
76/458	Great Britain	*The Hydraulic Extension Process (Historical Development).* (C. E. Pearson, Engineering, Vol. 151, No. 3,924, 28/3/41, pp. 257-260.)
76/459	Great Britain	*The Production and Utilisation of Magnesium.* (Engineering, Vol. 151, No. 3,924, 28/3/41, p. 261.)
76/460	Great Britain	*Preloaded Studs and Bolts.* (J. D. Blyth, Flight, Vol. 39, No. 1,683, 27/3/41, pp. 243-244.)

76/461	Great Britain	*Fatigue Testing by Strainmeter.* (H. N. Charles, Aeroplane, Vol. 60, No. 1,555, 14/3/41, pp. 315-316.)
76/464	Great Britain	*Adhesives and Cements (Polyvinyl, Polystyrol and Glyptal Types).* (E. E. Hall, Plastics, Vol. 5, No. 47, April, 1941, pp. 73-75.)
76/465	Great Britain	*Screw Threads in Plastics.* (Plastics, Vol. 5, No. 47, April, 1941, pp. 76-78.)
76/466	Great Britain	*Physical Structure of Synthetic Resins.* (Plastics, Vol. 5, No. 47, April, 1941, pp. 85-86.)
76/467	U.S.S.R. ...	*Explosive Rivets as a Means of Repairing Aircraft at Aerodromes near the Front.* (Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 166-167.)
76/468	Germany ...	*The Cause of Welding Cracks in Aircraft Steels.* (J. Muller, L.F.F., Vol. 17, No. 4, 20/4/40, pp. 97-105.) (Translation available as T.M. 955.) (Available as M.A.P. Trans. 1,166.)
76/469	Switzerland...	*Creep Strength of Stabilised Wrought Aluminium Alloys.* (W. Muller, Aluminium Industrie A.G. Newhausen, Switzerland, 30/12/39.) (Translation available as T.M. 960.) (Abstract available.)
76/470	Germany ...	*German Aeronautical Materials and Testing Machines.* (H. J. A. Wilson, Aeronautics, Vol. 4, No. 1, Feb., 1941, pp. 50-52.)
76/471	U.S.A. ...	*Economics of Substituting Synthetic Rubber in Automobiles (with Discussion).* (W. J. McCortney, J.S.A.E., Vol. 48, No. 3, March, 1941, pp. 94-97 and 106.)
76/472	Great Britain	*Arc Welding of High Tensile Alloy Steels.* (Rollason and others, Transactions of the Institute of Welding, Jan., 1941, pp. 3-21.) (Abstract available.)
76/473	Great Britain	*Effect of Grain Size on Creep Strength.* (Weaver, Steel, 24/2/41, pp. 80-85 and 92.) (Abstract available.)
76/474	U.S.A. ...	*Technical Development on Metal Finishing during 1940.* (Hall, Hogaboom, Metal Finishing, Jan., 1941, pp. 2-7, 10.) (Abstract available.)
76/475	Great Britain	*Surface Treatment of Magnesium Alloy.* (Schmidt and others, Foundry Trade Journal, 13/3/41, pp. 175-177.) (Abstract available.)
76/476	U.S.A. ...	*Fletcher Trainer in Plastic Plywood.* (Inter. Avia., No. 750, 13/2/41, p. 6.) (Abstract available.)
76/477	U.S.A. ...	*Plastics Aircraft—Duramold Process acquired by Various Firms for Light Aircraft.* (Inter. Avia., No. 750, 13/2/41, pp. 6-7.)
76/478	Germany/ Japan ...	*Germany/Japan Light Metal Agreement.* (Inter. Avia., No. 750, 13/2/41, p. 9.)
76/479	Germany ...	*Damping of Torsional Vibrations by Means of Elastically Coupled Masses with Non-Linear Spring Constants.* (K. Maier, L.F.F., Vol. 18, No. 1, 28/2/41, pp. 18-23.) (Abstract available.)
76/480	Germany ...	*Age Hardening of Al-Za-Mg Wrought Alloys.* (W. Bungardt and G. Schaitberger, L.F.F., Vol. 18, No. 1, 28/2/41, pp. 26-31.) (Abstract available.)
76/481	Germany ...	*The Creep Strength of Laminated Synthetic Pressed Resins.* (H. Perkuhn, L.F.F., Vol. 18, No. 1, 28/2/41, pp. 32-37.) (Abstract available.)

76/482 U.S.A. ... *Single Sampling and Double Sampling Inspection Tables.* (Bell System Tech. J., Jan., 1941, p. 1-61.) (Abstract available.)

76/483 Germany ... *Experiment on Buckling Under Bending.* (J. Casseus, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 306-313.) (Abstract available.)

76/484 Germany ... *Some Notes on the Endurance and Fatigue Strength of Materials.* (F. Bollewrath, L.F.F., Vol. 17, No. 10, 26/10/40, pp. 320-328.) (Abstract available.)

76/485 Great Britain *Hall Effect and Other Physical Properties of the Cn-Sn System of Alloys.* (G. G. Andrewartha and E. J. Evans, Phil. Mag., Vol. 31, No. 207, April, 1941, pp. 265-282.)

76/486 Germany ... *Automatic Machine Tools with Electric "Feeler" Control.* (Helios, Vol. 47, No. 9, 1/3/41, pp. 288-293.)

76/487 Germany ... *Improved Press for Synthetic Resins.* (Helios, Vol. 47, No. 9, 1/3/41, p. 300.)

76/488 Great Britain *Mineral Resources of Continental Europe.* (W. J. Arkell, Nature, Vol. 147, No. 3,727, 5/4/41, pp. 404-407.)

76/489 Great Britain *The Mineral Resources of Continental Europe.* (W. J. Arkell, Nature, Vol. 147, No. 3,728, 12/4/41, pp. 443-446.)

76/490 U.S.S.R. ... *The Influence of Micrometry on the Strength of Press Fits.* (P. E. Dvachenko, Aviation Industry, U.S.S.R., No. 1, Jan., 1941, pp. 17-18.)

76/491 U.S.S.R. ... *Plastics and Their Application to Aircraft Construction.* (Y. I. Zhibitsky, Aviation Industry, U.S.S.R., No. 4, Jan., 1941, pp. 2-5.)

76/492 U.S.S.R. ... *X.12.M. High Chrome Steel as a Substitute for High Speed Tool Steels.* (U. N. Berkhin, Aviation Industry, U.S.S.R., No. 4, Jan., 1941, pp. 7-13.)

76/493 Great Britain *High Pressure Flexible Hose.* (Airc. Eng., Vol. 13, No. 146, April, 1941, pp. 115-116.)

76/494 Great Britain *Buckling between Rivets.* (J. Prescott, Airc. Eng., Vol. 13, N. 146, April, 1941, p. 104.)

76/495 Germany ... *German Production of Sodium Metal.* (Ind. and Eng. Chem. (News Ed.), Vol. 19, No. 5, 10/3/41, p. 262.)

76/496 Great Britain *The History of Cellon Dope.* (Flight, Vol. 39, No. 1,686, 17/4/41, pp. 287-290.)

76/497 Great Britain *Compound Stress Diagram (Summation of Direct and Shear Stresses.)* (W. F. Procke, Flight, Vol. 39, No. 1,687, 24/4/41, pp. h and 303.)

76/498 U.S.A. ... *Melamine Plastics.* (A. P. Peck, Scie. Am., Vol. 164, No. 4, April, 1941, pp. 204-206.)

76/499 U.S.A. ... *Flexseal Laminated Safety Glass.* (Scie. Am., Vol. 164, No. 4, April, 1941, pp. 206-207.)

76/500 Great Britain *The Treatment and Testing of Rubber.* (F. H. Cotton, Engineering, Vol. 151, No. 3,925, 4/4/41, p. 265.)

76/501 Great Britain *Hot Tinning.* (C. E. Homer, Engineering, Vol. 151, No. 3,925, 4/4/41, p. 276.)

76/502 U.S.A. ... *Stresses and Deflections of Three Dimensional Pipe Bends.* (H. Poritsky, H. D. Snively, J. App. Mech., Vol. 8, No. 1, March, 1941, pp. 42-44.)

76/503 U.S.A. ... *Distribution of Load on the Threads of Screws.* (J. N. Goodier, J. App. Mech., Vol. 8, No. 1, March, 1941, p. 45.)

76/504 U.S.A. ... *Displacements Determined by Airy's Stress Functions.* (H. M. Westergaard, J. App. Mech., Vol. 8, No. 1, March, 1941, pp. 1-2.) (Abstract available.)

76/505 U.S.A. ... *Influence Surfaces for Stresses in Slabs.* (F. M. Baron, J. App. Mech., Vol. 8, No. 1, March, 1941, pp. 3-13.) (Abstract available.)

76/506 U.S.A. ... *Design Data on Vibration Problems. Part IV—Friction and Damping.* (A. L. Kimball, J. App. Mech., Vol. 8, No. 1, March, 1941, pp. 37-41.)

76/507 U.S.A. ... *An Eddy-Current Method of Flaw Detection in Non-magnetic Metals.* (R. Gunn, J. App. Mech., Vol. 8, No. 1, March, 1941, pp. 22-26.) (Abstract available.)

76/508 U.S.A. ... *An Extension of the Photo-elastic Method of Stress Measurement to Plates in Transverse Bending.* (J. N. Goodier, H. G. Lee, J. App. Mech., Vol. 8, No. 1. March, 1941, pp. 27-29.) (Abstract available.)

76/509 U.S.A. ... *Rubber in the Automotive Industry.* (S. M. Caldwell and others, Ind. and Eng. Chem (Ind. Ed.), Vol. 33, No. 3, March, 1941, pp. 370-374.)

76/510 U.S.A. ... *Induction Heating for Hardening and Tempering.* (Autom. Eng., Vol. 84, No. 5, 1/3/41, pp. 299-302.)

76/513 U.S.A. ... *Rubbers Natural and Synthetic.* (J. W. Schade, J. Aeron. Sci., Vol. 8, No. 5, March, 1941, pp. 177-182.) (Abstract available.)

76/514 U.S.A. ... *Aircraft Plywood and Adhesives.* (T. D. Perry, J. Aeron. Sci., Vol. 8, No. 5, March, 1941, pp. 204-216.) (Abstract available.)

76/515 U.S.A. ... *Stainless Steel Fabrication.* (F. M. Smith, Aviation, Vol. 40, No. 3, March, 1941, p. 52.)

76/516 Great Britain *Cork Insulation for Machine Bases.* (The Engineer, Vol. 171, No. 4,450, 25/4/41, p. 275.)

76/517 Great Britain *Cutting Tools for Metal Machinery.* (M. Kurrun and F. C. Lea. Charles Griffen. 16/-. Engineering, Vol. 151, No. 3,926, 11/4/41, pp. 282-283.)

76/518 Great Britain *Metallography of Graphite Flares in Cast Iron.* (H. Marrogh, Engineering, Vol. 151, No. 3,926, 11/4/41, pp. 297-299.)

76/519 Great Britain *A Plastic for Thermal Insulation.* (Nature, Vol. 147, No. 3,730, 26/4/41, p. 508.)

76/520 Great Britain *Lapping, Honing and Super-Finishing.* (1935-1939.) (543, Sci. Lib. Biblog. Series.)

76/521 Great Britain *Inverse Segregation (Concentration of Lower Melting Point Constituent in the Outer Region of the Ingot.* (Metallurgist, Supp. to Engineer, 25/4/41, pp. 9-12.)

76/522 Great Britain *White Spots in Fractures and Transverse Fissures in Rails.* (Metallurgist Supp. to Engineer, 25/4/41, pp. 12-15.)

76/523 U.S.A. ... *Statistical Methods and Quality (Contribution to Development and Use of Specifications.* (L. E. Simon, Army Ordnance, Vol. 21, No. 125, March-April, 1941, pp. 489-498.)

76/524 Switzerland... *New Developments in Riveting Light Metal Aircraft Structure.* (A. V. Zeerleder, Flugwehr und Technik, Vol. 2, No. 5-6, May-June, 1940, pp. 120-123.) (Translation available, No. 1,132.)

76/525 Germany ... *The Creep Strength of Steel at Elevated Temperature.* (R. Scheinost, Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 427.)

76/526 Germany ... *Fatigue Characteristic (Wohler Diagrams) of Rods and Tubes made of Cr Mo and Steel. Durel, Hydronaluim and Electron.* (E. Gussner and H. Pries, Luftwissen, Vol. 8, No. 3, March, 1941, pp. 82-85.)

METEOROLOGY AND PHYSIOLOGY.

76/527 U.S.A. ... *Recent Fog Investigations (Fourth Wright Brothers Lecture). (Reprint.)* (S. Petterssen, J. Roy. Aer. Soc., Vol. 45, No. 363, March, 1941, pp. 71-88.)

76/528 Great Britain *Medical Problems in Flying.* (Aeroplane, Vol. 60, No. 1,557, 28/3/41, pp. 366-367.)

76/529 Germany ... *Condensation Trails of Aircraft Operating at Great Altitudes.* (H. Löhner, Luftwissen, Vol. 7, No. 10, Oct., 1940, pp. 337-339.) (Translation available, No. 1,171.)

76/530 U.S.S.R. ... *Aerial Photography in Winter.* (P. G. Timofrew, Air Fleet News,, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 157-158.)

76/531 Germany ... *Oxygen Marks, with or without Regeneration.* (Z.G.S.S., Vol. 36, No. 2, Feb., 1941, pp. 37-39.)

76/532 Great Britain *Sensitivity of the Dark-Adapted Eye during a Prolonged Period of Observation.* (B. Semeonoff, Nature, Vol. 147, No. 3,728, 12/4/41, pp. 454-455.)

76/533 U.S.A. ... *Daylight Cloud Ceiling Detector by Means of Pulsating Light Beam and Photo Cell.* (Flight, Vol. 39, No. 1,684, 3/4/41, p. 260.)

76/534 Germany ... *Automatic Oxygen Masks with or without Regeneration.* (R. Forstmann, Z.G.S.S., Vol. 36, No. 3, March, 1941, pp. 63-66.)

76/536 U.S.A. ... *The Daytime Photo-electric Measurement of Cloud Heights.* (M. K. Laufer and S. W. Foskett, J. Aeron. Sci., Vol. 8, No. 5, March, 1941, pp. 183-187.) (Abstract available.)

76/537 U.S.A. ... *Carburettor and Propeller Anti-Icers.* (D. Gregg, Aviation, Vol. 40, No. 3, March, 1941, pp. 42-43.)

76/538 U.S.A. ... *Clearing Aerodromes of Snow.* (H. A. Scribner, Aviation, Vol. 40, No. 3, March, 1941, p. 59-60.)

76/539 Great Britain *Eyes of the Airman.* (W. E. Hick, Aeronautics, Vol. 4, No. 4, May, 1941, pp. 54-56.)

76/540 Germany ... *De-icing Experiments on Gliders.* (G. Klanke, Luftwissen, Vol. 7, No. 11, Nov., 1940, pp. 388-392.) (Translation available.)

76/541 Great Britain *Medical Aspect of High Altitude Flying.* (Aeronautics, Vol. 4, No. 3, April, 1941, p. 51.)

76/542 Switzerland... *Medical Guide for Airmen (Book Review).* (Publisher, Steinkopp, Dresden. 204 pp. Price 2.25 R.M.) (Available in R.T.P.) (H. Von Diringshofen, Flugwehr und Technik, Vol. 3, No. 2, Feb., 1941, p. 48.)

76/543 Switzerland... *Meteorological Research at Rochers de Naye Alpine Station during* 1939. (W. Eickenberger, Flugwehr und Technik, Vol. 3, No. 3, March, 1941, pp. 61-62.)

76/544 Switzerland... *Fighting the Icing Danger to Aircraft.* (W. Spillman, Flugwehr und Technik, Vol. 3, No. 4, April, 1941, pp. 90-91.)

MISCELLANEOUS.

76/545	U.S.A. ...	*The Pylow Eight (C.A.A. Secondary Flight Training Course).* (D. J. Brimm, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 157-158.)
76/546	U.S.A. ...	*Evolution of the Air Almanac.* (P. H. V. Weems, Aero Digest, Vol. 38, No. 2, Feb., 1941, pp. 65, 159.)
76/547	Great Britain	*Control of Planned Production.* (B. Foster, Airc. Prod., Vol. 3, No. 30, April, 1940, pp. 120-123.)
76/548	Great Britain	*Mechanisms and the Kinematics of Machines (Book Review).* (W. Steeds, Longman, Green and Co., 18/-.) (Engineering, Vol. 151, No. 3,924, 28/3/41, pp. 242-243.)
76/549	Great Britain	*Engineering Economics (Book Review).* (T. H. Burnham, G. A. Hoskins. Pitman and Sons, 10/6.) (The Engineer, Vol. 171, No. 4,447, 4/4/41, p. 227.)
76/550	Germany ...	*Prof. Focke and Prof. Stuchtey (Some Notes on Their Careers).* (Luftwissen, Vol. 7, No. 10, Oct., 1940, p. 363.)
76/551	Germany ...	*Some Modern German Aeronautical Terms.* (E. A. Reussner, Luftwissen, Vol. 7, No. 10, Oct., 1940, pp. 350-352.)
76/552	U.S.S.R. ...	*Flying Ground Maintenance in Winter.* (Mr. S. Andrienko, Air Fleet News, U.S.S.R., Vol. 23, No. 2, Feb., 1941, pp. 147-153.)
76/553	Great Britain	*Air Navigation—Past, Present.* (J. C. Fitzmaurice, Aeronautics, Vol. 4, No. 3, April, 1941, pp. 71-72.)
76/554	Great Britain	*Submarine Seismic Investigation.* (E. C. Bullard, T. F. Gaskell, Proc. Roy. Soc., Vol. 177, No. 971, 18/3/41, pp. 476-499.)
76/555	Great Britain	*Statistics and Engineering Practice.* (B. P. Dudding, W. J. Jennett, G.E.C. Journal, Vol. 11, No. 3, Feb., 1941, pp. 195-209.)
76/556	Germany ...	*The Fortress in the Light of Modern Experience.* (V. Ludwig, W.T.M., Vol. 45, No. 2, Feb., 1941, pp. 40-44.)
76/557	U.S.S.R. ...	*The Mercantile Fleet of the U.S.S.R.* (E. Meyer, W.T.M., Vol. 45, No. 2, Feb., 1941, pp. 44-45.)
76/558	Germany ...	*The Training of the Aeronautical Engineer.* (G. Doetoch and G. Siedel, Luftwissen, Vol. 8, No. 1, Jan., 1941, pp. 14-19.) (Abstract available.)
76/559	U.S.A. ...	*U.S.A. Aviation Exports.* (American Aviation, Vol. 4, No. 20, 15/3/41, p. 38.) (Abstract available.)
76/560	Great Britain	*A New Light Weight Steam Engine Boiler (100 h.p. at 1,000 r.p.m.).* (S. L. G. Knox, J. I. Yellott, Engineer, Vol. 171, No. 4,445, 21/3/41, pp. 197-198.)
76/561	U.S.A. ...	*Research Funds of the N.A.C.A.* (Aviation, Vol. 40, No. 3, March, 1941, page 97.)
76/562	Great Britain	*Selection and Training of Apprentices—Practical Training.* (E. D. Russell, The Engineer, Vol. 171, No. 4,450, 25/4/41, pp. 273-274.)
76/563	Great Britain	*The B.S.I. in Wartime.* (The Engineer, Vol. 171, No. 4,450, 25/4/41, p. 278.)
76/564	Great Britain	*Melting by Electron Bombardment.* (Metallurgist, Supp. to Engineer, 25/4/41, p. 9.)

76/565 U.S.A. ... *Researches of Mellon Institute*, 1940-41. (Ind. and Eng. Chem. (News Edition), Vol. 19, No. 7, 10/4/41, pp. 389-406.)

76/566 Germany ... *Resumption of Lilienthal Society Meetings.* (Luftwissen, Vol. 8, No. 2, Feb., 1941, p. 60.)

76/567 Switzerland... *Series of Lectures on Recent German Progress in Aerodynamics.* (Eidg. Techn. Hochschule, Zurich, Winter Session, 1940-1941.) (Friction temperature measurements effect of rotation on boundary layer, etc.) (Vanrone, Flugwehr und Technik, Vol. 3, No. 2, Feb., 1941, pp. 41-42.)

76/568 Switzerland... *Evening Lectures at the Zurich Technical High School, Winter* 1940-1941. (*Engine Research Instruments, Slow Speed Aircraft, Flow in Pipes.*) (Flugwehr und Technik, Vol. 3, No. 4, April, 1941, pp. 89-90.)

Sound, Light and Heat.

76/569 Great Britain *On the Space Attenuation of Impact Sounds in a Brick Building.* (A. E. Knowler, Phil. Mag., Vol. 31, No. 206, March, 1941, pp. 240-246.) (Abstract available.)

76/570 Great Britain *Elements of Accoustical Engineering (Book Review).* (H. F. Olsen. Chapman and Hall, Ltd., 1940 30/-.) (Nature, Vol. 147, No. 3,724, March 15, 1941, p. 311.)

76/571 Great Britain *Elements of Accoustical Engineering (Book Review).* (H. F. Olsen. Chapman and Hall,30/-.) (Engineering, Vol. 151, No. 3,924, 28/3/41, p. 242.)

76/572 U.S.A. ... *New Method for Measuring Velocity of Sound.* (Sci. Am., Vol. 164, No. 1, Jan., 1941, p. 155.)

76/573 Great Britain *Heat Transfer by Organic Fluids.* (M. H. Lewis, D. W. Rudorff, Engineering, Vol. 151, No. 3,925, 4/4/41, pp. 261-264.)

76/574 U.S.A. ... *Chart of Air-Vapour Mixture Properties at Different Pressures.* (R. C. Binder, J. App. Mech., Vol. 8, No. 1, March, 1940, pp. 14-16.)

76/575 U.S.A. ... *Thermal Conductivity of Liquids (Twelve Industrial Hydrocarbons).* (O. Kenneth Bates and others, Ind. and Eng. Chem. (Ind. Ed.), Vol. 33, No. 3, March, 1941, pp. 375-376.)

76/576 Germany ... *A New Path of Sound Waves in the Atmosphere.* (O. V. Schonidt, Luftwissen, Vol. 7, No. 11, Nov., 1940, pp. 382-385.) (Translation available, No. 1,177.)

Wireless and Electricity.

76/577 U.S.A. ... *A Photometric Procedure Using Barrier-Layer Photocells.* (L. E. Barbrow, Bur. Stan. J. Res., Vol. 25, No. 6, Dec., 1940, pp. 703-710.)

76/578 Great Britain *Electric Discharge Lamps.* (C. C. Paterson, Nature, Vol. 14, No. 3,724, 15/3/41, pp. 333-334.)

76/579 U.S.A. ... *Gyrometre Navigation (Construction of Automatic Radio Direction Finder and Directional Gyro).* (W. P. Lear, Aero Digest, Vol. 38, No. 2, Feb., 1941, p. 66-71.)

76/580 Great Britain *On the Measurement of Particle Size by the X-Ray Method.* (A. Taylor, Phil. Mag., Vol. 31, No. 207, April, 1941, pp. 339-347.)

76/581	Great Britain	*Wave Guides (Characteristics of Hollow Metal Tubes for Transmission of Electromagnetic Waves.* (J. E. Hauldin, G.E.C. Journal, Vol. 11, No. 3, Feb., 1941, pp. 172-181.)
76/582	Germany ...	*Latest Development in Electric Resistance Furnaces.* (G. Simon, Helios, Vol. 47, No. 9, 1/3/41, pp. 255-258.)
76/583	Germany ...	*Low Voltage* (220) *Electric Discharge Lamps.* (W. Schmidt, Helios, Vol. 47, No. 9, 1/3/41, pp. 261-262.)
76/584	Germany ...	*Speed Regulation of Three-phase A.C. Motors by Superposition of Direct Current.* (Helios, Vol. 47, No. 9, 1/3/41, pp. 282-284.)
76/585	Germany ...	*New Type of Wire Mesh with Specific Surface Resistance* 6,000 *other per cm.*^{2}. (Helios, Vol. 47, No. 9, 1/3/41, p. 274.)
76/586	U.S.A. ...	*Learmatic Direction Finder.* (Inter. Avia., No. 744-745, 16/1/41, pp. 12-13.)
76/587	Great Britain	*Diffuse Reflection of X-Rays.* (G. D. Preston, Nature, Vol. 147, No. 3,729, 19/4/41, pp. 467-471.)
76/588	U.S.A. ...	*Midget Mercury Switch for Low Voltage Circuits.* (Autom. Ind., Vol. 85, No. 5, 1/3/41, p. 312.)
76/589	U.S.A. ...	*New U.H.F. Airport Transmitters.* (Aviation, Vol. 40, No. 3, March, 1941, p. 75.)
76/590	Great Britain	*Material for Electrical Contacts.* (J. C. Chaston, Engineering, Vol. 151, No. 3,926, 11/4/41, pp. 285-286.)