ABSTRACTS FROM THE SCIENTIFIC AND TECHNICAL PRESS.

Issued by the
Directorates of Scientific Research and Technical Department, Air Ministry.
(Prepared by R.T.P.3.)

No. 104. JULY/AUGUST, 1942.

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Medical Problems of High Altitude Flight. (F. V. Tavel, Inter. Avia., No. 822, 26/6/42, pp. 1-5.) (104/1 Switzerland.)

ALTITUDE SICKNESS.

The early stages of altitude sickness are rarely perceivable by the person affected, the most outstanding symptom being lack of discrimination. The importance of providing first hand experience to the crews is thus obvious and for this purpose mobile low pressure chambers are supplied to the various German training centres. Crews are given the opportunity of taking stock of their resistance to high altitude effects so as to contral their working capacity and mutual collaboration.

COLD.

Exposure to cold increases tendency to altitude sickness. Badly ventilated control compartments, on the other hand, present serious danger due to CO poisoning. Electrically heated clothing must be light and draught proof. Oxygen supply should be pre-heated and special attention must be given to all parts of the mask directly contacting the skin, since even a slight pressure may cause local injury due to restricted circulation.

DIET AND ALTITUDE SICKNESS.

The following are recommended as guiding lines for a suitable diet prior to altitude flight:—

(*a*) *Flights should never be carried out on an empty stomach.*

(*b*) Over voluminous, heavy meals, impair capacity of crew.

(*c*) Foods likely to produce flatulence must be avoided (cabbage, fresh bread, beer, lemonade, prunes with milk or water, etc.).

(*d*) Vitamin content of food must be high, especially in vitamin A, B and C.

(*e*) Food must be sufficiently rich in calories and must endure for a certain time without overloading the stomach.

Generally speaking, nicotine and alcohol are unfavourable, but the effect depends on the individual.

Stimulating medicaments such as Benzedrine compounds and Pervitin (so-called Stuka Tablets) temporarily increase efficiency and can postpone collapse due to extreme fatigue. The after effects of such drugs are, however, very pronounced and may lead to a period of complete incapacity.

A useful bibliography of 30 items concludes the article.

Ranks of the Luftwaffe and Their Equivalents. (Extracted from "Ranks and Uniforms of the German Army, Navy and Air Force," by Denys Erlam.) (104/2 Germany.)

The ranks of the Luftwaffe correspond to those of our Air Force as follows:—

GERMAN.	ENGLISH.
Flieger.	Aircraftman, 2nd Class.
Gefreiter.	Aircraftman, 1st Class.
Fahnenjunker-Gefreiter.	Flight Cadet Lance-Corporal.
Obergefreiter.	Leading Aircraftman.
Hauptgefreiter.	Corporal.
Unteroffizier.	Sergeant.
Fahnrich.	Flight Ensign.
Unterfeldwebel.	Flight Sergeant.
Feldwebel. Oberfeldwebel. Oberfahnrich. Stabsfeldwebel.	Warrant Officers and Senior Flight Ensign.
Leutnant.	Pilot Officer.*
Oberleutnant.	Flying Officer.
Hauptmann.	Flight Lieutenant.
Major.	Squadron Leader.
Obersleutnant.	Wing Commander.
Oberst.	Group Captain.
Generalmajor.	Air Vice-Marshal.
Generalleutnant.	Air Marshal.
General der Flieger and General der Flakartillerie (no precise equivalent).	General of the Air Force* and General of the Anti-Aircraft.*
Generaloberst.	Air Chief Marshal.
General Feldmarschall.	Marshal of the Air Force.

* It should be noted that there is no equivalent to our Acting P./O. or to our Air Commodore. On the other hand, we have no General of the Air Force or General of Anti-Aircraft.

https://doi.org/10.1017/S0368393100140660 Published online by Cambridge University Press

"Waffenfarben."

"Waffenfarben" is the generic name for the colours given to the different branches of the service to distinguish them from each other. It is used as piping, underlay on shoulder-straps, etc., and in the Air Force the colours are apportioned as follows:—

White	Air Vice-Marshal and upwards and for the General Goering Regiment.
Yellow	Flight Personnel.
Red	Artillery, Ordnance and Anti-Aircraft.
Carmine	General Staff.
Rose	Engineer Corps.
Orange	Half-Pay Officers.
Gold Brown ...	Signals.
Dark Blue ...	Medical Corps.
Light Green ...	Aircraft Control.
Dark Green ...	Wehrmachtbeamte, *i.e.*, Administrative Officials (other than Aerodrome Control and Corps of Navigation Experts).
Black	Air Ministry.

Additional colours are worn by the following:—

Bright Red ...	N.C.O.s and men of the General Goering Regiment, as an edging to the collar badges.
Light Blue ...	Officers, Wehrmachtbeamte, and Engineers on the Reserve, as piping on the collar and a second underlay to the shoulder straps.
Dark Red ...	Wehrmachtbeamte of the Military Supreme Court, as a second shoulder-strap underlay.
Bright Red ...	Other Wehrmachtbeamte, as second shoulder-strap underlay.
Yellow	Corps of Navigational Experts, as second shoulder-strap underlay.

Japanese Type Designations. (Inter. Avia., No. 823-824, 11/7/42, p. 14.) (104/3 Japan.)

Attention has repeatedly been drawn to the difficulties which present themselves to the European in the distinction of Japanese aircraft types. It is known that the Japanese aeroplane designations contain the two last figures of the construction year of the prototype in the Japanese reckoning of time (00 stands for the year 2600 of the Japanese or 1940 of the Christian era); later reports state that the figure represents the year in which the production model was taken into active service. Ahead of this figure, the Japanese designations contain one or two letters which represent the aircraft class and were not so far used as a general rule or replaced by the letter "T" (for Type). Fighters are designated by "S" (*e.g.*, Kawasaki S-97), light bombers of the Army Air Force by "KB," medium bombers by "B" (*e.g.*, Mitsubishi B-96 "Otori"), heavy bombers by "OW," torpedo bombers by "G," naval dive-bombers by "K" (for Kyukoki), reconnaissance aeroplanes by "T," reconnaissance floatplanes by "KT," flying-boats by "H," transport aeroplanes by "Y," and trainers by "K" (for Kyorenki).

Dornier Do. 217. (Inter. Avia., No. 825-826, 21/7/42, pp. 8-9.) (104/4 Germany.)

The boom-like extension of the tail is formed by four diving flaps arranged at right angles to each other which can be exposed to the air stream by the rotation of a threaded tube. The two horizontal flaps, which are provided with a row of holes, lie immediately aft of the elevator trailing edges when in the open position and are narrower and shorter than the main flaps opening upwards and downwards. The arrangement of the diving brake at the stern of the aeroplane and its operation by means of a rotating tube has the advantage apart from a minor change in trim when deflected and good stability in a dive, that they can be opened to a greater or smaller degree, depending upon the diving angle. At steep angles the tail diving brake does not seem to be sufficient, and the latest models of the Do. 217 are fitted with additional diving brakes mounted in the undersides of the wings inboard of the engine, resembling those of the Junkers Ju. 88.

Aircraft Carrier Operations. (Inter. Avia., No. 827, 30/7/42, pp. 1-10.) (104/5 Switzerland.)

The author examines the operations carried out by aircraft carriers in the present war under the following headings, giving examples in each case:—

Defensive

(*a*) Defence of warships.
(*b*) Defence of land objectives or fleets engaged in land operations.
(*c*) Escort of convoys.
(*d*) Transport and protection of supplies by stowage in carrier.
(*e*) Defence of the carrier itself.

Offensive

(*a*) Attack preliminary to occupation or invasion.
(*b*) Attack to eliminate fleets or bases in order to reduce potential resistance to occupation elsewhere.
(*c*) Direct attacks to eliminate fleets or bases.
(*d*) Direct assistance to fleets in pitched naval battles.
(*e*) Pure long range bombing by aircraft.
(*f*) Reconnaissance and scouting.

The principal conclusions drawn from this survey are as follows:—

1. Aircraft carriers operating in the vicinity of enemy held coasts or in narrow waters surrounded by enemy territory run the greatest risk and are inefficient, unless there is a strong surprise element or air opposition is weak.
2. The best possible land based aeroplane of specialised type must always be superior to the carrier based type. (Recent high performance carrier aircraft such as the Japanese S-00 and the American Vought Sikorsky F4VI " Corsair " appear, however, to be a match for ordinary land based fighters.)
3. In operation a carrier *v.* carrier, the side which can call on even a limited land based power is likely to win.
4. In pitched naval battles, the side with most carriers is likely to win.
5. Battleships will continue to form the backbone of the fleet provided the speed of such ships is commensurable with that of the carrier or cruiser. Low speed battleships are useless as a constituent of so-called " task " forces.

Optimum Time of Delay for Parachute Opening. (W. A. Wildhack, J. Aeron. Sci., Vol. 9, No. 8, June, 1942, pp. 293-301.) (104/6 U.S.A.)

The major conclusions of the investigation may be summarised as follows:—

1. For any horizontal launching speed, the velocity of a parachutist falling with parachute closed (or other object) will pass through a minimum, less than the launching velocity and less than the terminal velocity.

2. The existence of a minimum in the velocity along the trajectory is verified by a re-examination of some experimental data obtained by the Air Corps in 1928.

3. A significant reduction in opening shock will result if the parachute is opened at the time of minimum speed.

4. Safe parachute openings may be made after launching from high-speed aircraft by suitable delay of the parachute opening.

5. The optimum delay time for parachute opening increases with the ratio of the launching speed to the terminal velocity. The optimum delay time will also increase with altitude; for a given indicated air speed at launching it will vary inversely as the square root of the air density.

6. Given (or assuming) the terminal velocity, the optimum times of delay for horizontal launching velocity may be obtained from the charts provided by the author. For an average parachutist ($V_f = 160$ ft. per second) launched at low altitude at speeds of 100, 200 and 300 m.p.h., the optimum delay periods are approximately 2.5, 5, and 6.5 sec., respectively.

7. The effect of horizontal initial velocity in slowing the rate of vertical fall is shown, incidentally, by a chart showing the distances fallen as a function of time up to the time of occurrence of the minimum velocities.

The Effect of a Free Surface on Compressional Shock Waves. (W. G. Bickley, Procs. Roy. Soc., Vol. 180, No. 198, 5/6/42, pp. 209-218.) (104/7 Great Britain.)

The type of problem considered here is the propagation and release of the impact pressure, and other circumstances of the resulting fluid motion, when moving water having a free surface impinges on a vertical wall. It is actually more convenient to consider a moving wall and (initially) stationary water. Since the speed of compressional waves so greatly exceeds that of surface waves and ripples, gravity and surface tension are negligible; the effects of viscosity are also neglected.

The effect of a free surface in releasing the shock pressure is studied, for both shallow and deep water, by the exact mathematical solution of several somewhat idealised problems. Formulæ emerge which display discontinuities of the type which could be qualitatively predicted on physical grounds, as representing the effect of successive reflexions at bed and free surface; some graphs showing the quantitative march of events calculated from the formulæ are given. The pressure seems never to exceed the shock pressure due to the maximum velocity of impact, but suction occurs in some cases; this suction may have serious effects as regards erosion. The surface elevation shows the characteristic splash at the wall, becoming mathematically infinite there.

Calculation of the Temperature Field in the Laminary Boundary Layer of an Unheated Body Exposed to High Speed Flow. (E. Eckert and O. Drewitz, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 189-196.) (104/8 Germany.)

The author calculates the temperature field in the laminar boundary layer of two dimensional wedge-shaped bodies of different vertex angles exposed to symmetrical flow. The method involves the integration of the fundamental boundary layer equatonsi as formulated by Polhausen, the transformation into total differential equations being effected with the help of subsidiary variables. In the case of wedge-shaped bodies, the velocity u_0 at the outer edge of the boundary layer varies as x^m, where x=distance from vertex or stagnation point, $m=1$ corresponds to a vertex angle π, *i.e.*, a flat plate under normal incidence, whilst $m=0$ is the case of a flat plate with parallel flow. The equations are further simplified by neglecting $M_0^2\,(du_0/dx)$ (M=Mach number) and assuming that changes in the physical constants of the air (conductivity, kinematic viscosity, c_p, etc.) can be neglected. The final results are expressed for a given Prandtl number in the form of a non-dimensional temperature difference δ tabulated as a function of non-dimensional distance Z measured from the surface of the body, with index m as parameter.

In the above,

$$\delta = \frac{T_z - T_0}{u_0^2/2gC_p}$$

where T_z=layer at a non-dimensional distance z from surface=temperature inside boundary.

T_0=temperature at outer edge of boundary layer for same location.

u_0=velocity at outer edge of boundary layer for same location.

The results show that the surface temperature (z=0) does not vary much with m, increasing from 0.79 (m=1, flat plate with perpendicular incidence) to 0.83 (m=0, flat plate in parallel flow). Direct measurements on a small cylinder of ebonite (1 cm. diameter) at an air speed of 227 m./sec. (M=0.685) gave δ=0.80 (stagnation point) and 0.84 at the point of separation. These two cylinder locations correspond closely to the range of m values considered above, and the agreement with experiment can thus be considered as very satisfactory. It therefore appears that the simplifications introduced into the theoretical treatment do not affect practical results in the subsonic range. At supersonic speeds, however, it is thought that discrepancies will arise. In conclusion, the author uses the same method for calculating the temperature field in the boundary layer when the body is heated independently whilst exposed to a low speed air current. The resultant heat transfer coefficients (obtained from the temperature gradient at the surface) were again in satisfactory agreement with measurements obtained on a cylinder, showing that the method, although strictly applicable to wedge-shaped bodies only, can be extended to bodies of arbitrary shape. The theoretical prediction that for a given Prandtl number the Nusselt number should vary as $\sqrt{Re_x}$ (where $Re_x = u_0 x/\gamma$) was also approximately verified.

Condensation Shock Waves in Supersonic Wind Tunnel Nozzles. (R. Hermann, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 201-209.) (104/9 Germany.)

The author's investigations were carried out over the period 1934-1936 at the Aerodynamic Institute of Aachen during development work of an intermittent supersonic tunnel with a working cross-section of 10 × 10 cm. The nozzles for this tunnel had been designed by Busemann, but striation photographs showed that the flow was far from parallel, mainly due to the presence of a shock wave near the throat of the nozzle. These waves are classified by the author as mild, medium and intense. In the mild form, they resemble rectilinear Mach waves crossing at an angle, and were designated as X waves by the author at the time. With increasing intensity, the point of intersection broadens out, forming a straight line portion at right angles to the direction of flow. This focal line moves towards the narrowest part of the nozzle as the waves become stronger, and this distance is therefore used by the author as a rough classification for intensity.

The presence of these X waves alters the static pressure at the nozzle wall and in the measuring chamber, and renders accurate model experiments impossible. It was soon observed that if the air of the laboratory was very moist, zones of fog tended to form behind the X waves, which were visible to the naked eye but were not observed on dry days. This led to a theoretical investigation of the problem, from which it appeared that the X waves could be accounted for by the sudden condensation of atmospheric moisture. By fitting the tunnel with a silica-gell air drying plant, the X waves completely disappeared. The expansion of the air is now truly isentropic and the Busemann nozzles now give the expected parallel flow except for a small correction associated with the increase in the boundary layer thickness.

The article is illustrated with a series of excellent flow photographs taken by the striation method.

Flow Research and Aircraft Design. (A. Busemann, Luftwissen, Vol. 9, No. 6, June, 1942, pp. 173-176.) (104/10 Germany.)

The author deals with the effect of a further increase in flying speed on the aerodynamic characteristics of wings. Whilst at ordinary speed, a separation of the boundary layer, and hence a breakdown of the lift, only occurs at relatively large incidences, with the approach of sonic speeds, the boundary layer will separate even under symmetrical flow conditions at zero incidence.

Moreover, the separation may be strongly periodic and induce dangerous vibrations of the wing. Generally speaking, the thinner the wing section, the higher the Mach number at which this breakdown occurs. Thus the symmetrical N.A.C.A. series 63 with 6 per cent. thickness will behave satisfactorily up to $M=0.85$. Doubling the thickness (12 per cent.) causes a breakdown already at $M=0.70$.

It is obvious that these factors will require careful consideration in the design of high speed control surfaces. Supersonic wind tunnels of a sufficient size to study boundary layer phenomena to model scale are urgently wanted, even if such plants should require power consumption of the order of 5,000 h.p. It is only by planned research on these lines that marked increases in flying speed will be rendered possible in the near future. The importance of this at the present time need not be emphasised.

Steady Flow in the Transition Length of a Straight Line. (H. Langhaar, J. App. Mech., Vol. 9, No. 2, June, 1942.) (104/11 U.S.A.)

By means of a linearising approximation, the Navier-Stokes equations are solved for the case of steady flow in the transition length of a straight tube. The family of velocity profiles is defined by Bessel functions, and the parameter of this family is tabulated against the axial co-ordinate in a dimensionless form. Hence, the length of transition is obtained. The curves give a comparison of the author's calculations of the velocity field with those of other investigators, and with the experimental data of Nikuradse. The agreement is satisfactory. The pressure function is derived from the computed velocity field by means of the energy equation, and the pressure drop in the transition length is defined by a dimensionless constant m, which is computed to be 2.28, and is slightly below the experimental value.

A Simple Air Ejector. (S. A. Keeman and E. P. Newman, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 75-81.) (104/12 U.S.A.)

This paper reports the results of an investigation in which the authors studied the performance of the simplest form of ejector which would function in a useful manner. An attempt was made to analyse the data as nearly independent of other work on ejectors as possible, and to compare the performance with that predicted analytically.

Graphical Solution of Fluid-Friction Problems. (E. S. Dennison, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 82-84.) (104/13 U.S.A.)

It is customary to present fluid-friction data in the form of a diagram to log scale in which friction coefficient appears as a function of Reynolds number. Such data are widely applicable to physical circumstances other than those which pertained to the original experiments. The present paper describes a graphical procedure for utilising data of this character, where analytical methods are not practicable, and resort is made to trial-and-error methods. Similar methods to that described may be found useful in other fields than that of fluid friction, provided the experimental data are capable of being represented in non-dimensional form.

A New Two-Parameter Model Suspension System for the Galcit 10-Foot Wind Tunnel. (A. Klein and others, J. Aeron. Sci., Vol. 9, No. 8, June, 1942, pp. 302-308.) (104/14 U.S.A.)

The original six-component balance of this wind tunnel suffered from a number of defects, the chief being that it was essentially a one parameter system, only the angles of attack being readily variable. In addition the wire suspension system adopted could not support compression and any unintentional reversal of sign in any one of the wires lead to serious trouble.

The new suspension is of the truncated pyramid type used at the University of Washington and M.I.T. with certain modifications introduced to meet special Galcit requirements. Two vertical main struts are attached symmetrically on either side of the centre line of the wing whilst a single tail strut is attached to the model or to an extension of the wing trailing edge and serves to alter the angle of attack. In this type of suspension the friction at the trunnion bearings introduce no error in the moment readings and as a result, the static moment compensating system can be added to the angle of attack linkage and electric power, water and pressure tubes can be run in and out of the model through the tail strut without effecting the accuracy of the force and moment measurements. By means of a rotating platform, the whole suspension can be turned thus giving a direct control of the angle of yaw.

The supporting struts are provided with wind shields which are electrically controlled so as to follow the struts and yet remain parallel to the axis of the tunnel. Although the tare drag of these shields is less than that of the original wire suspension, the interference effect (mainly change in flow inclination at the model) is generally greater and more difficult to determine. Considerable space is given by the author to a discussion of this effect. It appears that the tare variation from model to model is fairly considerable and it is therefore necessary to obtain this value experimentally in each case.

The balance has a capacity of 2,000 lbs. positive lift, including model weight and aerodynamic lift. The supporting system results in a tare load of 1,670 lbs. on the lift balance. An accuracy of ± 0.5 per cent. is obtained in the force and moment measurements, whilst drag up to 50 lbs. can be measured up to 0.1 per cent.

The time required for removing one model and installing another is about 15 minutes.

Influence of the Setting Angle on the Readings of a Pitot Static Tube. (V. Polykowsky, Trans. C.A.H.I., No. 211, pp. 179-185.) (104/15 U.S.S.R.)

The aim of the experiments described was to compare the data obtained by theoretical computation with those of experiment on a pitot static tube set at different angles to the air stream.

It was found that for a tube with spherical nose the theoretical value of the pressure difference

$$h_{d\varphi} = (h_{d0})_{\varphi=0^\circ} \, (1 - 2 \sin^4 \phi)$$

agrees fairly well with the test data.

Castor Oil Base Hydraulic Fluids. (A. H. Shough, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 628-632.) (104/16 U.S.A.)

The properties of various blends of castor oil and solvents have been determined and compared with samples of commercial fluids. Methods of testing are described.

Among the important properties are corrosiveness to metals, attack on rubber, pour point, and volatility of solvent.

Blends of bodied castor oil and high boiling alcohols give low pour points and do not solidify on continued standing at low temperatures. Glycols reduce the attack on rubber.

The acid number of the fluid is not an indication of its corrosiveness to the metals observed. Aliphatic amine phosphates are effective corrosion inhibitors. Castor oil anti-oxidants appear helpful in combating corrosion.

Statistical Analysis of Service Stresses in Aircraft Wings. (H. W. Kaul, 1938 D.L.F. Yearbook Supplement, pp. 307-313.) (R.T.P. Trans. T.M. No. 1,015.) (104/18 U.S.A.)

A statistical analysis of service stresses may be undertaken for a variety of reasons, but it is usually made for one of three purposes :—

The first is to establish the number of recurrences at which certain reference values of the stress are reached over a sufficiently long given time period by a certain type or by a group of the same type, on the basis of measurements made on an aeroplane designed for a specific purpose of use, such as commercial touring, acrobatics and so forth.

The second involves the compilation of statistical data based on systematic measurements under certain given conditions as may be applied to any other type of aircraft by means of aeromechanical or other considerations and thus enable the prediction of the service stresses to be expected on a new type with known purpose of use.

Thirdly, the statistical analysis can be of use in aeromechanical research problems involving confirmation of theory by flight test under condition where a single measurement cannot be satisfactorily repeated as, in the recording of aeroplane stresses due to gusts. In this respect repeated attempts have been made abroad to secure reproducible single measurements by seeking to establish a certain gust caused by the ground contour under certain atmospheric conditions as " standard gust " for the purpose of checking aero-mechanical arguments. These attempts, however, were unsuccessful, so that here also the statistical analysis alone holds out some promise.

Problems 1 and 2 are therefore concerned with the collection of data for the required strength of a structural component, especially relative to recurrent stresses, while problem 3 involves the solution of definite aero-mechanical research tasks.

On the wing structures of modern high speed aircraft, in particular the comparatively high service stresses and the consistently increasing number of hours of operation during the life of the separate aeroplane parts make the studies of strength requirement under recurrent stresses appear a major concern. The D.V.L. has therefore within the past few years made exhaustive studies of this problem, some results of which are reported by the author.

The present paper deals mainly with maximum stress value and static strength required to deal with gust stresses of special interests in the effect of aircraft speed on acceleration due to gusts. It appears that over the entire stress range the additional accelerations caused by gusts are proportionate to the flying speed, other factors remaining the same.

The effect of C.G. position (with its corresponding change in longitudinal stability) on the acceleration due to a gust was also investigated.

For the aircraft tested a rearward displacement of the C.G. to the maximum amount possible increased the acceleration due to the gust by about 20 per cent. Approximate solution to this problem given chiefly in English publications gave values of the same order in some instances but in others the variations with type of gust seems to be over-estimated.

This is receiving further attention.

(For a more detailed account of the method of experimentation adopted in the above report see D.L.F. Yearbook 1938, Vol. I, pp. 274-288. R.T.P. Translation T.M. 992.)

Technical Development of the V.S.-300 Helicopter. (I. Sikorsky, J. Aeron. Sc., Vol. 9, No. 8, June, 1941, pp. 309-311.) (104/19 U.S.A.)

The V.S.-300 helicopter is equipped with a three-bladed main rotor of 14 feet radius and a torque compensating propeller rotating in a vertical plane at the fuselage tail. This latter propeller is two-bladed, 46 in. radius and runs at five times rotor speed (1,300 r.p.m. against 260 r.p.m. of the rotor). The tail propeller is of variable pitch for directional control. During the first part of 1941, lateral control was obtained by two further tail propellers rotating in a horizontal plane and mounted on two outriggers on either side of the tail of the fuselage. These propellers (of the same size and running at the same speed as the torque compensating propeller), were also of the variable pitch type and the lateral control was obtained by increasing the incidence of the blades of one of them whilst decreasing the pitch of the other. This arrangement was used for the international endurance record (1 hr. 32 mins.) obtained on May 6th, 1941, but has since been replaced by a full sectional pitch control of the main rotor. In this modification the two horizontal tail propellers are removed, but the torque compensating vertical propeller at the tail is retained. The sectional pitch control of the main rotor enables the pitch to be varied progressively throughout the cycle, so that the line joining the lowest and highest point of the blades in their path can be reinstated in any required direction. This periodic pitch change is superposed on the constant pitch control (which determines the rate of ascent or descent of the craft) and provides the necessary lateral control. It is stated that the new arrangement gives better inherent pendular stability than the former outrigger propellers besides simplifying the structure and power transmission of the machine.

The author states that the year 1941 has seen the V.S.-300 grow from an experimental laboratory model to an aircraft embodying practical flying qualities. Research into refinement of control is being continued.

Air Flow Through Intake Valves. (G. B. Wood and others, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 213-220, 222, 252.) (104/20 U.S.A.)

A rational basis is developed for comparing valve and part combinations of different sizes and design, and theoretical factors are discussed. It is indicated that the conventional valve and port design may be greatly improved by comparatively simple modifications.

Most of the improvements appear to be due to the reduction of flow separation by eliminating sharp corners. A comparison of test conditions with actual operating conditions indicates how valve flow tests should be made and interpreted.

From the results recorded here, certain general conclusions may be drawn :—

1. All corners should be rounded.
2. The fillet between valve stem and valve head should not be too large.
3. Port elbows should be laid out with a generous radius, and should not have any abrupt changes in passage area.
4. Cylinder walls can, and should, be formed and located so as to assist the flow.
5. Work done on valve and port combinations to improve their flow coefficients may be confined to lifts near the maximum which will be used.
6. Results of tests made with a small pressure drop across the valve may be applied through the working range of pressure drops unless there is reason to expect a considerable pressure recovery in the expanding part of the passage between the valve and its seat.

Ground v. Flight Test of Aeroplane Power Plants. (J. B. Kendrick, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 241-251.) (104/21 U.S.A.)

The disadvantages of present methods of proving engine installations by flight tests are discussed in this paper. Some data are given to show the great expense of such methods. The conclusion is reached that adequate ground test facilities should be provided for use in pre-flight development and service tests of new engine installations.

A comparison of the results of ground test on the Vego Ventura engine installation with flight test results indicates some factors in ground test technique which should be satisfied in order to insure reliable results. Similitude conditions to be met for cooling, vibration, and accelerated service tests are discussed to illustrate the method of approach for such problems. Various types of test equipment are described for attaining these conditions, the closed-return wind tunnel appearing to offer the greatest advantages for general testing. A new compact arrangement for a closed-return wind tunnel is described, which will reduce the cost of construction appreciably.

Arguments are presented in favour of the engine test wind tunnel for thorough pre-flight proving of new installations. Further data are given to show the justification for such wind tunnels, due to reductions in the cost of flight testing, as well as avoidance of delays in production, lost sales, and service replacements in the field.

The Polytropic Efficiency of a Compressor. (E. Knornschild, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 183-187.) (104/22 Germany.)

In compressor investigations, the adiabatic efficiency, defined as calculated adiabatic temperature rise divided by the observed temperature rise is in general use as an expression of overall efficiency for a given compression ratio.

When applied to multi-stage compressors, this necessarily leads to a discrepancy between the individual stage efficiency and the overall efficiency, since the losses in each stage cause a rise in the initial temperature of the subsequent stage. For this reason the author proposes the so-called polytropic efficiency as an alternative standard of reference.

The observed temperature rise can be accounted for if the compression is carried out reversibly along a polytrope of a certain index m, with suitable heat addition from the outside.

In this case, the work of compression per lb. is given by $R\,(m/m-1)\,\Delta t$, where R is the gas constant and Δt the observed temperature rise. The actual compression work equals $R\,(\gamma/(\gamma-1)\,\Delta t$ and the polytropic efficiency is thus given by $m/(m-1)\mid\gamma/(\gamma-1)$, where γ=ratio of specific heats.

This new efficiency is independent of the pressure ratio and is thus the same for each compression stage. It agrees with the adiabatic efficiency only if the pressure rise is infinitely small. For an adiabatic efficiency of 50 per cent., the polytropic efficiency increases from 52 to 68 per cent. as the adiabatic compression work/T_1 increases from 10 to 200. The new standard forms a better criterion for the flow losses in existing machines. It should, however, be remembered that the polytropic efficiency tacitly assumes that the proportion of heat addition to work done remains constant throughout the compression.

It is known, however, that in the practical case, the losses tend to concentrate at certain points in the flow path.

This could be allowed for by having several polytropes for the complete process. The author is however of the opinion that the new efficiency with a constant m already serves a useful purpose.

Recording Rapidly Changing Cylinder Wall Temperatures. (*R.T.P. Translation T.M.* 1,013.) (A. Meier, Forschung, Vol. 10, No. 1, Jan.-Feb., 1939, pp. 41-54.) (104/23 U.S.A.)

This report deals with the design and testing of a measuring plug suggested by H. Pfriem for recording quasi-stationary cylinder wall temperatures. The new device is a resistance thermometer, the temperature susceptible part of which consists of a gold coating applied by evaporation under high vacuum and electrolytically strengthened. This resistance layer, being located on the surface of the wall, enables an immediate surface temperature reading not obtainable heretofore with the conventional thermocouples. Its inertia is negligible. The uncertain and tedious conversion of the test data to surface conditions is eliminated. A further advantage over the thermocouple lies in the much stronger current fluctuations which permit the charting of the temperature curve without amplification. The new method combines substantially higher instrumental accuracy with a maximum of simplicity in operation. Eventual correction of test data is greatly simplified by the laminated structure of the measuring plug.

After overcoming initial difficulties, calibration of plugs up to and beyond 400°C. was possible. The measurements were made on high-speed internal combustion engines.

The increasing effect of the carbon deposit at the wall surface with increasing operating period is indicated by means of charts.

Model Tests on Two Types of Vibration Dampers of the Tuned Absorber Type. (C. A. Meyer and H. B. Saldin, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 59-64.) (104/24 U.S.A.)

This paper deals with the construction and tests of two types of vibration dampers, selected from a number of original proposals, designed to damp out the vibration in steam turbine impulse blades. These dampers were tested using models constructed of such size and physical dimensions as to simulate the conditions of operation in the actual turbine blade. Test results show that if a properly designed damper is attached to a freely vibrating system having 26 times the mass of the damper, it will reduce an initial deflection of the vibrating system to 4 per cent. of its value in 10 cycles.

Heavy Duty Bearings. (Metal Industry, Vol. 61, No. 5, 31/7/42, p. 76.) (104/25 U.S.A.)

The performance of copper-lead bearings has been excellent in some operations and very unsatisfactory in others. The use of these bearings will increase, because of the shortage of cadmium and tin. To obtain the best results from copper-lead bearings, their field of usefulness from an engineering and mechanical point of view must be known and recognised and they must be applied within the conditions of their field.

It is natural for a copper-lead bearing surface to become coated with a varnish on lacquer deposit ranging in colour from orange to brown, which is beneficial. Even when the deposit changes to a hard, bright, shiny, oily, black surface, it is difficult to connect it with real trouble. A soft, dull black deposit similar to dried-out sludge, often due to the use of high detergent oils in an old engine, has not been shown to be harmful, either. A hard, dull, black deposit of lead and copper sulphide indicates corrosion of the lead by certain petroleum acids formed in the oil as a result of excessively high operating temperature.

Some Notes on Design Features of a Captured Mitsubishi Kinsei Engine (14 Cylinders Radial, 1,000 h.p. Take-off). (W. G. Oven, S.A.E.J., Vol. 50, No. 7, July, 1942, Transaction, pp. 253-266.) (104/26 Japan.)

The engine had been damaged in a crash and only certain parts were available for inspection to the author, who carried out an examination on behalf of the Wright Aeronautical Corporation. The parts examined include:—

Crankcase, crankshaft, piston and connecting rods, cylinder and valves, reduction gear, accessory drives and supercharger. Rear cover plate (including carburettor) and front cover plate (including propeller) are missing. The propeller was apparently of the two position type.

The author concludes:—

(1) The Japanese designer combined in an ingenious manner proved features of a number of products of foreign manufacture, mainly American. The engine should be highly dependable, though not highly developed, and probably gave its rated output without requiring any subsequent modifications.

(2) The manufacturing methods and equipment utilised produced parts of a quality comparable to the originals copied.

(3) The materials utilised show that there were adequate supplies of Ni, Cd, Co, Cu, Mo and Tungsten at the time of manufacture.

It is interesting to note that this engine is not fitted with a vibration damper.

The general data of the 14-cylinder radial engine are given below:—

Bore and stroke	5.5 in. × 5.92 in.
Diameter	47 in.
Piston area	332 sq. in.
Displacement	1,970 cu. in.
Compression ratio	6.6.
Impeller diameter	9.62 in.
Supercharger gear	8.48 × crankshaft.

Performance estimate on 95-100 octane:—

Cruising	650 h.p. at 2,000 r.p.m.
Rated (8,000 ft.)	850 h.p. at 2,250 r.p.m.
Military rating (5,500 ft.) and take-off ...	1,050 h.p. at 2,500 r.p.m.

Straight-Flow Centrifugal Fan. (E. Struve, Trans. C.A.H.I., No. 211, pp. 266-275.) (104/27 U.S.S.R.)

The paper describes experiments on a model, and those on an actual fan of a new type.

This fan is called the straight-flow fan, differing from the usual centrifugal design, in that its intake and outflow lie in a straight line.

The usual spiral casing is omitted and replaced by a diffuser followed by guide vanes.

Given data are:—

Total efficiency	0.63
Static efficiency	0.54

The efficiency values of this type of fan are high compared with those of the usual type having similar rate of discharge.

This fan can be used successfully as a booster.

Reversible Fan of the C.A.H.I. Type. (N. Sournoff and E. Struve, Trans. C.A.H.I., No. 211, pp. 276-284.) (104/28 U.S.S.R.)

This article contains the results of work on the most effective type of reversible fan.

It contains the test date of a series of symmetrical aerofoils given in the form of lift coefficients and lift/drag ratio curves. Aerofoils Nos. 2 and 3 show the highest value of this ratio. Aerofoil No. 1 (a flat plate) shows a somewhat lower value, while operating in a good range of C_y. Aerofoils Nos. 5 and 6 have the lowest value of this ratio. As a result of these tests three types of reversible fans have been designed, having the blade's section No. 3.

The first type has a blade of equal breadth and thickness in all sections. The second type has a blade whose breadth increases towards the hub. Both types have a constant angle of setting. The third type has a blade of the C.A.H.I. type, with an angle of setting changing along the radius.

From the analysis of the experimental curves it may be seen that all three types have a greater efficiency than the Blackman streamline fans. The third type proves to be the best having a maximum static efficiency of 0.54 with a total efficiency of 0.69-0.71.

The industrial sample has been constructed on the lines of the first and simplest type. In the case when the efficiency is of most importance the third type may be recommended.

Friction Losses in Rotating Discs. (L. Kissina and K. Chebisheva, Trans. C.A.H.I., No. 211, pp. 166-174.) (104/29 U.S.S.R.)

Nearly all fans and blowers have as part of their construction one or more rotating discs.

The amount of power lost in friction during rotation of these discs must be added to the so-called hydraulic power absorbed by the fan, when creating a given pressure at a given flow of air.

The well-known formula given by Pfleiderer

$$N=\beta\rho\omega^3 D^5 (1-kb/D) \quad (b=\text{thickness of disc})$$

is based on two experimental coefficient β and k. According to Pfleiderer the values of these coefficients are:—

$$2.0\times10^{-6}-2.3\times10^{-6} \text{ and } 5 \text{ respectively.}$$

The experimental investigation described aimed at checking these values and finding the effect of the Reynolds number as well as of the additional axial velocity of the air (Pfleiderer's experiments were carried out in still air).

The experimental curves obtained showed no influence of the Reynolds number for values of the latter exceeding 5×10^5.

The effect of the axial velocity of the stream is found to exist for values of $U/Ca<5$ only, where U is the peripherical speed of the disc and Ca the axial speed of the air.

It was found that β is 2.5×10^{-6} and k is $3.9-4$.

It must be noted that when a wheel of a centrifugal fan is rotating at zero discharge, the power absorbed is much greater than that calculated by the above-mentioned formula. In such cases the coefficient β reaches the value of 15×10^{-6}.

A New Dust Fan of the C.A.H.I. Type. (M. Kalinushkin, Trans. C.A.H.I., No. 211, pp. 255-265.) (104/30 U.S.S.R.)

Fans with rotors having a small number of long blades are recommended for the circulation of air carrying dust and other solid particles. As a result of extensive experimental research, a new dust fan has been designed, having the following important advantages:—

1. The new dust fan cannot be choked.
2. It has a high rate of efficiency, when operating in clean air.
3. Slightly increased power consumption when operating in impure dusty air.
4. It is inexpensive and of simple construction. This new fan will shortly be put into series manufacture.

The Parallel and Series Work of Fans. (V. Ovchinnikov, Trans. C.A.H.I., No. 211, pp. 186-202.) (104/31 U.S.S.R.)

This paper describes experiments for checking the existing methods of computing characteristic curves of fans working in series and in parallel. The paper describes also the character and degree of influence of factors which cause differences between experimental and theoretical values.

The investigation was based on experimental data obtained in the Fan Department of C.A.H.I. by test fans working in parallel and in series. The results obtained show that the static pressure of two fans working in series is the sum of the total head of the first and the static pressure of the second fan. In the case of fans working in parallel the characteristic curve is obtained as usual by adding the discharges of fans for the same pressure.

The paper also explains the discrepancies between theoretical and experimental data on fans working simultaneously and some indications are given on the choice of conditions in which these discrepancies are negligible.

Investigations on the Influence of Different Variations in Design on the Performance of Centrifugal "Sirocco" Fan. (V. Polikowsky and V. Ovchinnikov, Trans. C.A.H.I., No. 211, pp. 241-250.) (104/32 U.S.S.R.)

A series of tests for studying the influence of different elements on the performance of the Sirocco fan has been carried on in the Fan Department of C.A.H.I. This was done in accordance with a resolution to choose this type as a basis for creating a standard centrifugal fan of low pressure. All tests were carried out with a usual type of a Sirocco fan having diam. of rotor 0.51 m.

(1) Tests on the influence of the fan exit-breadth showed that increasing the breadth so as to uncover the rotor has no substantial effect. The advantages of a square exit have also been noted.

(2) Contrary to existing opinion, end clearance between rotor and intake has no effect provided it does not exceed 2-4 per cent. of the rotor diameter.

(3) As to the number of blades, the existing 64 should be retained.

(4) The test of three different rotors in one and the same casing, investigated with regard to the influence of the form of the blade showed that these should be curved forward, which together with an increase of the power absorbed, increases the pressure and efficiency as well.

The existing form of blades with regard to the profile and angles of setting may be considered as satisfactory.

(5) The investigations upon the influence of the rotor-breadth confirmed the existing opinion, that only a part of it is filled with active flow and that the area of that part approximately equals the area of the rotor entry.

Nevertheless, reducing the breadth of the rotor is followed by a drop in performance.

The test data showed that this type of fan can be accepted as a basis for creating a standard on fans of low pressure.

Investigation of a Fan Rateau System for Mine Ventilation. (M. Nevelson, Trans. C.A.H.I., No. 211, pp. 216-240.) (104/33 U.S.S.R.)

The investigation described here was carried out with a centrifugal fan of the Rateau System having a rotor diameter of 5.5 m., manufactured at the Gorlowsky works and intended for mine ventilation.

A 0.1 scale model was tested and theoretical curves were drawn for three rates of discharge.

A method of calculation developed by Chief Eng. V. J. Polikovsky and adopted in C.A.H.I. was used throughout the design.

The calculated velocities of the flow between the blades of the rotor showed that the region of optimal efficiencies corresponds to negative angles of incidence of the blades.

This fact decreases the rotor efficiency and makes it impossible to draw theoretical curves. Test data were used therefore for determining the effect of the flow deviation at the rotor exit as well as for the losses occurring.

The calculation of the vaneless diffuser and spiral casing were based exclusively on theoretical considerations.

The curves thus calculated showed a satisfactory agreement with experiment. The curves of the full-scale machine were calculated allowing for the static pressure increase due to the increased Reynolds number. They were found to differ somewhat from those usually given in technical literature for this type of fan.

The effect of hub-fairing was also investigated.

This analysis helped in the design of a more efficient fan for the same conditions of performance.

This fan, called the " Rateau C.A.H.I. Fan " has a smoother static pressure curve for smaller overall dimensions and a much higher efficiency (about 20 per cent. higher for the optimum rate of discharge) than that obtained with the old type.

Steady Performance of Fans Working in Parallel. (V. Ovchinnikov and V. Polikovsky, Trans. C.A.H.I., No. 211, pp. 203-215.) (104/34 U.S.S.R.)

The present work dealing with the problem of steady performance of fans working in parallel points out factors causing unsteadiness and offers a method of analysis of the steady parallel performance of fans.

Unsteadiness may be described as a sudden change in the distribution of the discharge (Q) caused by a slight variation in the number of revolutions of one of the fans.

Each fan's discharge becomes unsteady and the whole installation begins to work abnormally.

Analysis showed that the unsteadiness is due to the presence of a region with a positive slope of the pressure discharge curve of one of the fans, *i.e.*, $dH/dQ > 0$.

The method of analysis proposed by Chief Engineer Polikovsky and adopted in C.A.H.I. consists of drawing the possible rates of performance for one of the two fans in accordance with the pressure discharge curve (QH) of the other fan together with the curve of the duct resistance, and of analysing the curves obtained.

The curves $dQ/dH = f(Q)$ for the fan and $dQ/dH = \phi(Q)$ for the possible rates of discharge obtained by differentiating, give an answer to the problem of possible unsteadiness, which will occur in the case of the curves intersecting and for such rates of discharge which correspond to the intersection of the curves when $dQ/dH = \phi(Q)$ of the fan is more than or equal to $dQ/dH = \phi(Q)$ for the curve of possible rates of discharge.

Some other factors are indicated which both cause and increase the phenomena investigated.

Machine for Welding Synthetic Plastic Fabrics. (K. Mienes, Kunstoffe, Vol. 32, 1942, No. 2, pp. 35-40.) (Digest in Z.V.D.I., Vol. 86, No. 9-10, 7/3/42, p. 158.) (104/35 Germany.)

Polyvinyl chloride (known under the trade name of Igelite) is used extensively for various kinds of protective clothing against acids or water (raincoats). In order to reduce the time normally required for sewing up such garments, and thus reduce cost, the edges of the parts constituting the plastic material pattern are warmed by means of a flat iron and pressed between rollers rotating in opposite directions, thus producing an overlap weld. If an overlap is not required, a butt-ended weld can be produced by pressing on a reinforcing strip over the joint.

Influence of Crystal Size and Orientation Upon the Mechanical Properties of Metals in the Cast Condition. (L. Northcott, J. Inst. Metals, Vol. 68, No. 6, June, 1942, pp. 189-207.) (104/36 Great Britain.)

The mechanical properties of a number of binary copper alloys in the cast condition have been correlated with the size and orientation of the crystals composing the test piece. The following alloys were examined:—15, 30, 40 and 47 per cent. zinc; 1, 5, 7 and 10 per cent. aluminium; 2, 6, 10 and 13 per cent.

tin; 0.1 and 0.5 per cent. phosphorus, remainder copper. Pure zinc and magnesium, as representative of metals crystallizing in the hexagonal system, were also studied.

The tensile properties of crystal aggregates of single-phase copper-rich alloys were found to increase with decrease in crystal size, but a straight-line relationship between maximum stress and either grain-boundary area or crystal size was not observed. Test pieces composed of columnar crystals disposed longitudinally showed lowest values for maximum stress but highest for elongation; transverse columnar crystals showed higher maximum stress but lower elongation, and small equi-axial crystal samples showed the highest maximum stress but low to intermediate elongation.

The tensile properties of two-phase copper-rich alloys were found to be much less affected by crystal size.

The notch-bar impact properties of either the single- or two-phase copper-rich alloys appeared to be unaffected by either crystal size or orientation.

The mechanical properties of the coarse crystal samples of zinc and magnesium examined were influenced more by the orientation of the crystals than by their size.

Characteristics of the Volute Spring. (B. Sterne, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 221-240.) (104/37 U.S.A.)

This paper attempts to clarify the functioning of the volute spring and to elinimate the confusion which is at present connected with volute spring computations. A number of contradictory formulas are currently in use, many of them usable only for one coil or for half a coil at a time.

The paper shows the relationship between the volute spring and other forms of coiled springs; it explains the similarities and dissimilarities of formulas for these spring forms, with particular emphasis on stress determination.

Because of the high stress invariably encountered in some part of a volute spring, it is clear that special consideration must be given to proper bulldozing (mechanical forming) and load checking methods, and a set of specifications incorporating these methods is suggested.

In order to steer clear of excessive overstressing and the attendant spring settling, the stress reductions obtainable with partial tapering of the spring blade are discussed in detail.

As a proof for performance results which may be expected from a volute spring design, the life testing of the springs is considered indispensable, and an account is given of results in the past and of prospects in the future.

Production of Alumina in the U.S.S.R. (V. A. Masel, Publishing Office for Ferrous and Non-Ferrous Metallurgy, Moscow, 1940.) (300 pages, 119 Figs.) (104/38 U.S.S.R.)

This publication is intended as a training manual for plant personnel in the Russian Alumina Industry. The subsequent conversion of the alumina (Al_2O_3) into metallic aluminium is not considered in any detail.

As is well known, alumina is widely distributed but usually associated with iron, silicon and other elements, the removal of which presents technical difficulties. For this reason ores low in silica and containing over 55 per cent. Al_2O_3 are preferred whenever possible. High grade bauxite fulfilling these conditions is available only in relatively small amounts in Russia (Southern Ural) and for this reason the Soviet alumina industry had to adapt itself to utilising low grade bauxite (Northern Ural and Leningrad area), nephelite and alumite. The two latter ores contain only 20-30 per cent. Al_2O_3 together with considerable amounts of Si, Fe and even S and the technical difficulties involved in extracting alumina of sufficient purity are considerable. The processes adopted are described in some detail and consist broadly of leaching followed by calcination, the steps adopted depending on the quality of the ore and the value of the by-products formed.

Electro-thermal treatment of bauxite is carried out at the Dneprosky plant which also utilises blast furnace slag. Work is concentrated in four major plants, all of which are (or were) situated in the present war area. The same applies, unfortunately, to the principal bauxite and nephelite deposits.

Stress Systems in Aeolotropic Plates (IV). A. E. Green, Procs. Roy. Soc., Vol. 180, No. 981, 5/6/42, pp. 173-208.) (104/39 Great Britain.)

Stress distributions in an aeolotropic plate containing a circular hole are discussed theoretically when the material of the plate has two directions of symmetry at right angles to one another. Some examples of stress distributions are included which have non-zero force resultants on the edge of the hole, corresponding to cases in isotropic material for which the solution is dependent on Poisson's ratio. The use of the complex variable makes the method of solution comparatively simple, and as an introduction to the work for an aeolotropic material the same method is applied to problems of stresses in an isotropic plate containing a circular hole in order to obtain results which Bickley previously found by another method. Numerical work is carried out using the elastic constants found in experiments with specimens cut from the highly aeolotropic materials: spruce and oak.

Self-Excited Oscillation in Dynamical System Possessing Retarded Actions. (N. Minorsky, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 65-71.) (104/40 U.S.A.)

The forces or moments, considered in dynamics as functions of parameters, which determine them, are generally assumed to be instantaneously in phase with these parameters.

There exists, however, a rather restricted class of phenomena of the so-called hereditary type, in which the condition of a system at a given instant is determined not only by forces acting at that instant, but depends upon the entire history either of the preceding motion, or the preceding states of the system in general.

V. Volterra has shown that such phenomena can be described mathematically in terms of " integrodifferential equations."

Another variety of systems not entirely describable in terms of differential equations of a finite order are systems possessing " retarded actions." Such systems, designated sometimes as being of a " hysteresis " type, are characterised by the fact that these retarded actions do not depend upon the entire previous history of motion, but merely reproduce variations of corresponding non-retarded actions, or forces, with a certain time lag. The differential equations of such systems are of an infinitely high order. They are designated sometimes as " hysterodifferential equations." So far no general theory for these equations has been developed.

An important particular case of hysterodifferential equations encountered in practical applications is when the original differential equation for unretarded quantities is a linear equation with constant coefficients and the time lags are constant. The characteristic equation, corresponding to the hysterodifferential equation for retarded quantities in such a case, has a series of subsequent high-derivative terms which generally converge. This permits replacing the infinite series of high-derivative terms by its limit which introduces transcendental functions in its expression. Under such circumstances, it becomes possible to give a simple graphical interpretation to this equation.

The most interesting feature of such systems with retarded actions is the fact that they are capable of self-excitation with a theoretically infinite number of frequencies which are determined not only by the parameters of the dynamical system, but also by the parameter of the retarded action, *i.e.*, its time lag.

Such self-excited oscillations are generally undesirable in practice, they are sometimes referred to as " parasitic oscillations " or " hunt."

Torsion of Multi-Connected Thin-Walled Cylinders. (F. M. Baron, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 72-74.) (104/41 U.S.A.)

The author develops an arithmetical procedure for the analysis of problems of torsion. The method of analysis presented is one of successive approximations. The solution to a problem is guessed at and successively corrected until the controlling conditions of static equilibrium and of continuity of deformation are satisfied. The convergence is reasonably rapid but may be hastened with a little judicious guessing. The problem under immediate discussion is a straight hollow member with constant cross section subject to a torque about the longitudinal axis of the member. Members with a solid cross-section may be studied by dividing the section into a network or grid. The connected problems of fluid flow, current flow and stress functions may be solved in a similar manner. The arithmetical procedure is illustrated by an example.

Correlation of Residual Stresses in the Fatigue Strength of Axles. (O. J. Horger and H. R. Neifert, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 85-90.) (104/42 U.S.A.)

The object of this paper is to present a correlation between residuual stresses, obtained by heat treatment and measured by the Sachs method (deformation of bored out shell), with fatigue values, determined from an investigation of full-size railway axles. The axles tested were of both solid and tubular design and represent members which could be used under a car in actual service. It was found from these tests that high axle fatigue strength is associated with high surface residual compressive stresses, and lowest axle strength values with surface residual tensile stresses.

Plastic Flow as an Unstable Process. (L. H. Donnell, J. App. Mech., Vol. 9, No. 2, June, 1942, pp. 91-95.) (104/43 U.S.A.)

Instead of occurring simultaneously over regions which are apparently uniformly stressed, plastic flow frequently proceeds in a discontinuous manner, as in the formation of wedge-shaped plastic regions around the periphery of torsion specimens. It is contended in this paper that this phenomenon can be explained as an instability, brought about by stress concentrations which are caused, not by discontinuities in the shape of the specimen, but by the discontinuous behaviour of the material around the yield point.

According to this explanation, yielding first occurs at some region of local weakness. The lagging of the stress in this yielded region causes a stress redistribution around the region, somewhat as if it were a hole, which retards stresses and therefore yielding in certain directions while accelerating them in other directions, thus leading to the spontaneous growth of characteristically shaped plastic regions.

X-Ray of Aircraft Castings—the Control and Value. (B. C. Boulton, J. Aeron. Sci., Vol. 9, No. 8, June, 1942, pp. 271-283.) (104/44 U.S.A.)

1. For certain important classes of material X-ray inspection is a valuable tool. Its most important function is the creative one of aiding in the initial development of correct design, dies or patterns, and foundry technique. Its second basic function is that of maintaining a continuing control over foundry practice to insure maintenance of quality. It is not considered a suitable means for large-scale routine inspection where this is the only purpose served. An important exception to this last statement is the class of vital structural parts with a low ratio of breaking load to design load, which may well be X-ray inspected 100 per cent. until further progress is made in foundry control.

2. Defects that can be revealed by X-ray have a marked detrimental effect on the impact and fatigue properties of castings, much greater than the effect on

static strength. With skilled and careful interpretation, there is a reasonably good correlation between these properties and the quality of a radiograph.

3. The standards for rejection by radiographic inspection should be based not on the absolute value of the casting quality but on airworthiness considerations and should take cognizance of the ratio between the actual strength of a sound casting and its designed load, and also whether the part is subject to unusual conditions of impact or fatigue. A definitely higher X-ray quality should be required for castings with minimum strength factors or those subject to definite impact or fatigue loading. Two or possibly three quality standards should be set up, and the individual having responsibility for rejection must know the quality standard applicable to each casting. Parts subject to impact and fatigue should meet a high quality standard.

Preliminary Static Test of a Magnesium Alloy Wing. (E. W. Conlon and J. C. Mathes, J. Aeron. Sci., Vol. 9, No. 8, June, 1942, pp. 287-289.) (104/45 U.S.A.)

The magnesium alloy wing was designed to replace the outer duralumin wing panel of a standard North American low wing monoplane trainer, the centre duralumin section being retained. The panel has a length of 195 inches and tapered from 90 in. at the root to 45 in. at the tip. It is of the conventional semi-monocoque construction with a single main shear web located at 30 per cent. of the chord. This web is of the tension field type made of J-I magnesium alloy. (yield strength under compression 25,000 lbs. per sq. in.) attached to T flanges extruded from Dow metal 2-1 alloy (yield strength under compression 32,000 lbs. per sq. in.). The skin is cold rolled Dow metal $J-1$ sheet stiffened with Dow metal $z-1$ bulb angles and extrusions. Ribs, trailing edge and wing tips were hot formed of Dow metal $J-1$ alloy. The weight of the magnesium alloy panel was approximately 179 lbs. against 220 lbs. of the standard dural construction, representing a saving of over 18 per cent.

The static tests were carried out on the magnesium panel attached to the central dural section, the stress distribution under various degrees of loading being calculated from Huggenberger strain gauges attached directly to the extrusions. Under 100 per cent. proof load, the maximum compression stress did not exceed 14,000 lbs. per sq. in. (factor of safety $\simeq 2$). The tip deflection of the magnesium wing was about 20 per cent. greater than that of the original dural structure. This was expected and is in accordance with the weight saved. The torsional rigidity at the tip is also less than for the dural wing, but since both bending and torsional rigidity are reduced by about the same amount, it is not anticipated that the critical flutter speed will be materially affected.

From a general survey of the problem, the author concludes that for this particular wing, the saving in weight of about 20 per cent. is as much as can be safely effected.

Fibrolite, a New Building Material. (M. Gembargevski, Trans. C.A.H.I., No. 211, pp. 175-178.) (104/46 U.S.S.R.)

Among new materials used for building purposes "Fibrolite" is the most widely used.

Consisting of wood fibre bonded with an unspecified glue, this material is very porous and under pressure allows air to pass through.

The paper describes an experiment to determine the coefficient of resistance α of this material.* The different samples of fibrolite gave values of this coefficient lying between 3,000 and 12,000. As shown by a diagram the specific gravity of fibrolite has some influence on its resistance.

* $\alpha = \dfrac{\text{Pressure drop across slab}}{\frac{1}{2}\rho V^2}$

https://doi.org/10.1017/S0368393100140660 Published online by Cambridge University Press

Applications of Geiger-Muller Counters to Inspection with X-Rays and Gamma Rays. (H. Friedman and others, Am. Soc. Naval Engineers, Vol. 54, No. 2, May, 1942, pp. 177-296.) (104/47 U.S.A.)

Practically all non-destructive testing with penetrating radiations, utilises photographic film or fluorescent screen to indicate transmitted intensity. Because such radiation is very weakly absorbed in a photographic emulsion the absolute efficiency of the photographic method of registering intensity is necessarily low. For example, with standard X-ray equipment generating 300 kv. x radiation, the practical limit for exposure time permits the radiography, at best, of about four inches of steel. With strong sources of radium, it is possible to penetrate greater thicknesses, but this is accomplished at the expense of much longer exposures. The radiographing of six inches of steel at eighteen inches source to film distance would require about eight hours with as intense a source as 500 milligrams of radium. There is very slight hope of increasing the speed of the photographic method by any larger factor. Any great gains in efficiency must come through the development of electrical methods and of these, the Geiger-Muller counter applications offer most likelihood of success.

Geiger-Muller counters are a valuable new addition to the older familiar tools of inspection. Their potential applications have thus far been investigated in relatively few laboratories. In this paper questions of sensitivity, speed of measurement and ease of manipulation, have been considered in an effort to show where counters may be used to advantage. A number of applications have been described, some of which are out of the experimental stage and should receive widespread use. Others are still in an early state of development and leave considerable room for further improvement.

Aerial Characteristics (with Discussion). (N. Wells, J. Inst. Elect. Engrs., Vol. 89, No. 6, Pt. II.) (104/48 Great Britain.)

The paper covers vertical aerials and is divided into an introduction and six other sections. In Section (2), low aerials are considered in relation to approximate formulæ for radiation resistance and for terminal reactance, whilst the importance of the earth system is also examined. In Section (3), van der Pol's analysis for the radiation resistance (*Rr*) of vertical aerials, of all heights, is discussed, and various curves are given for *Rr* values likely to be met with in practice. The effect of retardation of current is dealt with briefly, and curves for modified *Rr* values are given. Vertical polar diagrams are next considered, in Section (4), while in Section (6) the knowledge thus gained is applied to determine the optimum height of anti-fading aerials. Technical details of anti-fading aerial design are discussed. Section (5) deals with feed current, and to a great extent bridges Section (4) and (6). In Section (7), terminal values are considered, while two groups of curves are given for computing terminal resistance and terminal reactance.

Appendix 1 outlines the calculation of field strength and of radiation resistance. Appendix 2 is a discussion of the distribution of current along an aerial, and gives a resumé of Dr. Bohm's analysis for feed current. Appendix 5 contains particulars of two new aerials, and gives notes relative to an observed variation of measurements.

Time Bases (with Discussion). (O. S. Puckle, J. Inst. Elect. Engrs., Vol. 89, No. 6, Pt. II, June, 1942, pp. 100-122.) (104/49 Great Britain.)

The paper deals with the development of time bases of various types employing hard and soft valves both for general and for special purpose applications. Since the development of time bases is considered it follows that several instruments mentioned herein have been described elsewhere, but the purpose of the paper is to elucidate the principles involved in the wide variety of known time base circuits, rather than to attempt a detailed description of the actual instruments.

Except for a few special remarks the application of the time-base potentials and currents to the cathode-ray tube is not discussed, and for this reason the electro-magnetic time bases which have been evolved for television purposes are, in general, omitted from the paper. For similar reasons time bases which are solely applicable to high voltage cathode-ray tubes are not considered.

Several devices which are not generally known are described, and the technique of producing and controlling pulses is also considered since this has become of prime importance in many time base applications.

The results of a recent investigation into some peculiarities of the gas discharge triode are presented in the form of an Appendix.

Foreign Radiolocation Patents. (Electronic Engineering, Vol. 14, No. 173, July, 1942, p. 74.) (104/50 Great Britain.)

METHODS FOR FINDING TARGETS ESPECIALLY FOR THE DETERMINATION OF AIRCRAFT POSITIONS.

These methods operate on the back radiation principle. A transmitter scans the explored space in two dimensions, while the back radiation from the body in that space causes in a receiver an intensity variation of a cathode ray beam which is deflected in synchronism with the transmitter.

D.R.P., 702,686, published February 13, 1941, A.E.G. Inventor, T. Elmquist.

METHODS FOR THE DETERMINATION OF THE DISTANCE OF REFLECTING OBJECTS, ACCORDING TO THE BACK RADIATION PRINCIPLE.

The wave length of a radiated beam is varied between two fixed values in successive half periods of a modulation frequency M. If the time interval between the transmission and reception of the reflected wave is a whole multiple of the modulation frequency, the beat amplitude in the receiver will be a minimum.

In order to obtain an exact result for the distance d, the minimum is determined for two adjacent values M, M' of the modulation frequency.

If the time interval is $O = 1/(M - M')$ then the required distance $d = UO/2$ where U = the velocity of propagation of the waves.

D.R.P., 703,111, published February 28th, 1941. Compagnie de Telegraphic sans Fil, Paris. Inventor, H. Gutton.

The Absolute Sensitivity of Radio Receivers. (D. O. North, R.C.A. Review, Vol. 5, No. 3, Jan., 1942, pp. 332-343.) (104/51 U.S.A.)

The total random noise originating in a receiver has usually been described in terms of the equivalent noise voltage at the receiver input terminals. A comparison of the signal-to-noise ratios of two receivers working out of identical antennas is thereby facilitated, but only so long as the coupling between antenna and receiver input is extremely loose.

This paper describes a method of rating and measuring the noise in complete receiving systems, antenna included. The proposed rating appears particularly applicable to ultra high frequency services and, more generally, to any service in which signal-to-noise ratio is made a prime consideration in receiver design and operation.

A portion of the study deals with the properties of receiving antennas, yielding as a by-product an alternative derivation of Nyquist's theorem concerning thermal fluctuations in passive networks.

A formula for absolute sensitivity is developed, which shows how the minimum usable signal field strength is related to the operating wave-length, the antenna directivity, the local noise-field strength, the receiver band-width, and a number called the " noise factor," which is a basic measure of the internal noise sources of the receiver.

An Omni-Directional Radio Range System. (D. G. C. Luck, R.C.A. Review, Vol. 5, No. 3, Jan., 1942, pp. 344-369.) (104/52 U.S.A.)

Experimental omnidirectional ranges have been developed and tested in flight at frequencies of 6,425 kilocycles per second and 125 megacycles per second. In each case, a radiating system consisting of five vertical antennas and a metallic ground mat was used. Each transmitter was of a normal radio-telephone type, supplemented by a pair of balanced modulators, an impulse keyer, and a set of modulation controls. Full monitoring of the effect of all transmitter adjustments was provided. Essentially normal aircraft receivers and antennas were employed. Both cathode ray azimuth indicators and pointer type deviation from course indicators were provided.

A Clock Controlled Governor for close Speed Regulation (J. C. Prescott, J. Inst. Elect. Engineers, Vol. 89, No. 9, Pt. II, June, 1942, pp. 210-216.) (104/53 Great Britain.)

The maintenance of a truly constant speed under conditions of varying load is beyond the capability of a centrifugal governor. If, however, the speed is controlled by comparison with some reliable standard of frequency it may be made synchronous with this standard except during these periods when the load is actually changing.

In the apparatus described here the speed of an electric motor is synchronised with a pendulum clock and it is shown that the arrangement will apply corrections for speed deviations as small as ± 0.03 per cent. on nominally constant loads, and will correct variations as large as ± 7.5 per cent. which may be caused by changing loads.

A New Chemical Method of Reducing the Reflectance of Glass (Hydrofluoric Acid). (F. H. Nicoll, R.C.A. Review, Vol. 5, No. 3, Jan., 1942, pp. 287-301.) (104/54 U.S.A.)

A new chemical method of reducing the reflectance of glass is described. It is compared experimentally with previously known chemical methods of reducing the reflection, and is shown to be superior in many respects. The new method produces a tough hard film of very low reflecting power. The treatment involves exposure to hydrofluoric acid vapour and is applicable to large sheets of glass. The process requires neither vacuum nor expensive equipment and is suitable for many optical glasses. A number of possible uses of non-reflecting glass produced by this method are mentioned. Photographs are given of several examples of these applications, including cathode-ray tube faces, ground glass screens on cameras, and glass covers for photographs and pictures.

Investigations of Lubricants Under Boundary Friction. (E. Heidebrook and E. Pietsch, F.G.T., Vol. 12, No. 2, March-April, 1942.) (R.T.P. Translation No. T.M. 1,014.) (104/55 U.S.A.)

The numerous reports of the Fuel Research Laboratory of the Dresden Engineering School on the condition of oil films between lubricated surfaces of a variety of shapes have shown a consistently increasing need for the study of the conditions of what is termed the " boundary friction," which, considered on the basis of hydrodynamics, seems to occur much more frequently than the condition of " free floating friction " produced by a particular flow process. By " boundary friction " in this instance, is meant the real lubricating condition between nominally smooth surfaces in which the sliding or rolling surfaces attain a degree of contact for the contact surfaces to exert a strong influence on the entire lubricating film. This influence is principally an orientation effect on the molecules. This, along with the existence of irregularities on the surfaces that are large relative to the film thickness, makes the hydrodynamic laminar flow dynamic viscosity theory inapplicable.

Considering that surface roughness can seldom be reduced below 2 microns by engineering methods, the condition of boundary friction must occur with all rolling surfaces of poor finish and shape. Even with carefully constructed journal bearings this condition exists in the region where the lubricating film is thinnest.

Physico-chemical research has already furnished considerable data on the conditions in the boundary layers and the attendant polar orientation effects. At present, the problem of determining the magnitude of the adhesive forces of the oil molecules with simple apparatus is being studied; and the development of the concept of viscosity as being a measure of the internal friction in relation to the molecular structure of the oil is under way. Incompletely understood thermodynamic processes are also involved, since every transfer of force between lubricated surfaces is accompanied by energy transformations (irreversible), which are of considerable strength compared with the small extent of the lubricating film, and whose exothermic nature, that is, release of heat, is far from being understood.

Numerous observations of such lubricating processes within range of boundary friction on journal bearings and gear tooth profiles have strengthened the supposition that it should be possible to study the attendant phenomena with engineering methods and equipment. These conditions formed the basis of the present studies, which have led to the discovery of relations governing the suitability of bearing surfaces and the concept of "lubricating quality."

In the very narrow boundary layers between lubricated surfaces a peculiar state of structure of the oil films arises which gives them a quasi-crystalline property. In this state tensile strength, compressive strength, sheer strength, and working capacity can be determined and correlations established in terms of engineering quantities, which are important in discussing the lubricating capacity of the tested lubricant.

The Space Time Recorder. (F. N. M. Brown, J. Aeron. Sci., Vol. 9, No. 8, June, 1942, pp. 290-292.) (104/56 U.S.A.)

Space time recorders are essential for the calculation of energy diagrams of the hydraulic elements in landing gear shock absorbers. Most of the instruments employed so far for this purpose depend on mechanical linkages and are thus subject to inertia errors. These errors can be overcome by using magnetic or piezo electric strain gauges. This, however, renders the instrument expensive and skilled attention is required. The author describes a photographic method for obtaining the necessary records. All that is needed is the attachment of small flash light bulbs to the parts requiring study and photographing the light track on a rotating drum covered with sensitised paper.

Time and distance scales are provided by a rotating sector and a constant speed drive for the drum.

The completed record takes less than 15 minutes to prepare from the time of the experimental drop, and the subsequent calculation up to and including maximum load requires less than one hour.

The great advantage of the photographic method is that the recorder is not bound to any particular jig, installation, or purpose. It can be used under existing natural light conditions and the accuracy is at least equal to that of any other instrument in use at present.

LIST OF SELECTED TRANSLATIONS.

No. 48.

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

ANTI-AIRCRAFT GUNNERY.

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
1530	Donatsch, N. (Switzerland)	*Examination of Firing Errors in the Case of Small Calibre Anti-Aircraft Guns.* (Flugwehr und Technik, Vol. 3, No. 9, Sept., 1941, pp. 208-212.)

AERODYNAMICS AND HYDRODYNAMICS.

1521	Pretsch, J. ... (Germany)	*The Laminar Boundary Layer of Elliptical Cylinders and Ellipsoids of Revolution in Symmetrical Flow.* (L.F.F., Vol. 18, No. 12, 29/12/41, pp. 397-402.)
1526	Pretsch, J. ... (Germany)	*On the Stability of Laminar Flow on a Sphere.* (L.F.F., Vol. 18, No. 10, Oct., 1942, pp. 341-344.)
1536	Mohr, C. ... (Germany)	*The Navier-Stokes Stress Theorem for Viscous Flow.* (L.F.F., Vol. 18, No. 9, 20/9/41, pp. 327-330.)
1541	Kussner ... (Germany)	*The Two-Dimensional Problem of an Aerofoil in Arbitrary Motion Taking into Account the Partial Motions of the Fluid.* (L.F.F., Vol. 17, No. 11-12, 10/12/40, pp. 355-362.)

AIRCRAFT AND ACCESSORIES (INCLUDING ICE FORMATION).

1523	Lebedev, N. V. (U.S.S.R.)	*The Processes of Ice Formation on Aircraft, and Methods of Their Investigation.* (Extract from N. V. Lebedev, Combating Icing and Aeroplanes, 1940, pp. 7-77.)
1527	—— ... ... (Germany)	*Stabilization of Helicopters in which the Rotors are not Co-Axial (German Patent No. 712,878, publ. 27/10/41).* (Flugsport, Vol. 33, No. 24, 26/11/41, p. 72.)
1529	Serebryishi, J. M. ... (U.S.S.R.)	*Experimental Investigation of Aircraft Landing.* (Trans. C.A.H.I., Pt. 479, pp. 1-20, 1940.)
1533	Miehl, M. L. (U.S.S.R.)	*The Aerodynamics of the Lifting Airscrew with Hinged Blades in Curvilinear Motion.* (Trans. C.A.H.I., No. 465, 1940, pp. 1-60.)

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
1534	—— ... ... (Germany)	... *Device for Reducing the Drag of Stream Line Bodies (Digest, German Patent No. 693,574).* (Flugsport, Vol. 32, No. 16, 31/7/40, p. 118.)
1547	Burkhardt, H. (Germany)	... *Stressing of Aircraft Wheels and Brakes.* (Luftwissen, Vol. 8, No. 7, Sept., 1941, pp. 289-291.)
1551	Kramer, F. ... (Germany)	... *The Acceleration of a Glider Catapulted by Means of a Rubber Cable.* (Luftwissen, Vol. 8, No. 11, Nov., 1942, pp. 344-347.)

ENGINES AND ACCESSORIES.

1531	Schmidt, A. W. (Germany)	... *Knocking in Multi-Cylinder Engines.* (Z.V.D.I., Vol. 84, No. 25, 22/6/42, pp. 435-438.)
1535	Stipa, L. ... (Italy)	... *Jet Propulsion (German Patent No. 692,163).* (Flugsport, Vol. 32, No. 18, 28/8/40, p. 128.)

SUPERCHARGING.

1532	Klingelfuss, E. (Switzerland)	... *The Brown-Boveri Exhaust Driven Supercharger for Aero Engines.* (Flugwehr und Technik, Vol. 1, No. 4, April, 1939, pp. 107-111.)
1538	Sachler, W. (Switzerland)	... *Axial Blowers.* (Esher, Wyss, Mitt, Vol. 13, 190, pp. 15-19.)

MATERIALS.

1540	Masel, V. A. (U.S.S.R.)	... *Alumina Production in the U.S.S.R.* (Published by Government Scientific and Technical Publishing Office for Ferrous and Non-Ferrous Metallurgy.)
1542	Silbert, E. ... Lurenbaum, K. ... (Germany)	... *High Duty Bearings of Moulded Plastics.* (Z.V.D.I., Vol. 86, No. 9-10, 7/3/42, pp. 139-144.)
1546	Brauderm, K. J. (Germany)	... *Rubber and Similar Substances as Engineering Materials.* (Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, pp. 303-304.)

WIRELESS AND ELECTRICITY.

1525	Pistelkors ... Naumann .. (U.S.S.R.)	... *An Instrument for Direct Measurement of the Travelling Wave Coefficient.* (Elektrosvyaz, Vol. IX, No. 4, April, 1941, pp. 9-15.)
1537	Janovsky, W. (Germany)	... *Telephony in Noise and Wind.* (E.T.Z, Vol. 58, No. 48, Dec., 1937, pp. 1287-1294.)
1539	A.E.G. ... (Germany)	... *Electrical Transmission of Instrument Readings by the Resistance Method.* (Z.V.D.I., Vol. 86, No. 5-6, 7/2/42, p. 35.)

TITLES AND REFERENCES OF ARTICLES AND PAPERS SELECTED FROM PUBLICATIONS REVIEWED IN R.T.P.3.

Requests for further information or translations should be addressed to R.T.P.3, Ministry of Aircraft Production.

THEORY AND PRACTICE OF WARFARE.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
1	3305	Italy	*Macchi C. 202 Fighter.* (Flugsport, Vol. 34, No. 12, 10/6/42, pp. 181-182.)
2	3315	U.S.A. ...	*Consolidated B. 24 Liberator.* (Inter. Avia., No. 822, 26/6/42, p. 13.)
3	3316	U.S.A. ...	*Republic P-47B Fighter "Thunderbolt."* (Inter. Avia., No. 822, 26/6/42, p. 14.)
4	3317	U.S.A. ...	*North American XP-64 Fighter.* (Inter. Avia., No. 822, 26/6/42, p. 14.)
5	3320	Germany ...	*Jet Propulsion Bombs Employed by the Axis Powers.* (Inter. Avia., No. 822, 26/6/42, p. 18.)
6	3321	U.S.A. ...	*Coastal Patrol Airships.* (Inter. Avia., No. 822, 26/6/42, p. 21.)
7	3323	U.S.A. ...	*Vought Sikorsky VS-44A "Excalibur" Flying Boat.* (Inter. Avia., No. 822, 26/6/42, p. 24.)
8	3326	Germany ...	*Attacks on Malta (Aerial Photographs).* (Luftwelt, Vol. 9, No. 11, 1/6/42, pp. 201-209.)
9	3329	U.S.A. ...	*American Aircraft for the R.A.F. (Hudson, Boston I, Buffalo, Tomahawk, Mohawk, Fortress Liberator, Chesapeke, Catalina).* (Motor Schau, Vol. 4, No. 6, April, 1942, pp. 141-144.)
10	3332	Germany ...	*Ju. 52—The Flying Test Bench.* (Motor Schau, Vol. 4, No. 6, April, 1942, pp. 166-167.)
11	3336	Germany ...	*Details of Landing Gear of Ju. 90.* (Der deutsche Sportflieger, Vol. 9, No. 5, May, 1942, pp. 105-106.)
12	3338	G.B.	*Hawker Hurricane II.* (Der deutsche Sportflieger, Vol. 9, No. 5, May, 1942, p. 113.)

* Abstract available.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
13	3339	U.S.S.R. ...	*Russian Land Fortifications.* (D. Grosse, W.T.M., Vol. 46, No. 5, May, 1942, pp. 120-126.)
14	3340	U.S.S.R. ...	*The Port of Murmansk.* (W.T.M., Vol. 46, No. 5, May, 1942, pp. 127-129.)
15	3341	Germany ...	*Electrostatic Charge on a 2 cm. Shell After Leaving the Gun.* (B. Pirschel, Z.G.S.S., Vol. 37, No. 6, June, 1942, pp. 101-103.)
16	3342	Germany ...	*The Decomposition of Explosives as Effected by Dissociation Constants.* (V. R. Kodalamy, Z.G.S.S., Vol. 37, No. 6, June, 1942, pp. 103-106.)
17	3343	Germany ...	*Technical Warfare.* (K. Justrow, Z.G.S.S., Vol. 37, No. 6, June, 1942, pp. 106-108.)
18	3349	U.S.A./Germany	*Training of Air Force Personnel in U.S.A. and Germany.* (Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, pp. 34-36.)
19	3350	Switzerland ...	*Fire Training for Small Calibre A.A. Guns by Trajectory Timing Method. Estimation of Errors.* (V. Werner, Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, pp. 36-38.)
20	3353	Germany ...	*Improvements in Aircraft Construction (Design, Simplifications made by Dornier).* (J. Pistor, Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, pp. 41-43.)
21	3355	G.B.	*Avro Lancaster (Photograph).* (Flight, Vol. 42, No. 1,751, 16/7/42, pp. 56 and 78.)
22	3356	U.S.A. ...	*Curtiss Tomahawk for Reconnaissance.* (Flight, Vol. 42, No. 1,751, July 16, 1942, pp. 62-63.)
23	3357	Germany ...	*F.W.* 190 *Fighter (Recog. Details).* (Flight, Vol. 42, No. 1,751, July 16, 1942, p. a.)
24	3358	Germany ...	*Me.* 109*F Fighter (Recog. Details).* (Flight, Vol. 42, No. 1,751, July 16, 1942, pp. B and 73.)
25	3359	U.S.A. ...	*Douglas C.* 54 *Transport.* (Flight, Vol. 42, No. 1,751, July 16, 1942, p. 73.)
26	3360	Germany ...	*BV.* 141 *(from the German).* (R. Vogt, Flight, Vol. 42, No. 1,751, July 16, 1942, pp. 64-66.)
27	3362	G.B.	*Avro Lancaster (Photograph).* (Aeroplane, Vol. 62, No. 1,625, July 17, 1942, pp. 58 and 72.)
28	3363	U.S.A. ...	*Glenn Martin PB.2M-*1 *"Mars" Flying Boat (Photograph).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, p. 60.)
29	3364	G.B.	*Bristol Beaufort I (Photograph).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, p. 62.)
30	3365	U.S.A. ...	*Boeing B-*17*E (Fortress Ia) (Photograph).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, p. 63.)
31	3366	Germany ...	*Arado Designs* (80, 81, 196, 198, 199). (Aeroplane, Vol. 63, No. 1,652, July 17, 1942, p. 69.)
32	3367	Germany ...	*Structural Details of Do.* 217*E.* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, pp. 70-71.)
33	3368	U.S.A. ...	*Loading Bombs on Douglas Boston III (Photograph).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942,, p. 73.)
34	3369	Japan ...	*Aeroplane of the Japanese Air Force (X).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, p. 77.)

https://doi.org/10.1017/S0368393100140660 Published online by Cambridge University Press

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35	3370	G.B.	*Short S. 24 Sunderland (Identification Details).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, pp. 80-81.)
36	3371	U.S.A. ...	*Consolidated P.B. 27-3 (Coronado).* (Aeroplane, Vol. 63, No. 1,625, July 17, 1942, p. 81.)
37	3372	Switzerland ...	*Aircraft Attacks on Warships (Jan.-March, 1942).* (T. Weber, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, pp. 80-84.)
38	3373	Spain ...	*Fighter Interception (Prediction of Course).* (G. Agmatt, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, pp. 84-88.)
39	3374	Switzerland ...	*The Doctrine of General Douhet.* (A. Gilliard, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, pp. 88-89.)
40	3375	Germany ...	*The German Air Force on the East Front during the Winter* 1941-1942. (F. Quade, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, pp. 90-91.)
41	3376	Switzerland ...	*Blind Spots in A.A. Gunnery.* (H. Donatsch, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, pp. 91-94.)
42	3381	G.B.	*Short Stirling Heavy Bomber.* (Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 98.)
43	3383	Germany ...	*He. 177 Long Range Bomber.* (Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 99.)
44	3384	G.B.	*New British Incendiary 50 lb. Bomb (Rubber and Phosphorous Filling).* (Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 99.)
45	3385	Germany ...	*Emergency Equipment on German Aircraft in Case of Forced Landing (Russian Winter Campaign).* (Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 99.)
46	3386	Germany ...	*Organisation and Utilisation of the Japanese Air Force.* (F. Quade, Flugwehr und Technik, Vol. 4, No. 3, March, 1942, pp. 57-58.)
47	3387	Switzerland ...	*The Doctrine of General Douhet.* (A. Gilliard, Flugwehr und Technik, Vol. 4, No. 3, March, 1942, pp. 58-59.)
48	3388	Germany ...	*Red Cross Organisation in the German Air Force.* (D. Hippke, Flugwehr und Technik, Vol. 4, No. 3, March, 1942, pp. 59-61.)
49	3391	Germany ...	*Special Low Speed Aircraft, Pilatus S.B.2.* (Flugwehr und Technik, Vol. 4, No. 3, March, 1942, pp. 68-69.)
50	3413	Switzerland ...	*The Defence of Aircraft Bases.* (W. Gulclemann, Flugwehr und Technik, Vol. 4, Vol. 5, May, 1942, pp. 110-113.)
51	3414	Switzerland ...	*The Doctrine of General Douhet.* (A. Gilliard, Flugwehr und Technik, Vol. 4, No. 5, May, 1942, pp. 113-114.)
52	3415	Switzerland ...	*A.A. Gun Fire Control Apparatus.* (W. Haker, Flugwehr und Technik, Vol. 4, No. 5, May, 1942, p. 115.)
53	3416	Switzerland ...	*Incendiaries Attached to Pilot Balloons Found in Switzerland.* (Flugwehr und Technik, Vol. 4, No. 5, May, 1942, p. 116.)

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54	3419	Italy	*Cant. Z. 1,007 bis. Bomber.* (Flugwehr und Technik, Vol. 4, No. 5, May, 1942, p. 126.)
55	3423	Italy	*Caproni C.A. 311 (Photograph).* (Rivista Aeronautica, Vol. 17, No. 9, Sept., 1941, p. 640.)
56	3424	Italy	*Savoia Marchetti S. 84 (Photograph).* (Rivista Aeronautica, Vol. 17, No. 9, Sept., 1941, p. 645.)
57	3425	Italy	*Caproni Fighter (Photograph).* (Rivista Aeronautica, Vol. 17, No. 9, Sept., 1941, p. 646.)
58	3426	U.S.A. ...	*Field Maintenance of Tanks.* (J. L. Derers, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 15-19.)
59	3452	G.B.	*Space Heating by Means of Electrically Warmed Floors as Applied to Surface Type Air Raid Shelters (Discussion).* (R. Grierson, J. Inst. Elect. Engs., Vol. 89, No. 9, Pt. II, June, 1942, pp. 242-248.)
60	3469	U.S.A. ...	37 *mm. and* 75 *mm. Artillery Fuses.* (J. B. Nealy, Army Ordnance, Vol. 22, No. 132, May-June, pp. 961-964.)
61	3470	U.S.A. ...	*Armament Research.* (Army Ordnance, Vol. 22, No. 132, May-June, p. 972.)
62	3490	Germany ...	*Bucker "Bestmann" Trainer.* (Flughafen, Vol. 10, No. 2-3, Feb.-March, 1942, pp. 21-22.)
63	3495	G.B.	*Bristol Aerodrome near Suez.* (Flughafen, Vol. 10, No. 1, June, 1942, p. 13.)
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65	3524	Italy	*The Design of Shell Structures* (478 *References*). (L. Lazzarus, L'Aeronautica, Vol. 22, No. 3-4, March-April, 1942, pp. 91-131.)
66	3533	G.B.	*Technology in War.* (Engineer, Vol. 173, No. 4,511, 26/6/42, p. 536.)
67	3538	G.B.	*The Significance of the Aircraft Carrier.* (Engineering, Vol. 153, No. 3,989, 26/6/42, pp. 511-512.)
68	3543	Germany ...	*Explosion Temperature of Tetranitromethan and Nitrogen Tetroxide Hydro-Carbon Mixtures.* (A. Stittbacher, Z.G.S.S., Vol. 37, No. 4, April, 1942, pp. 62-64.)
69	3544	Germany ...	*Technical Warfare.* (K. Tustron, Z.G.S.S., Vol. 37, No. 4, April, 1942, pp. 64-68.)
70	3546	Germany ...	*Earth and Air Vibrations Caused by Explosions and Their Effect on Buildings.* (W. Schneider, Z.G.S.S., Vol. 37, No. 4, April, 1942, pp. 71-73.)
71	3547	Germany ...	*Fire and Air Raid Precautions Applied to Temporary Wooden Sheds and Barracks.* (Flughafen, Vol. 9, No. 11-12, Nov.-Dec., 1941, pp. 20-22.)
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73	3562	G.B.	*University Training of Production Engineers.* (G. Schlesinger, Inst. of Pro. Engineers, Vol. 21, No. 6, June, 1942, pp. 222-200.)

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74	3576	Switzerland ...	*The Training of Swiss Aeronautical Engineers.* (H. L. Studer, Aero Revue, Vol. 17, No. 1, Jan., 1942, pp. 7-8.)
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82	3591	Switzerland ...	*Engineering Schools Attached to the Swiss Dornier Works (Photograph).* Aero Revue. Vol. 17, No. 1, Jan., 1941, pp. 22-23.)
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133	3742	Germany	... *Closed Volume Combustion of Explosives (Heat Conduction Through Walls).* (H. Murovur G. Aunis, Z.G.S.S., Vol. 35, No. 6, June, 1940, pp. 127-129.)

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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
134	3744	Germany ...	*Military Anti-Gas Training, Amplification of Existing Methods* (*Published* 1938) (*Review of Book*). (E. Hieber, Z.G.S.S., Vol. 35, No. 6, June, 1940, p. 136.)
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140	3764	U.S.A. ...	*Camouflage Hints*. (Coast Artillery J., Vol. 85, No. 2, March-April, 1942, p. 13.)
141	3765	U.S.A. ...	*Horizontal Fire Problems*. (W. T. Caldwell, Coast Artillery J., Vol. 85, No. 2, March-April, pp. 22-27.)
142	3766	U.S.A. ...	*Identification of Aircraft*. (Coast Artillery J., Vol. 85, No. 2, March-April, 1942, pp. 28-33.)
143	3775	Italy	*Macchi C.* 202 *Fighter*. (M. Castoldi, L'Ala d'Italia, No. 7, 1-15 April, 1942, pp. 9-12.)
144	3779	U.S.S.R. ...	*Russian* 52-*ton Tank* (*Photograph*). (L'Auto Italiana, Vol. 23, No. 14, 20/5/42, p. 19.)
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188	3450	G.B.	*Effect of Wind Speed on Smoke and Dust Concentration.* (F. Farell, J. Inst. Elect. Engrs., Vol. 89, No. 9, Pt. II, pp. 222-223, June, 1942.)
189	3486	G.B.	*Transition in the Boundary Layer Caused by Turbulence.* (A. Fage, R. and M., No. 1,896, 13/1/42.)
190	3498	G.B.	*Compressible Flow Behind a Wing (Effect of Speed and Altitude on Stability).* (D. I. Husk, Aircraft Eng., Vol. 14, No. 160, June, 1942, pp. 160.)

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192	*3507	G.B.	*The Effect of a Free Surface on Compressional Shock Waves.* (W. G. Bickley, Procs. Roy. Soc., Vol. 180, No. 198, pp. 209-218, 5/6/42.)
193	3527	Germany ...	*Calculation of the Temperature Fields in the Laminar Boundary Layer of an Unchecked Body Exposed to High Speed Flow.* (E. Eckert and O. Drewitz, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 189-196.)
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198	3695	Switzerland ...	*Researches on Supersonic Flow by the Hydraulic Analogy (Open Tank).* (Revue Brown Boveri, Vol. 24, Nos. 1, 2, 3, Jan., Feb., March, pp. 77-78.)
199	3708	G.B.	*Minimum Induced Drag.* (J. Lockwood Taylor, Airc. Eng., Vol. 14, No. 161, July, 1942, p. 196.)
200	3820	Germany ...	*Vibration of Chimney Stack Induced by Wind Action.* (W. Frank, Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, pp. 348-349.)

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205	3309	Germany ...	*Device for Locking One or More Aircraft Control Surfaces, Especially Elevator and Rudder (Pat. No. 719,859).* (Junkers, Flugsport, Vol. 34, No. 12 (Pat. Coll. No. 30), 10/6/42, p. 122.)

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206	3310	Germany ...	*Aircraft Gun Mounting (Pilot Warned if Gun Deflection Reaches Certain Amount) (Pat. No.* 719,566). (Dornier, Flugsport, Vol. 34, No. 12 (Pat. Coll. No. 30), 10/6/42, p. 123.)
207	3311	Germany ...	*Retractable Undercarriage (Pat. No.* 719,924). (F. Parsche, Flugsport, Vol. 34, No. 12, 10/6/42 (Pat. Coll No. 30), p. 124.)
208	3312	Germany ...	*Aircraft Wheel Brake (Pat. No.* 719,860). (Elektron, Flugsport, Vol. 34, No. 12 (Pat. Coll. No. 30), 10/6/42, p. 124.)
209	3323	U.S.A. ...	*American Export Lines North Atlantic Service.* (Inter. Avia., No. 822, 26/6/42, pp. 24-25.)
210	3333	Germany ...	*The Gotha Giant Aircraft of the Year* 1915. (Motor Schau, Vol. 4, No. 6, April, 1942, pp. 165-177.)
211	3337	Germany ...	*Examples of Ferro-Concrete Aircraft Hangars of the Luftwaffe.* (Der deutsche Sportflieger, Vol. 9, No. 5, May, 1942, pp. 107-109.)
212	3377	Switzerland ...	*Wing Loading at High Speeds.* (W. Wirz, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 97.)
213	3378	Switzerland ...	*Aerodynamic Improvements in Wing/Strut Junctions.* (W. Pfenninger, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 97.)
214	3379	Switzerland ...	*Force Measurements in Glider Starting and Towing Rope.* (R. Gsell, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 97.)
215	3399	U.S.A. ...	*Volf Parachute (Inverted Cone).* (Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, p. 48.)
216	3417	Switzerland ...	*Effectiveness of the Aileron at High Flying Speeds.* (W. Witz, Flugwehr und Technik, Vol. 4, No. 5, May, 1942, pp. 117-124.)
217	3429	U.S.A. ...	*Surface Propellers for High Speed Motor Boats.* (S.A.E.J., Vol. 50, No. 6, June, 1942, p. 40.)
218	3446	G.B.	*Bird Collisions with Aircraft Windshields.* (British Plastics, Vol. 13, No. 157, June, 1942, pp. 51-52.)
219	3464	U.S.A. ...	*The Capacity of Air Carrier Terminals (Traffic Saturation at Air Points).* (A. F. Bonnalie, Mech. Eng., Vol. 64, No. 5, May, 1942, pp. 377-383.)
220	3487	Germany ...	*Importance and Application of "Romperite" Explosive to Aerodrome Construction (Ground Levelling).* (K. G. Karen, Flughafen, Vol. 10, No. 2-3, Feb.-March, 1942, pp. 1-11.)
221	3488	Germany ...	*Ground Organisation and Ground Traffic in Spain.* (Flughafen, Vol. 10, No. 2-3, Feb.-March, 1942, pp. 11-13.)
222	3493	Germany ...	*Electric Battery Truck for Aerodrome Ground Service.* (W. Rodiger, Flughafen, Vol. 10, No. 1, Jan., 1942, pp. 6-8.)
223	3496	U.S.S.R. ...	*Aeroplane Design in Russia.* (W. Lockwood Marsh, Aircraft Eng., Vol. 14, No. 160, June, 1942, p. 151.)

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225	3525	Italy	*Tests on Covering Materials for Aircraft Wings and Fuselages.* (A. Gariraghi, L'Aeronautica, Vol. 22, No. 3-4, March-April, pp. 132-145.)
226	3554	U.S.A. ...	*D.C. 5 Cargo Plane.* (Am. Av., Vol. 5, No. 24, 15/5/42, p. 6.)
227	3555	U.S.A. ...	*Flight Strips for Roadside Landing.* (Am. Av., Vol. 5, No. 24, 15/5/42, p. 9.)
228	3557	U.S.A. ...	*Giant Aircraft Projects.* (Trade Winds, June, 1942, pp. 2-4 and 17.)
229	3558	U.S.A. ...	*Multiple Contact Electric Cable Connections.* (Cannon Plugs Bulletins, Aug., 1941.)
230	3580	U.S.A. ...	*The Aircraft Pilot—the Civil and Military Outlook (Extracted from the American Press).* B. Lay, Aero Revue, Vol. 17, No. 1, Jan., 1942, pp. 18-20.)
231	3581	Switzerland ...	*Stresses in Sail Plane Tow Ropes (Measurements by the Swiss Air Ministry).* (Aero Revue, Vol. 17, No. 1, Jan., 1942, pp. 1-8.)
232	3583	U.S.A. ...	*Glider Experiments at Wright Field.* (American Aviation, Vol. 5, No. 23, 1/5/42, p. 18.)
233	3586	U.S.A. ...	*New Portable Mat for Aircraft Landing (as an Alternative to the Marston Strip).* (American Aviation, Vol. 5, No. 23, 1/5/42, p. 21.)
234	3589	U.S.A. ...	*Wood Hangars for Aircraft.* (American Aviation, Vol. 5, No. 23, 1/5/42, p. 41.)
235	3592	U.S.A. ...	*New Polaroid Goggles for Night Pilots.* (American Aviation, Vol. 5, No. 22, 15/4/42, p. 6.)
236	3599	Germany ...	*Siebel "Fh. 104" with Snow Skids.* (Der deutsche Sportflieger, Vol. 9, No. 4, April, 1942, p. 86.)
237	3601	Germany ...	*German Experiments on Flapping Flight.* (Der deutsche Sportflieger, Vol. 9, No. 4, April, 1942, p. 88.)
238	3604	Italy	*The Action of the Wind on an Aircraft in Flight.* (R. Magistrelli, Riv. Aeronautica, Vol. 17, No. 12, Dec., 1941, pp. 595-600.)
239	3606	Italy	*Campini Jet Propelled Aircraft (Photograph).* (Riv. Aeronautica, Vol. 17, No. 3, Dec., 1941, pp. 638, 684, 695, 696.)
240	3610	U.S.A. ...	*Wiring for Aircraft.* (Lester C. Jones, Lockheed Aircraft Corporation Paper No. 59.)
241	3638	Germany ...	*Light Weight Large Span Aircraft Hangars Designed as a Pure Ground Structure.* (G. Grüning, Z.V.D.T., Vol. 86, No. 25-26, 27/6/42, pp. 405-408.)
242	2645	G.B.	*Bibliography of Published Information on Altitude Effects on Power Plant and Aircraft Performance.* (R.T.P.3, Bibliography No. 58, July, 1942.)
243	3665	G.B.	*Bibliography of Published Information on Stressed Skin Construction (1939-1941).* (R.T.P.3, Bibliography No. 38.)

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244	3675	G.B.	*British Gliders (Hotspur).* (Inter. Avia., No. 823-824, 11/7/42, p. 15.)
245	3703	G.B.	*Bibliography of Published Information on High Altitude Flying.* (1. *Problems of Stratosphere Flight (including Balloons).* 2. *Economic Aspects of High Altitude Flying.* 3. *Altitude Record Flights*). (R.T.P.3, Bibliography No. 59, Aug., 1942.)
246	3749	G.B.	*Hawker Audax I Glider Tug (Ident. Details).* (Aeroplane, Vol. 63, No. 1,627, 31/7/42, p. 138.)
247	3786	U.S.A. ...	*Aircraft in Peace and War (Special Reference to Giant Type).* (U.S. Air Services, Vol. 27, No. 5, May, 1942, pp. 15-17.)
248	3808	Germany ...	*Draining of Fine Grained Soils by Means of Electric Currents.* (H. Beinlich, Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, pp. 314-315.)
249	3858	Germany ...	*Exhaust Heater for Aircraft Cabins (Prevention of C.O. Poisoning), Pat.* 713,439. (Messerschmitt, A.T.Z., Vol. 45, No. 8, 25/4/42, p. 229.)
250	3864	France ...	*S.E. 200 Giant Flying Boat.* (Inter. Avia., No. 825-826, 21/7/42, p. 11.)
251	3867	G.B.	*Hotspur Glider.* (Inter. Avia., No. 825-826, 21/7/42, p. 8.)
252	3875	U.S.A. ...	*Wooden Aeroplanes in the U.S.A.* (Inter. Avia., No. 825-826, 21/7/42, pp. 12-13.)
253	3877	U.S.A. ...	*Commercial Air Line Statistics for 1941.* (Inter. Avia., No. 825-826, 21/7/42, pp. 19-20.)
254	3880	Germany ...	*High Performance Sailing Plane A.F.H.-10.* (Flugsport, Vol. 34, No. 15, 22/7/42, pp. 229-231.)
255	3884	Italy	*Turbulent Wing "Diruttore" (Cylinder in Front of Leading Edge).* (Flugsport, Vol. 34, No. 15, 22/7/42, p. 241.)
256	3885	Germany ...	*The German Gliding School Ith.* (Flugsport, Vol. 34, No. 15, 22/7/42, pp. 239-240.)
257	3886	Germany ...	*Double Window with Dry Air Pocket for Pressure Cabins, Pat. No.* 721,874. (D.V.L., Flugsport, Vol. 34, No. 15 (Pat. Coll. No. 33), 22/7/42, p. 233.)
258	3887	Germany ...	*Wing Root Joint Enabling Folding Wing Alongside Fuselage, Pat. No.* 721,613. (Messerschmitt, Flugsport, Vol. 34, No. 15 (Pat. Coll. No. 33), 22/7/42, p. 234.)
259	3888	Germany ...	*Composite Wing Structure Allowing Quick Exchange (Separate Nose and Tail Sections), Pat. No.* 721,509. (Weser, Flugsport, Vol. 34, No. 15 (Pat. Coll. No. 33), 22/7/42, p. 234.)
260	3889	Germany ...	*Differential Control for Landing Flap—Aileron Construction, Pat. No.* 721,833. (Dornier, Flugsport, Vol. 34, No. 15 (Pat. Coll. No. 33), 22/7/42, p. 235.)
261	3890	Germany ...	*Device for Reducing Control Sensitivity of High Speed Aircraft (Variable Gear Ratio), Pat. No.* 722,138. (Mullner, Flugsport, Vol. 34, No. 15 (Pat. Coll. No. 33), 22/7/42, p. 235.)

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262	3893	Germany ...	*Air Supply to Pulsating Rubber De-icers, Pat. No.* 720,669. (Heinkel, Flugsport, Vol. 34, No. 15 (Pat. Coll. No. 33), 22/7/42, p. 236.)
263	3895	G.B.	*The Kort Nozzle System of Ship Propulsion.* (A. M. Riddle, Engineering, Vol. 154, No. 3,991, 10/7/42, pp. 38-40.)

Engines and Accessories.

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264	3237	Germany ...	*The Effect of Speed on Boost Pressure in the Case of Engines Fitted with Centrifugal Superchargers Operating at Constant Gear Ratio.* (A. Kortum, L.F.F., Vol. 19, No. 5, 30/5/42, pp. 161-166.)
265	3296	G.B.	*Piston Ring Blow-by.* (C. A. Williams, Autom. Eng., Vol. 32, No. 425, July, 1942, pp. 283-288.)
266	3318	Germany ...	*Modern Power Plant Installations (Junkers).* (Flugwehr und Technik, Vol. 4, No. 5, May, 1942, pp. 124-125.)
267	3319	France ...	*French Views on Power Plant Problems (Tandem Engines).* (C. Waseiger, Inter. Avia., No. 822, 26/6/42, pp. 17-18.)
268	3361	Japan ...	*Japan's Power Units (from the German).* (H. Yoshihawa, Flight, Vol. 42, No. 1,751, July 16, 1942, pp. 70-72.)
269	3396	Switzerland ...	*Improving the Fuel Efficiency of Compression Ignition Injection Engine.* (E. Billeter, Flugwehr und Technik, Vol. 4, No. 3, March, 1942, pp. 66-68.)
270	3397	U.S.A. ...	*Hot Air Stove for Engine Starting.* (Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, p. 48.)
271	3398	U.S.A. ...	*Bullet Proof Fuel Lines.* (Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, p. 48.)
272	3406	U.S.A. ...	*Overall Boiler Efficiency Determinations by the Difference Method.* (S. Letrin, Am. Soc. Naval Engineers, Vol. 54, No. 2, May, 1942, pp. 172-176.)
273	3412	U.S.A. ...	*The Rotating Boiler Turbine.* (R. Nott, Am. Soc. Naval Engineers, Vol. 54, No. 2, May, 1942, pp. 315-317).
274	*3433	U.S.A. ...	*Air Flow Through Intake Valves.* (G. B. Wood and others, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 213-220, 222, 252.)
275	*3435	U.S.A. ...	*Ground v. Flight Test of Aeroplane Power Plants.* (J. B. Kendrick, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 241-251.)
276	3458	Germany ...	*B.B.C. Turbo-Supercharger.* (W.R.H., Vol. 23, No. 10, 15/5/42, pp. 143-144.)
277	3499	G.B.	*Torque on Engine Mountings.* (C. D. Graham and N. R. Tembe, Aircraft Eng., Vol. 14, No. 160, June, 1942, pp. 162-163.)
278	3526	Germany ...	*The Polytropic Efficiency of a Compressor.* (E. Knomschild, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 183-187.)

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279	3531	Germany ...	*Stresses and Deformation Under Torsion of Thin-Walled Cylinders with Circular Cut-outs.* (D. Thomo and M. Schilhause, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 210-214.)
280	3534	G.B.	*Steam Flow Through Safety Valves.* (E. K. Falls, Engineering, Vol. 153, No. 3,989, 26/6/42, p. 503.)
281	3535	G.B.	*The Turbulent Spreading of a Water Jet.* (A. M. Binnie, Engineering, Vol. 153, No. 3,989, 26/6/42, pp. 503-504.)
282	3571	Germany ...	*Wind Power Installations.* (E.T.Z., Vol. 63, No. 23-24, 18/6/42, p. 283.)
283	3607	Italy	*Italian Type of Electric Generators for Aircraft (Marelli).* (Riv. Aeronautica, Vol. 17, No. 12, Dec., 1941, pp. 685-690.)
284	3628	G.B.	*Air Intake Filter (Photograph).* (Aeroplane, Vol. 63, No. 1,626, 27/7/42, p. 94.)
285	3664	G.B.	*Bibliography of Published Information on Scavenging in Internal Combustion Engines* (1942). (R.T.P.3, Bibliography No. 39.)
286	3670	Germany ...	*B.M.W.* 802 *Radial Engine.* (Inter. Avia., No. 823-824, 11/7/42, p. 13.)
287	3688	Switzerland ...	*Progress During* 1941 *in the Design of Velox Boiler, Steam and Gas Turbines.* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 4-13.)
288	3696	Switzerland ...	*Model for Investigation of Critical Shaft Speeds.* (The Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 73-83.)
289	3693	Switzerland ...	*Axial Blowers.* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, p. 54.)
290	3694	Switzerland ...	*Turbo Supercharger.* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 54-57.)
291	3704	Switzerland ...	*Exhaust Turbine Superchargers.* (Brown Boveri Review, Vol. 28, No. 8-9, 1941, pp. 213-217.) (A. Meldahl, Airc. Eng., Vol. 14, No. 161, July, 1942, pp. 182-183.)
292	3705	Switzerland ...	*Material for Gas Turbine Blades.* (B.B. Review, Vol. 28, No. 8-9, 1941, pp. 213-217.) (H. Zochokke, Airc. Eng., Vol. 14, No. 161, July, 1942, pp. 194-195.)
293	3706	U.S.A. ...	*American Experience with Turbo Superchargers.* (S. A. Moss, Airc. Eng., Vol. 14, No. 161, July, 1942, pp. 191-199.)
294	3723	Germany ...	*Performance Limits of Motor Car Engines, II (Piston and Valve Design).* (A.T.Z., Vol. 43, No. 11, 10/6/42, pp. 262-270.)
295	3748	G.B.	*Cowling Details of B.M.W.* 801 *Engine.* (Aeroplane, Vol. 63, No. 1,627, 31/7/42, p. 135.)
296	3769	Sweden ...	*A New Swedish Two-Stroke Engine (contains Cylinder Head Valves with Crankcase Scavenging and Exhaust Ejector Action).* (A.T.Z., Vol. 45, No. 9, 10/5/42, pp. 233-238.)

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297	3783	Germany	...	*Engine Intake Filter for Desert Warfare.* (Der Adler, No. 12, 16/6/42, p. 360.)
298	3828	Germany	...	*Increasing the R.P.M. of Diesel Engine.* (M. Behmichen, A.T.Z., Vol. 44, No. 8, 25/4/41, pp. 191-193.)
299	3829	Germany	...	*Root Blower Applied to High Speed Diesel Engine (Dentz).* H. Kremser, A.T.Z., Vol. 44, No. 8, 25/4/41, pp. 193-196.)
300	3830	Germany	...	*The Efficiency of Supercharged Diesel Engine.* (A.T.Z., Vol. 44, No. 8, 25/4/41, pp. 196-197.)
301	3831	Germany	...	*Experiences Gained with M.A.N. Transport Diesel Engine Using Gaseous Fuel with Oil Pilot Ignition.* (A. Hoffman, A.T.Z., Vol. 44, No. 8, 25/5/42, pp. 198-208.)
302	3832	Germany	...	*Experiences Gained with the Conversion of Diesel Locomotive to Operation on Generator Gas (Suction) with Oil Pilot Ignition.* (E. Baentsch, A.T.Z., Vol. 44, No. 8, 25/5/42, pp. 203-208.)
303	3834	Germany	...	*General Control Questions of Transport Diesel Engine Employing Generator Gas and Pilot Oil Ignition.* (H. Prettenhoffer, A.T.Z., Vol. 44, No. 8, 25/4/41, pp. 209-212.)
304	3835	Germany	...	*Tools for Dismantling and Appliances for the Testing of Fuel Injection Pumps of Transport Diesels (including Tests whilst Mounted on the Engine).* (H. Fiebelkorn, A.T.Z., Vol. 44, No. 8, 25/4/41, pp. 212-215.)
305	3836	Germany	...	*The Future of the Aircraft Diesel Engine (from the Italian).* (A.T.Z., Vol. 44, No. 8, 25/4/41, pp. 216-217.)
306	3837	Germany	...	*Rotary Engine Valve (Pat. No. 702,413).* (Auto Union, A.T.Z., Vol. 44, No. 8, 25/4/41, p. 219.)
307	3839	Germany	...	*Automatic Pressure Reducing Valve for Engine Operating on Compressed Gas (Pat. No. 695,367).* (Benyol Verband, A.T.Z., Vol. 44, No. 8, 25/4/41, p. 219.)
308	3840	Germany	...	*Venting Leaky Fuel Injection Valves (Pat. No. 701,649).* (B.M.W., A.T.Z., Vol. 44, No. 8, 25/4/41, p. 219.)
309	3844	Germany	...	*Distant Recording of Torque, R.P.M. and Power Output in the Case Torque Reaction Engine Dynamometers.* (A.T.Z., Vol. 45, No. 7, 10/4/42, pp. 191-192.)
310	3846	U.S.A.	...	*Importance of Compression Rings in Controlling Oil Consumption.* (M. O. Tester, S.A.E. Preprints (Oil and Gas Power Conference), June, 1942, pp. 1-4.)
311	3847	U.S.A.	...	*Control of Oil Consumption in the High Speed Four-Cycle Automotive Diesel Engine.* (A. T. Stahl, S.A.E. Preprints (Oil and Gas Power Conference, June, 1942, pp. 1-7.)
312	3848	U.S.A.	...	*The Positive Displacement Supercharger (Roots).* (J. L. Ryde, S.A.E. Preprints (Oil and Gas Power Conference), June, 1942, pp. 1-13.)

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313	3853	Germany ...	*The Utilisation of Light Alloys in Diesel Construction.* (A.T.Z., Vol. 45, No. 8, 25/4/42, pp. 213-214.)
314	3857	Germany ...	*Utilisation of Exhaust Gas Energy in Turbines (Addition of Air by Injector Action)* (716,158). (Argus, A.T.Z., Vol. 45, No. 8, 25/4/42, p. 227.)
315	3859	Germany ...	*Screened Sparking Plugs (Reducing of Creep)* (715,166). (Bosch, A.T.Z., Vol. 45, No. 8, 25/4/42, p. 230.)
316	3860	Germany ...	*Gas Tight Electrode Joint for Sparking Plug Using Ceramic Insulators* (713,435). (Bosch, A.T.Z., Vol. 45, No. 8, 25/4/42, p. 231.)
317	3862	France ...	*Four-Bank 28-Cylinder Radial Engine (Potez).* (Inter. Avia., No. 825-826, 21/7/41, pp. 1-6.)

FUELS AND LUBRICANTS.

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318	3262	G.B.	*Fuel Research Intelligence Section. Summary of Work for Week Ending 27/6/42.*
319	3297	U.S.A. ...	*Oil Production and Substitute Fuels in Europe and Japan.* (G. Egloff and P. M. Van Arsdell, Ind. and Eng. Chem. (News Ed.), Vol. 20, No. 10, 25/5/42, pp. 649-659.)
320	3318	U.S.A. ...	100 *Octane Aviation Fuel.* (Inter. Avia., No. 822, 26/6/42, p. 16.)
321	3330	Sweden ...	*Swedish Motor Boats Operated by Generator Gas.* (J. Neren, Motor Schau, Vol. 4, No. 6, April, 1942, pp. 145-147.)
322	3346	U.S.A. ...	*Specific Gravity of Petroleum Oils by the Falling Drop Method.* (A. J. Hoiberg, Ind. and Eng. Chem. (Anal. Ed.), Vol. 14, No. 4, 15/4/42, pp. 323-325.)
323	3420	Switzerland ...	*Whale Oil as an Engine Lubricant.* (Flugwehr und Technik, Vol. 4, No. 5, May, 1942, p. 116.)
324	3475	U.S.A. ...	*Compressibility Factor for Methane.* (R. York, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, p. 539.)
325	3439	G.B.	*Combustion and Detonation Abstracts.* (I.A.E., No. 1,942-1,945, May, 1942.)
326	3478	U.S.A. ...	*Mollier Diagrams for Theoretical Alcohol-Air and Octane-Water-Air Mixtures (Engine Cooling by Water Injection).* (R. Wiebe and others, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 575-580.)
327	*3479	U.S.A. ...	*Castor Oil Base Hydraulic Fluids.* (A. H. Shough, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 628-632.)
328	3483	G.B.	*Fuel Research Intelligence Section. Summary of Work for Weeks Ending 4th and 11th July, 1942.*
329	3484	G.B.	*Fuel Research Intelligence Section. Summary of Work for Week Ending 18/7/42.*
330	3573	G.B.	*Abstract on Fuel Testing.* (I.A.E., Research Dept., No. 1,942-1,941, March, 1942.)

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331	3575	G.B. ...	... *Performance of a Converted Petrol Engine on Producer Gas.* (J. Spiers, I.A.E., Research Dept., No. 1,942-1,943, March, 1942.)
332	3596	Japan	... *Enormous Expansion of Japanese Fuel Resources.* (Der deutsche Sportflieger, Vol. 9, No. 4, April, 1942, p. 74.)
333	3639	Germany	... *Standardisation of Terms in the Field of Lubrication.* (Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, pp. 408-409.)
334	3666	G.B. ...	... *Bibliography of Published Information on Gas Carborising* (1941-1942). (R.T.P.3, Bibliography No. 37.)
335	*3685	U.S.A.	... *Investigation of Lubricants Under Boundary Friction.* (E. Heidebrook and E. Pietsch, F.G.T., Vol. 12, No. 2, March-April, 1941.) (R.T.P. Trans. No. T.M. 1,014.)
336	3721	G.B. ...	... *The Measurement of Torsional Vibrations.* (R. Stansfield, Engineer, Vol. 174, No. 4,515, 24/7/42, p. 73.)
337	3722	S. Africa	... *Petrol Substitute in South Africa (Alcohol, Charcoal Gas, Compressed Town Gas).* (Engineer, Vol. 174, No. 4,515, 24/7/42, pp. 79-80.)
338	3724	Germany	... *Nomogram for the Rapid Conversion of Engine Power and Fuel Consumption to Standard Atmospheric Conditions. A.T.Z. Design Supplement No. 45.* (A.T.Z., Vol. 43, No. 11, 10/6/42.)
339	3726	Germany	... *Performance Limits of Motor Car Engines, I (Effect of Heat Flow on Materials).* (A.T.Z., Vol. 43, No. 10, 25/5/40, pp. 239-246.)
340	3727	Germany	... *The Utilisation of Sewage Gas for Power Purposes (with Special Reference to the Stuttgart Plant).* (A.T.Z., Vol. 43, No. 10, 25/5/40, pp. 251-253.)
341	3728	Germany	... *Ignition Accelerators for Diesel Fuels.* (A.T.Z., Vol. 43, No. 10, 25/5/40, p. 259.)
342	3760	G.B. ...	... *The Measurement of Torsional Oscillations (Discussion).* (R. Stansfield, Engineering, Vol. 154, No. 3,993, 24/7/42, p. 74.)
343	3770	Germany	... *Vienna Central Charging Station for Battery Vehicles.* (A.T.Z., Vol. 45, No. 9, 10/5/42, pp. 254-255.)
344	3773	G.B. ...	... *Insulating Oils.* (Nature, Vol. 149,. No. 3,790, 22/6/42, pp. 703-704.)
345	3805	Germany	... *Direct Reading Torque Reaction Balances.* (C. Jolas, Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, p. 307.)
346	3834	Germany	... *Co-operative Research on Fuel Rating in Germany.* (A.T.Z., Vol. 44, No. 8, 25/4/41, p. 208.)
347	3838	Germany	... *Engine Operation on Liquefied Gas (Pat. No. 70,324).* (I. G. Farben, A.T.Z., Vol. 44, No. 8, 25/4/41, p. 219.)
348	3843	Germany	... *Tractors Operating on Generator Gas.* (A.T.Z., Vol. 45, No. 7, 10/4/42, p. 190.)

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349	3849	U.S.A. ...	*Control of Oil Consumption in Four-Cycle Diesel Air-Cooled Engine.* (W. M. McLaurin, S.A.E. Preprints (Oil and Gas Power Conference), June, 1942, pp. 1-2.)
350	3850	U.S.A. ...	*Effect of Diesel Fuel on Exhaust Smoke and Odour.* (R. S. Wetmiller and Lt. L. E. Endsley, S.A.E. Preprints (Oil and Gas Power Conference), June, 1942, pp. 1-18.)
351	3851	Germany ...	*The Utilisation of Propane-Butane Mixture in Diesels (without Pilot Oil Ignition).* (F. Dreyhaupt, A.T.Z., Vol. 45, No. 8, 25/4/42, pp. 201-207.)
352	3854	U.S.A. ...	*Liquid Propane as an Engine Fuel (Spark Ignition) (American Views).* (A.T.Z., Vol. 45, No. 8, 25/4/42, p. 216.)

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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
353	3331	Germany ...	*Standardised Trailers for German Road Transport.* (W. Rohm, Motor Schaw, Vol. 4, No. 6, April, 1942, pp. 148-149.)
354	3477	U.S.A. ...	*Static Electric Problems in Tyres.* (J. W. Liska and E. E. Hanson, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 618-624.)
355	3644	U.S.S.R. ...	*Russian Railways and Their Commercial Importance.* (Z.V.D.I., Vol. 86, No. 25-26, 29/6/42, p. 415.)
356	3768	Germany ...	*The Design in Cooling Installation in Transport Vehicles.* (B. Eckert, A.T.Z., Vol. 45, No. 9, 10/5/42, pp. 233-238.)
357	3845	Germany ...	*Fluid Coupling for Road and Cross-Country Vehicles (Pat. No. 717,306, 717,870).* (A.E.G., A.T.Z., Vol. 45, No. 7, 10/4/42, p. 196.)
358	3852	Germany ...	*Transport Diesel Design—Present State of Development.* (G. Rothmann, A.T.Z., Vol. 45, No. 8, 25/4/42, pp. 208-212.)

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359	3238	Germany ...	*Temper Hardness Sensitivity of Some Alloy Hardening Steels and Their Liability to Cracking when Immersed in Molten Lead Bronze.* (H. Cornelius and T. Bollenrath, L.F.F., Vol. 19, No. 5, 30/5/42, pp. 167-173.)
360	3239	Germany ...	*Structure and Fatigue Strength of Al-Cu-Mg Wrought Alloys (DIM 1,713) with Relatively Large Mn and Mg Content.* (W. Bungardt, L.F.F., Vol. 19, No. 5, 30/5/42, pp. 174-177.)
361	*3248	Germany ...	*On the Development of Play in Bolted Joints Under Fatigue.* (B. Dirksen, L.F.F., Vol. 19, No. 4, 6/5/42, pp. 153-156.)
362	3285	G.B.	*Treatment of Timber by Urea.* (Engineering, Vol. 154, No. 3,992, 17/7/42, p. 46.)
363	3286	G.B.	*Cellophane Lantern Slides.* (R. Fairthorne, Engineering, Vol. 154, No. 3,992, 17/7/42, p. 54.)

https://doi.org/10.1017/S0368393100140660 Published online by Cambridge University Press

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364	3287	G.B.	*Tin Economy in Plain Bearings.* (P. T. Holtigern, Engineering, Vol. 154, No. 3,992, 17/7/42, pp. 56-57.)
365	3288	G.B.	*Fatigue Strength of Crankshafts.* (G. G. Williams and J. J. Brown, Engineering, Vol. 154, No. 3,992, 17/7/42, pp. 58-59.)
366	3289	G.B.	*Production of Magnesium for Dolomite.* (Engineering, Vol. 154, No. 3,992, 17/7/42, pp. 59-60.)
367	3291	G.B.	*Powder Metallurgy (Fabrication of Sintered Parts).* (Autom. Eng., Vol. 32, No. 425, July, 1942, pp. 266-268.)
368	3292	U.S.A. ...	*Tyre Testing in the U.S.A.* (Autom. Eng., Vol. 32, No. 425, July, 1942, pp. 269-271.)
369	3293	G.B.	*Chromium Deposition on Crankshafts.* (Autom. Eng., Vol. 32, No. 425, July, 1942, p. 272.)
370	3294	G.B.	*Synthetic Wool from Soya Beans.* (Autom. Eng., Vol. 32, No. 425, July, 1942, p. 276.)
371	3295	G.B.	*Fatigue Testing Falacies.* (Autom. Eng., Vol. 32, No. 425, July, 1942, p. 282.)
372	3298	G.B.	*Hardness Conversion Table for Cartridge Brass (Rockwell, Brinell and Diamond Pyramid).* (J. R. Townend, Metal Industry, Vol. 61, No. 3, 17/7/42, p. 37.)
373	3299	G.B.	*Silver Replacing Tin in Lead Base Babbitts.* (H. W. Gillett and R. W. Dayton, Metal Industry, Vol. 61, No. 3, 17/7/42, pp. 38-40.)
374	3300	G.B.	*Preferred Orientation of Crystals in Metals.* (T. L. Richards, Metal Industry, Vol. 61, No. 3, 17/7/42, pp. 41-42.)
375	*3324	G.B.	*Influence of Crystal Size and Orientation Upon the Mechanical Properties of Metals in the Cast Condition.* (L. Northcott, J. Inst. Metals, Vol. 68, No. 6, June, 1942, pp. 189-207.)
376	3325	G.B.	*Cold Pressing Properties of Dural Sheets (Discussion).* (J. Inst. Metals, Vol. 68, No. 6, June, 1942, pp. 209-214.)
377	3327	Germany ...	*Sheet Metal Presses for Forming Aircraft Parts.* (O. Ockl, Progressus, Vol. 7, No. 3, March, 1942, pp. 227-229.)
378	*3334	U.S.A. ...	*Characteristics of the Volute Spring.* (B. Sterne, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 221-240.)
379	3380	Switzerland ...	*The Production and Utilisation of Aluminiums.* (A. V. Zeerleder, Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 97.)
380	3393	Germany ...	*Internal Stresses in Eutectic Al-Si Alloy Block Cast by the Rapid Cooling Method.* (A. Roth and others, Aluminium, Vol. 24, No. 6-7, June-July, 1942, pp. 206-209.)
381	3394	Germany ...	*Manganese Needles in Al-Cn-Mg Alloys of Aircraft Material 3,125 (Germ. Spec.) (can be avoided if Mn and 2Fe $<$ 1.9 per cent.).* (H. Kostron, Aluminium, Vol. 24, No. 6-7, June-July, 1942, pp. 209-215.)

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382	3395	Germany	...	*Rapid Chemical Method for Determining Mg in the Presence of Zinc in Al Alloys* (1-$1\frac{1}{2}$ *hrs.*). (R. Steinhaüser and R. H. Aust, Aluminium, Vol. 24, No. 6-7, June-July, 1942, pp. 216-218.)
383	3396	Germany	...	*Light Alloy—Time Taken in Closing Rivet with Pneumatic Hammer as a Function of Increase in Hardness due to Agency of Material.* (H. Bothman and W. Mannchen, Aluminium, Vol 24, No. 6-7, June-July, 1942, pp. 224-226.)
384	3403	Germany	...	*Dynamic Testing in Germany.* (Am. Soc. Nav. Engineers, Vol. 54, No. 2, May, 1942, pp. 296-301.)
385	3407	U.S.A.	...	*Dynamic Balancing.* (F. L. Swartz, Am. Soc. Nav. Engineers, Vol. 54, No. 2, May, 1942, pp. 266-273.)
386	3409	U.S.A.	...	*Welding and Cutting in Ship Construction.* (F. G. Outcraft and J. M. Kier, Am. Soc. Naval Engineers, Vol. 54, No. 2, May, 1942, pp. 279-296.)
387	3411	U.S.A.	...	*Industrial Uses of Jewels.* (P. Goodzinski, Am. Soc. Naval Engineers, Vol. 54, No. 2, May, 1942, pp. 301-308.)
388	3427	U.S.A.	...	*S.A.E.-A.S.T.M. Specifications for Synthetic Rubber.* (S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 20-22.)
389	3428	U.S.A.	...	*Restricting the Use of Tin in Solders and Bronze and White Metals.* (S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 31, 34, 42, 43.)
390	3430	U.S.A.	...	*Metallizing Worn Surfaces.* (S.A.E.J., Vol. 50, No. 6, June, 1942, p. 47.)
391	3436	Germany	...	*Experiment on the Hot and Cold Rolling of Sheet and Strip Steel.* (O. Einicke and R. H. Lucas, Stahl und Eisen, Vol. 62, No. 25, 18/6/42, pp. 530-531.)
392	3437	Germany	...	*Precautions Required in the Handling of Trichlorethylene Degreasing Agent.* (Stahl und Eisen, Vol. 62, No. 25, 18/6/42, p. 532.)
393	3438	G.B. ...	...	*Durability of Gears—Survey of Available Literature (Factors Influencing Design).* (B. Tolkowsky, I.A.E., No. 1,942-1,944, April, 1942.)
394	3441	G.B. ...	...	*The Chemical Structure of Plastics.* (C. A. Redfern, British Plastics, Vol. 13, No. 157, June, 1942, pp. 6-21.)
395	3442	G.B. ...	...	*Use of Plastic in Crash-Resistant Fuel Tanks.* (J. W. Baird, British Plastics, Vol. 13, No. 157, June, 1942, p. 22.)
396	3443	G.B. ...	...	*Refrigeration Insulation.* (B. Quarnby, British Plastics, Vol. 13, No. 157, June, 1942, pp. 32-34 and 53.)
397	3444	U.S.A.	...	*American Synthetic Rubber "Tricol." Its War-time Applications (Pipe Lines, Flotation Gear, Balloons, Insulation, Bullet Proof Tanks, etc.).* (British Plastics, Vol. 13, No. 157, June, 1942, p. 36.)
398	3445	G.B. ...	...	*Cellulose.* (British Plastics, Vol. 13, No. 157, June, 1942, pp. 48-50 and 53.)

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399	3455	G.B. ...	... *Cutting Off by Abrasive Wheels.* (Engineering, Vol. 154, No. 3,391, 10/7/42, p. 26.)
400	3456	G.B. ...	... *Electrode Type Salt Bath Tool Hardening Furnaces.* (Engineering, Vol. 154, No. 3,391, 10/7/42, pp. 27-28.)
401	3457	G.B. ...	... *The Damping Capacity of Engineering Materials.* (W. H. Hatfield, Engineering, Vol. 154, No. 3,991, 10/7/42, p. 34.)
402	3467	U.S.A.	... *Chrome-Hardening Cylinders.* (Mech. Eng., Vol. 64, No. 5, May, 1942, pp. 395-396.)
403	3472	U.S.A.	... *Swelling of Synthetic Rubbers in Mineral Oils.* (P. O. Powers and H. A. Robinson, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 614-617.)
404	3473	U.S.A.	... *Prediction of Critical Constants.* (H. P. Meissner and E. M. Reading, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 521-526.)
405	3474	U.S.A.	... *Activated Carbon from Hydrocarbons and Chlorine.* (G. W. Stratton and D. E. Winkler, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 614-617.)
406	3476	U.S.A.	... *Generalised Thermodynamic Properties of Gases at High Pressures.* (S. H. Maron and D. Turnbull, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 603-606.)
407	3480	U.S.A.	... *Silver Plating of Optical Glassware.* (R. D. Barnhard, Ind. and Eng. Chem. (Ind. Ed.), Vol. 34, No. 5, May, 1942, pp. 575-580.)
408	3489	Germany	... *Mechanical Testing and Grading of Wood for High Grade Structure.* (F. Gieger, Flughafen, Vol. 10, No. 2-3, Feb.-March, 1942, pp. 13-20.)
409	3492	Germany	... *Protection of Wood in High Grade Structure.* (F. Geiger Flughafen, Vol. 10, No. 1, Jan., 1942, pp. 1-5.)
410	3501	G.B. ...	... *Mechanical Properties of Steel Sheet, Strip and Tube (Data Sheet No. 9).* (Aircraft Eng., Vol. 14, No. 160, June, 1942, p. 172.)
411	3502	G.B. ...	... *Inspection of Bearing Surfaces.* (W. N. Twelvetrees, Aircraft Eng., Vol. 14, No. 160, June, 1942, pp. 173-177.)
412	3509	U.S.A.	... *Magnesium Foundry—Casting a Landing Wheel.* (H. B. Cornelius, Metal Progress, Vol. 41, No. 4, April, 1942, pp. 491-498.)
413	3510	U.S.A.	... *Powder Metallurgy—Sintering of Iron.* (J. Libsch and others, Metal Progress, Vol. 41, No. 4, April, 1942, pp. 528-530 and 540 and 550.)
414	3511	U.S.A.	... *Calcium.* (A. B. Kinzel, Metal Progress, Vol. 41, No. 4, April, 1942, pp. 577-578.)
415	3512	U.S.A.	... *Electroplating (Cd, Cn, An, Ind, Fe, Sn).* (J. B. Kushner, Metal Progress, Vol. 41, No. 4, April, 1942, pp. 517-521 and 580.)
416	3513	U.S.A.	... *Conservation of Chromium. Chromium Recovery in Basic Open Hearth (from the German).* (C. E. Seil, Metal Progress, Vol. 41, No. 4, April, 1942, pp. 503-506, 506-509 and 582.)

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417	3515	G.B.	*Self-Diffusion of Copper*. (Metal Industry, Vol. 61, No. 2, 10/7/42, p. 23.)
418	3516	G.B.	*Controlled Atmospheres for Aluminium Heat-Treatment*. (The Metal Industry, Vol. 61, No. 2, 10/7/42, p. 24.)
419	3517	G.B.	*Development in Metal Rectifiers*. (Metal Industry, Vol. 61, No. 2, 10/7/42, p. 28.)
420	3518	G.B.	*Plastics—Origin and Formation of Polyvinyl Resins*. (Plastics, Vol. 6, No. 62, July, 1942, pp. 204-205.)
421	3519	G.B.	*Synthetic Resins in Gelatine Manufacture*. (Plastics, Vol. 6, No. 62, July, 1942, p. 206.)
422	3520	G.B.	*Comparative Burning Tests of Common Plastics*. (Plastics, Vol. 6, No. 62, July, 1942, pp. 207-209.)
423	3521	G.B.	*Bending Fatigue of Phenol-formaldehyde*. (D. Warburton-Brown, Plastics, Vol. 6, No. 62, July, 1942, pp. 210-218.)
424	3522	G.B.	*Plastics in Armament and Aircraft*. (Plastics, Vol. 6, No. 62, July, 1942, p. 219.)
425	3523	G.B.	*Du Pont Plastics (Pyralin, Plastacele, Cell-o-glas (Transmits Ultra Violet), Lucite, Nylon (Brushes), Butaxite (Laminated Glass), Re-oprene)*. (Plastics, Vol. 6, No. 62, July, 1942, pp. 222-224.)
426	3529	Germany ...	*Calculation of Torsional Systems, including Elastic Epicyclic Gearing*. (J. Meyer, L.F.F., Vol. 19, No. 6, 20/6/42, pp. 199-200.)
427	3536	G.B.	*Open Hearth Furnace Refractories*. (Engineering, Vol. 153, No. 3,989, 26/6/42, p. 505.)
428	3539	G.B.	*Damping Capacity of Engineering Materials*. (F. Wakeham, Engineering, Vol. 153, No. 3,898, 26/6/42, p. 514.)
429	3540	G.B.	*Damping Capacity of Engineering Materials*. (W. H. Hatfield and others, Engineering, Vol. 153, No. 3,989, 26/6/42, p. 519.)
430	3542	G.B.	*Electro-deposition of Metals*. (S. Murray, J. Inst. Prod. Engs., Vol. 21, No. 5, May, 1942, pp. 192-203.)
431	3548	G.B.	*X-Ray Analysis in Industry (Photometry of Diffraction Diagrams)*. (J. M. Robertson and R. H. V. Dawton, Metal Industry, Vol. 60, No. 26, 26/6/42, pp. 431-432.)
432	3549	G.B.	*Comparison Between Gravity and Pressure Die Casting*. (G. W. Lowe, Metal Industry, Vol. 60, No. 26, 26/6/42, pp. 433-434.)
433	3550	Germany ...	*Colour Sensitive Paints and Crayons for Recording Temperatures between 40° and 650°C*. (K. Guthmann, Stahl und Eisen, Vol. 62, No. 23, 4/6/42, pp. 477-482.)
434	3551	Germany ...	*Basis of Regenerator (Air Heater) Design*. (H. Hansen, Stahl und Eisen, Vol. 62, No. 23, 4/6/42, pp. 488-489.)
435	3552	Germany ...	*Corrosion Resistance of Nitroided Steels*. (G. Hieber, Stahl und Eisen, Vol. 62, No. 23, 4/6/42, pp. 489-490.)
436	3556	U.S.A. ...	*Forged Cylinder Heads*. (Trade Winds, June, 1942, pp. 5 and 17.)

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437	3559	Japan ...	*Japanese Iron and Steel Industries.* (J. W. Reichert, Stahl und Eisen, Vol. 62, No. 13, 26/3/42, pp. 265-268.)
438	3560	Germany ...	*The "Damage Line" on the Wohler Diagram (Evidence of Strain Hardening).* (E. Siebel and G. Stahli, Stahl und Eisen, Vol. 62, No. 21, 21/5/42, p. 444.)
439	3563	Germany ...	*Optical Test on the Surface Quality of Materials (Light Reflection).* (J. Heyes and W. Lueg, Stahl und Eisen, Vol. 62, No. 20, 14/5/42, pp. 422-423.)
440	3564	Germany ...	*Definition of Break and Crack.* (R. Walzel, Stahl und Eisen, Vol. 62, No. 22, 28/5/42, pp. 456-458.)
441	3585	U.S.A. ...	*Plywood for Aircraft.* (American Aviation, Vol. 5, No. 23, 1/5/42, p. 3.)
442	3634	Germany ...	*Getting the Most Out of Engineering Materials, Some Fundamentals of Design (49 References).* (A. Erker. Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, pp. 385-395.)
443	3635	G.B. ...	*Spitfire Pilot Seat Made of Plastics.* (Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, p. 398.)
444	3636	Germany ...	*Estimation of the Wear of Machine Tools on a Basis of Weight of Material Removed.* (W. W. Neumayer, Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, pp. 399-404.)
445	3637	Germany ...	*New Method Casting Steel Ingots.* (Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, p. 404.)
446	3641	Switzerland ...	*The Influence of Dissolved Air on Cavitation and Corrosion (from the Swiss).* (Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, pp. 411-413.)
447	3643	Germany ...	*Standardising of German Machine Tools (Presses).* Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, p. 414.)
448	3651	G.B. ...	*Bibliography of Published Information on Powder Metallurgy.* (R.T.P.3, Bibliography No. 52, July 15th, 1942.)
449	3689	Switzerland ...	*Electric Drives for Machine Tools.* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 40-42.)
450	3690	Switzerland ...	*Electric Welding Machines (Arc and Resistance).* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 43-47.)
451	3697	Germany ...	*Strength of Some Al Casting Alloys Over the Temperature Range 15°-350°C.* (G. Gurtler and W. Jung-Konig, Aluminium, Vol. 24, No. 5, May, 1942, pp. 166-149.)
452	3698	Germany ...	*A Rapid Method for the Determination of Cn, Mn and Fe Alloys (Colorimetric and Volumetric, Six Minutes per Sample).* (A. J. Stelljis and P. Langer, Aluminium, Vol. 24, No. 5, May, 1942, pp. 169-172.)
453	3699	Germany ...	*Determination of Tin in Secondary Al Alloys Scrap (1½-2 Hours).* (K. Steinhauser and K. H. Aust, Aluminium, Vol. 24, No. 5, May, 1942, pp. 172-173.)
454	3700	Germany ...	*Determination of Silicon in Silumin (2 hrs.).* (M. Geigenmuller, Aluminium, Vol. 24, No. 5, May, 1942, pp. 178-179.)

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455	3701	Germany ...	*Determination of Zinc in Al and its Alloys, including Secondary Material (Scrap)* (1½ *hrs.*). (K. Steinhauser, Aluminium, Vol. 24, No. 5, May, 1942, pp. 173-176.)
456	3702	Germany ...	*Determination of Al Oxide in Aluminium* (2 *hrs.*). (K. Steinhauser, Aluminium, Vol. 24, No. 5, May, 1942, pp. 176-178.)
457	3712	U.S.A. ...	*Al Alloys for Aircraft* (19 *References*). (T. L. Fritzlen, J. Aeron. Sciences (Review Section), Vol. 1, No. 3, June, 1942, pp. 5-12.)
458	3716	U.S.A. ...	*New Wright Forged Cylinder Head* (*Photograph*). (Aeron. Sciences, Vol. 1, No. 3, June, 1942, p. 74.)
459	3725	Germany ...	*X-Ray Examination of Tyres for Maintenance Purposes.* (A.T.Z., Vol. 43, No. 11, 10/6/40, p. 279.)
460	3728	Germany ...	*Acoustical Phenomena Accompanying Structural Changes in Metals such as Twinning* (*Effect of Time*). (F. Forster and E. Scheil, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 165-173.)
461	3729	Germany ...	*Reaction Between Mg and SO_2.* (A. Schneider and U. Esch, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 173-177.)
462	3730	Germany ...	*The Solubility of SO_2 in Liquid Mg.* (A. Schneider and V. Esch, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 177-184.)
463	3731	Germany ...	*Rapid Determination of Magnetic Characteristics by Means of the Ferrograph.* (F. Forster, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 184-190.)
464	3732	Germany ...	*A Method for Measuring the Effect of Temperature on the Electric Resistance and Specific Heat of Solid and Liquid Metals.* (F. Forster and Q. Tschentke, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 191-195.)
465	3733	Germany ...	*The Absolute and Practical Creep Strength in Relation to Fatigue Strength.* (U. Dehlinger, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 199-200.)
466	3734	Germany ...	*The Plastic Behaviour of Single Tin Crystals Undergoing Pure Shear.* (H. Held, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 201-209.)
467	3735	Germany ...	*Determination of the Elastic Stresses in the Looped Test Piece (Schlaufe) Utilised in Stress Corrosion Experiments.* (O. Schaaber, Zeit. Z. Metallk., Vol. 32, No. 6, June, 1940, pp. 201-209.)
468	3736	Germany ...	*New German Plastics. Igamid, Igelite, Pe Ce, Perlon (=Nylon), Cell Wood Synthetic Wool.* (Ind. and Eng. Chem., Vol. 20, No. 11, 10/6/42, pp. 731-732.)
469	3737	Italy	*Snia Vicosa Works Produce Artificial Fibres* (*Wool and Tyres*). (Ind. and Eng. Chem., Vol. 20, No. 11, June, 1942, pp. 733-734.)
470	3738	Germany ...	*Characteristics of Turbo Blowers Used for Blast Furnaces and in Steel Works.* (F. Kluge, Stahl und Eisen, Vol. 62, No. 27, 2/7/42, pp. 561-567.)

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471	3739	Germany ...	*The Behaviour of Steel at Elevated Temperatures (Review of 1941 Literature).* (Stahl und Eisen, Vol. 62, No. 27, 2/7/42, pp. 561-567.)
472	3740	Germany ...	*Pump for Handling Molten Metal Especially Zinc.* (Stahl und Eisen, Vol. 62, No. 27, 2/7/42, p. 567.)
473	3750	Germany ...	*Single Coat Painting on H.III Saves 250 lb. in Weight.* (Aeroplane, Vol. 63, No. 1,627, 31/7/42, p. 142.)
474	3752	G.B.	*The Effect of Zinc, Nickel, Lead and Tin Content of L3 Alloy Sheet on its Mechanical Properties.* (M. Cook and R. Chadwick, Metal Industry, Vol. 61, No. 4, 24/2/42, pp. 50-53.)
475	3753	G.B.	*X-Ray Diffraction and the Deformation of Metals.* (W. A. Wood, Metal Industry, Vol. 61, No. 4, 24/2/42, pp. 53-54.)
476	3754	G.B.	*Directionality in 68/32 Brass Strip.* (Metal Industry, Vol. 61, No. 4, 24/2/42, p. 54.)
477	3755	G.B.	*Low Tin and Tin-Free Bronze and Brasses (Discussion).* (Metal Industry, Vol. 61, No. 4, 24/2/42, pp. 55-57.)
478	3756	G.B.	*Nickel Plating Mg Alloys.* (W. Loose, Metal Industry, Vol. 61, No. 4, 24/2/42, pp. 58-60.)
479	3757	G.B.	*Copper Zirconium Alloy (High Heat Conductivity).* (Metal Industry, Vol. 61, No. 4, 24/2/42, p. 49.)
480	3758	G.B.	*Tin Economy in Plain Bearings.* (P. T. Holligan, Engineering, Vol. 154, No. 3,993, 24/7/42, pp. 66-67.)
481	3759	G.B.	*Surface Finish—Proposed British Standards.* (Engineering, Vol. 154, No. 3,993, 24/7/42, p. 72.)
482	3761	G.B.	*Fatigue Strength of Crankshafts (I.A.E. Report).* (C. G. Williams and J. S. Brown, Engineering, Vol. 154, No. 3,993, 24/7/42, pp. 78-80.)
483	3762	G.B.	*Pinned-Pinned Solid Struts with Parabolic Taper.* (F. J. Turton, J. Aeron. Soc., Vol. 46, No. 378, June, 1942.)
484	3771	Germany ...	*Indium Plated Bearings.* (A.T.Z., Vol. 45, No. 9, 10/5/42, p. 238.)
485	3776	Switzerland ...	*Brown Boveri Machine for Spot and Continuous Resistance Welding.* (W. Siegwart, Revue Brown Boveri, Vol. 29, No. 4, April, 1942, pp. 95-97.)
486	3774	G.B.	*Plastics in Industry.* (Nature, Vol. 149, No. 3,790, 22/6/42, p. 682.)
487	3777	Switzerland ...	*Continuous Current Arc Welding Machine with Instantaneous Current Control.* (H. Kosher, Revue Brown Boveri, Vol. 29, No. 4, April, 1942, pp. 100-105.)
488	3780	Germany ...	*Influence of the Quenching Temperature on the Hardness and Heat Treatment of Steel.* (R. Schafer and W. Dreshler, Stahl und Eisen, Vol. 62, No. 24, 11/6/42, pp. 487-503.)
489	3781	Germany ...	*Determination of H_2 in Steel by Extraction in Vacuo at 800_2C.* (H. Ploum, Stahl und Eisen, Vol. 62, No. 24, 11/6/42, pp. 512-513.)

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490	3782	Germany	...	*Flame Cutting with Coal Gas—Oxygen.* (W. Eichenmuller, Gas, Vol. 14, No. 6, June, 1942, pp. 91-96.)
491	3793	U.S.A.	...	*Non-Reflecting Glass (Hydrofluoric Acid Method).* (Rev. Sci. Inst., Vol. 13, No. 6, June, 1942, pp. 272-273.)
492	3800	Germany	...	*Welding Crack Sensitivity of Cr-Mo Structural Steels.* (A. Antonioli and S. Giovanni, Stahl und Eisen, Vol. 62, No. 26, 25/6/42, pp. 540-543.)
493	3801	Germany	...	*Creep Strength of Steel at Room Temperature.* (A. Krisch, Stahl und Eisen, Vol. 62, No. 26, 25/6/42, p. 548.)
494	3802	Germany	...	*Effect of Degree of Forging on the Bending Fatigue Strength of Alloy Structural Steel (Parallel and Perpendicular to Strain).* (H. Krainer, Stahl und Eisen, Vol. 62, No. 26, 25/6/42, p. 548.)
495	3803	Germany	...	*Natural and Synthetic Rubber as an Engineering Material.* (K. H. Brandon, Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, pp. 303-305.)
496	3804	Germany	...	*Flanged Joint in Pipe Lines.* (M. Schilhansl, Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, p. 307.)
497	3809	Germany	...	*The Effect of Composition on Tensile and Fatigue Strength of Heat Treated Steels.* (W. Holtmann, Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, pp. 315-316.)
498	3810	Germany	...	*Buckling and Lateral Deflection of Compression Springs.* (S. Gross and E. Lehr, Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, pp. 316-317.)
499	3811	Germany	...	*Improvements in the Life of Electric Heater Alloy by the Addition of Thorium.*
500	3814	Germany	...	*New Regulations for the Stressing of Wooden Bridges.* (Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, pp. 335-336.)
501	3816	Germany	...	*Influence of Small Ni Contents on the Properties of High Tensile Steel Sheet.* (Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, p. 338.)
502	3817	Germany	...	*Economising Wood in Engineering Structure.* (O. Joaf, Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, pp. 339-345.)
503	3818	Germany	...	*G.W.K. 100 Rollers—A New Material for the Cold Rolling of Steel and Light Alloys.* (Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, p. 352a.)
504	3824	Germany	...	*Modern Electric Spray Guns for Metal Deposits.* (C. H. Daeschle, E.T.Z., Vol. 63, No. 21-22, 4/6/42, p. 264.)
505	3825	Germany	...	*Official Standardisation of German Plastic Materials (Type Number, Composition, Mechanical, Thermal and Electrical Properties).* E.T.Z., Vol. 63, No. 21-22, 4/6/42, pp. 268-269.)
506	3826	Germany	...	*Fundamental Research on the Cold and Hot Rolling of Metals into Strip and Sheet (with Special Consideration of Al and Al Wrought Alloys (with Some Results for Steel and Lead for Comparison). Part II—Hot Rolling (with Discussion).* (O. Emicke and K. H. Lucas, Z. fur Metallk., Vol. 34, No. 3, March, 1942, pp. 49-58.)

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507	3827	Germany ...	*Deep Drawing of Zinc and Zinc Alloys.* (F. E. Jeanitzer and H. Hanemann, Z. fur Metallk., Vol. 34, No. 3, March, 1942, p. 59.)
508	3842	Germany ...	*The Origin of Gear Noise (Vibration of Gear Wheels).* (H. Glaubitz and K. Gosels, A.T.Z., Vol. 45, No. 7, 10/4/42, pp. 175-181.)
509	3876	U.S.A. ...	*Magnesium-Palladium and Magnesium Germanium Alloys (Dow Chemical Co. Patents).* (Inter. Avia., No. 825-826, 21/7/42, p. 15.)
510	3894	G.B.	*Precision Press-Bending of Pipes.* (Engineering, Vol. 154, No. 3,391, 10/7/42, p. 36.)

PRODUCTION.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
511	3302	G.B.	*Non-Metallic Chemical Plant.* (A. E. Williams, Engineer, Vol. 174, No. 4,514, 17/7/42, pp. 44/46.)
512	3314	U.S.A./G.B. .	*War Production in G.B. and the U.S.A.* (Inter. Avia., No. 822, 26/6/42, pp. 8-13.)
513	3334	G.B.	*Colour of Machines and Workshop Efficiency.* (Nature, Vol. 149, No. 3,792, 4/7/42, p. 19.)
514	3351	Germany ...	*Standardisation in German Aircraft Production.* (Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, p. 47.)
515	3382	G.B.	*Consumption of Al by the British Aircraft Industry.* (Flugwehr und Technik, Vol. 4, No. 4, April, 1942, p. 99.)
516	*3392	U.S.S.R. ...	*Production of Alumina in the U.S.S.R.* (V. A. Masl, Publishing Office for Ferrous and Non-Ferrous Metallurgy, Moscow, 1940 (300 pages, 119 Figs.).
517	3410	U.S.A. ...	*High Production High Economy Methods for Metal Parts (Casting, Forging, Welding, etc.).* (D. Basch, Am. Soc. Nav. Engineers, Vol. 54, No. 2, May, 1942, pp. 218-258.)
518	3431	U.S.A. ...	*Possibilities of Increasing Automotive Engine Output.* (S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 251-252.)
519	3432	U.S.A. ...	*The Automotive Body Engineer in Aircraft.* (J. C. Widman, S.A.E.J., Vol. 50, No. 6, June, 1942, pp. 209-211.)
520	3440	G.B.	*The Grading and Shape of Commercial Sizes of Aggregates (Statistics and Normal Distribution Curve).* (A. H. D. Markwick, Chem. and Ind., Vol. 61, No. 6, June, 1942, pp. 85-91.)
521	3463	U.S.A. ...	*Quality Control with Sampling Inspection.* (C. S. Barrett, Mech. Eng., Vol. 64, No. 5, May, 1942, pp. 361-369.)
522	3468	U.S.A. ...	*Bomb Manufacture in the U.S.A.* (Army Ordnance, Vol. 22, No. 132, May-June, pp. 953-960.)
523	3491	Germany ...	*Hot Air Plant for the Artificial Drying Out of New Buildings.* (Flughafen, Vol. 10, No. 2-3, Feb.-March, p. 28.)
524	3531	G.B.	*Sampling and Probability.* (R. Parsons, Engineer, Vol. 173, No. 4,511, 26/6/42, pp. 528-529.)

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525	3532	G.B. ...	...	*Industrial Uses of Radiant Heating.* (R. Quarendon, Engineer, Vol. 173, No. 4,511, 26/6/42, pp. 531-533.)
526	3561	G.B. ...	...	*Increasing Production without Increasing Facilities (Memorandum Presented to the Minister of Production).* (Inst. of Prod. Engineers, Vol. 21, No. 6, June, 1942, pp. 205-221.)
527	3667	G.B. ...	...	*Bibliography of Published Information on Production (Organisation, Tooling, Fabrication Methods)* (1941-1942). (R.T.P.3, Bibliography No. 36.)
528	3674	France	...	*French Aero Engine Industry.* (Inter. Avia., No. 823-824, 11/7/42, p. 15.)
529	3707	G.B. ...	...	*Quality Control in Curtiss-Wright Plants.* (J. W. Dunn, Airc. Eng., Vol. 14, No. 161, July, 1942, pp. 203-210.)
530	3711	G.B. ...	...	*Air-Line Engineering Management.* (I. Lusty, Airc. Eng., Vol. 14, No. 161, July, 1942, pp. 201-202.)
531	3715	U.S.A.	...	*Mechanised Assembly Line for Consolidated B24 Bombers (Photograph).* (J. Aeron. Sciences (Review Section), Vol. 1, No. 3, June, 1942.)
532	3718	G.B. ...	...	*Model Quality Control Charts.* (H. Rissik, Engineer, Vol. 174, No. 4,515, 24/7/42, pp. 64-65.)
533	3806	Germany	...	*Protection of Women in Industry when Working on Materials which are Dangerous to Health or Readily Ignitable.* (Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, p. 310.)
534	3812	Germany	...	*A Basis of Efficient Engineering Design.* (F. Kesselring, Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, pp. 321-330.)
535	3821	Germany	...	*Machine Tools—Manufacture of Certain Types Forbidden by the Reich.* (Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, p. 350.)
536	3841	Germany	...	*The Training of Skilled Mechanics (Apprentices).* (A.T.Z., Vol. 45, No. 7, 10/4/42, pp. 173-174.)
537	3855	Germany	...	*Engine Cam Production on the Lathe.* (W. Storck, A.T.Z., No. 45, No. 8, 25/4/42, pp. 217-220.)

INSTRUMENTS.

538	3290	G.B. ...	...	*Pneumatic Gauges.* (Autom. Eng., Vol. 32, No. 425, July, 1942, pp. 263-265.)
539	3328	Germany	...	*Modern Electric Synchronous Self-Starting Clocks.* (W. Hansen, Progressus, Vol. 7, No. 3, March, 1942, pp. 245-248.)
540	3345	U.S.A.	...	*Elimination of the "Water Wave" in Polarographic Work.* (I. M. Kolthoff and E. F. Orlemann, Ind. and Eng. Chem. (Anal. Ed.), Vol. 14, No. 4, 15/4/42, pp. 321-323.)
541	3347	U.S.A.	...	*Construction and Operation of a Polarograph.* (N. H. Furmann and others, Ind. and Eng. Chem. (Anal. Ed.), Vol. 14, No. 4, 15/4/42, pp. 333-340.)
542	3348	U.S.A.	...	*Rotary Viscometer for Determination of High Consistencies.* (R. N. Traxler and others, Ind. and Eng. Chem. (Anal. Ed.), Vol. 14, No. 4, 15/4/42, pp. 340-344.)

https://doi.org/10.1017/S0368393100140660 Published online by Cambridge University Press

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
543	3352	Switzerland ...	*A Stop Watch for Evaluating Efficiency of A.A. Tracer Shells.* (R. H. Stehli, Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, p. 39.)
544	3354	Switzerland ...	*Electrical Engine Indicators.* (O. Stettler, Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, pp. 43-45.)
545	3389	Switzerland ...	*Stereoscopic Sight and its Application in Range Finder.* (H. Donatsch, Flugwehr und Technik, Vol. 4, No. 3, March, 1942, pp. 61-64.)
546	3405	U.S.A. ...	*Gauges and Gauging Procedure.* (G. H. Simpson, Am. Soc. Nav. Eng., Vol. 54, No. 2, May, 1942, pp. 273-279.)
547	*3408	U.S.A. ...	*Applications of Geiger-Muller Counters to Inspection with X-Rays and Gamma Rays.* (H. Friedman and others, Am. Soc. Naval Engineers, Vol. 54, No. 2, May, 1942, pp. 177-296.)
548	3449	Germany ...	*Experiments on the Performance of Telescopes.* (M. Wagel and A. Kleighardt, Z. Instrumts., Vol. 62, No. 1, Jan., 1942, pp. 16-18.)
549	*3451	G.B.	*A Clock Controlled Governor for Close Speed Regulation.* (J. C. Prescott, J. Inst. Elect. Engineers, Vol. 89, No. 9, Pt. II, June, 1942, pp. 210-216.)
550	*3454	G.B.	*Time Bases (with Discussion).* (O. S. Puckle, J. Inst. Elect. Engs., Vol. 89, No. 6, Pt. II, June, 1942, pp. 100-122.)
551	3514	G.B.	*A Simple Photometer for the Examination of X-Ray Films.* (A. H. Jay, Metal Industry, Vol. 61, No. 2, 10/7/42, pp. 21-23.)
552	3545	Germany ...	*Experiments with Piezo-Electric Pressure Indicators.* (Z.G.S.S., Vol. 37, No. 4, April, 1942, pp. 68-71.)
553	3574	G.B.	*Aeration and Frothing—Tests on De-Aerators.* (H. R. Mills, I.A.E. Research Dept., No. 1,942-1,942, March, 1942.)
554	3602	Italy	*Autometer Gyro Course Stabilisation.* (R. Miniero, Riv. Aeronautica, Vol. 17, No. 12, Dec., 1941, pp. 535-558.)
555	3603	Italy	*Standard Italian Aeronautical Maps (R.U.N.A.).* (R. Grasso, Riv. Aeronautica, Vol. 17, No. 12, Dec., 1941, pp. 561-592.)
556	3611	U.S.A. ...	*Photo Tracings. Their Use in Making Pictorial Blueprints.* (Lester C. Jones, Lockheed Aircraft Corporation, Paper No. 59.)
557	3625	G.B.	*Astronavigation.* (A. L. Mierelle, Flight, Vol. 42, No. 1,752, 23/7/42, pp. 96-99.)
558	3717	G.B.	*Needle Bearings in Aircraft.* (H. W. Hayne, Bearing Engineer, Vol. 2, No. 1, Feb., 1942, pp. 3 and 8.)
559	3790	U.S.A. ...	*Smoke Density Recorder.* (Rev. Sci. Inst., Vol. 13, No. 6, June, 1942, p. 269.)
560	3791	U.S.A. ...	*Liquid Level Indicator (Electric Capacity Principle).* (Rev. Sci. Inst., Vol. 13, No. 6, June, 1942, pp. 269-270.)

Wireless and Electricity.

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561	3261	G.B. ...	... *Wireless Engineer. Abstracts and References Compiled by the Radio Research Board, July, 1942.*
562	3303	G.B. ...	... *Lightning, Protection of Buildings.* (E. H. W. Banner, Engineer, Vol. 174, No. 4,514, 17/7/42, pp. 48-51.)
563	3335	G.B. ...	... *Electromagnetic Waves in Metal Tubes of Rectangular Cross Section.* (Nature, Vol. 149, No. 3,792, 4/7/42, p. 32.)
564	*3453	G.B. ...	... *Aerial Characteristics (with Discussion).* (N. Wells, J. Inst. Elect. Engrs., Vol. 89, No. 6, Pt. II.)
565	3461	Germany	... *Tests on Wire for Electric Air Heaters.* (H. Nolte, Z. Instrum., No. 2, Feb., 1942, pp. 67-68.)
566	3500	Germany	... *German Radio Equipment (on Me. 109 and Ju. 87).* (Aircraft Eng., Vol. 14, No. 160, June, 1942, pp. 164-167.)
567	3503	G.B. ...	... *Cathodic Sputtering (Nature and Effects).* (C. P. Haigh, Electronic Engineering, Vol. 14, No. 172, July, 1942, pp. 61-64.)
568	3504	G.B. ...	... *Practical Notes on Receiver Design, Part I.* (G. T. Black, Electronic Engineering, Vol. 14, No. 173, July, 1942, pp. 70-74.)
569	*3505	G.B. ...	... *Foreign Radiolocation Patents.* (Electronic Engineering, Vol. 14, No. 173, July, 1942, p. 74.)
570	3565	Germany	... *Cause and Nature of Creep Currents Along Insulators.* (R. Viewey and H. Klingelhoffer, E.T.Z., Vol. 63, No. 19-20, 21/5/42, pp. 237-241.)
571	3566	Germany	... *Rectifiers with Positive Consummation.* (C. Frege, E.T.Z., Vol. 63, No. 19-20, 21/5/42, pp. 242-243.)
572	*3568	U.S.A.	... *The Absolute Sensitivity of Radio Receivers.* (D. O. North, R. C. A. Review, Vol. 5, No. 3, Jan., 1942, pp. 332-343.)
573	*3569	U.S.A.	... *An Omni-Directional Radio Range System.* (D. G. C. Luck, R.C.A. Review, Vol. 5, No. 3, Jan., 1942, pp. 344-369.)
574	3570	Germany	... *Maximum Permissible Temperature for Electric Insulators Made of Compressed Materials, Free from Rubber.* (R. Nitsche and E. Dober, E.T.Z., Vol. 63, No. 23-24, 18/6/42, pp. 279-281.)
575	3605	Italy ...	... *Rectification of Aerial Photographs by Projection (Applicable to Moderate Changes in Level).* (P. Leoni, Riv. Aeronautica, Vol. 17, No. 12, Dec., 1941, pp. 603-626.)
576	3612	G.B. ...	... *Abstracts and References Compiled by the Radio Research Board.* (Wireless Engineer, Aug., 1942.)
577	3618	Germany	... *Electric Discharge in Gases—the Effect of Pressure.* (H. Raether, E.T.Z., Vol. 63, No. 25-26, 2/7/42, pp. 301-303.)
578	3650	G.B. ...	... *Bibliography of Published Information (including Translations on Wireless.* (R.T.P.3, Bibliography No. 53, May, 1942.)

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579	3719	G.B. ...	... *Lightning Protection of Buildings.* (E. H. W. Banner, Engineer, Vol. 174, No. 4,515, 24/7/42, pp. 66-67.)
580	3720	G.B. ...	... *Short Wave Wireless Communication, Book Review.* (Lachner and Stoner, Engineer, Vol. 174, No. 4,515, 24/7/42, p. 73.)
581	3772	G.B. ...	... *Classification of Rheological Properties.* (Nature, Vol. 149, No. 3,790, 22/6/42, p. 702.)
582	3823	Germany	... *Steady Amplification of Minute Photo Electric Currents (Digest).* (M. T. O. Strutt and A. Vancher Liel, E.T.Z., Vol. 63, No. 21-22, 4/6/42, pp. 263-264.)
583	3856	Germany	... *Charging Characteristics of the Lead Accumulator at Various Temperatures (+70°C. and −30°C.* (E. Blaich, A.T.Z., Vol. 45, No. 8, 25/4/42, pp. 221-220.)

SOUND, LIGHT AND HEAT.

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584	3347	G.B. ...	... *Fluorescent Lamps.* (L. T. Davies and others, J. Inst. Elect. Engs., Vol. 89, No. 18, Pt. I, June, 1942, pp. 288-291.)
585	3401	G.B. ...	... *Recent Progress in Heat Transfer.* (H. Lander, Nature, Vol. 195, No. 3,791, 22/2/42, pp. 723-725.)
586	3404	U.S.A.	... *A Temperature-Entrophy Diagram for Air Based on Spectroscopic Specific Heat Data.* (F. C. Marggreff and A. H. Senner, Am. Soc. Rad. Eng., Vol. 54, No. 2, May, 1942, pp. 167-171.)
587	3459	Germany	... *Threshold Value for Binocular Vision.* (C. Münster, Z. Instrum., No. 2, Feb., 1942, pp. 55-60.)
588	3460	Germany	... *Acuteness of Vision and the Ricco Law, Threshold Values Under Conditions of Contract.* (B. Schonweld, Z. Instrum., No. 2, Feb., 1942.)
589	3471	U.S.A.	... *Thermodynamics Applied to Chemical Industry.* (J. G. Aston, Ind. and Eng. Chem. (Indus. Ed.), Vol. 34, No. 5, May, 1942, pp. 517-521.)
590	3537	G.B. ...	... *Dry Compression in Refrigerating Plants.* (Engineering, Vol. 153, No. 3,989, 26/6/42, pp. 506-508.)
591	*3567	U.S.A.	... *A New Chemical Method of Reducing the Reflectance of Glass (Hydrofluoric Acid).* (F. H. Nicoll, R.C.A. Review, Vol. 5, No. 3, Jan., 1942, pp. 287-301.)
592	3572	Germany	... *Heat Pumps (Reversal Heat Engine as Heating Appliance).* (E.T.Z., Vol. 63, No. 23-24, 18/6/42, p. 287.)
593	3619	Germany	... *Grading of Electric Lamps on the Decalculation Scale.* (E.T.Z., Vol. 63, No. 25-26, 2/7/42, p. 304.)
594	*3687	U.S.A.	... *Recording Rapidly Changing Cylinder Wall Temperatures.* (A. Meier, Forschung, Vol. 10, No. 1, Jan.-Feb., 1939, pp. 41-54.) (R.T.P. Trans. No. T.M. 1,013.)
595	3691	Switzerland ...	... *Electric Furnaces.* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 47-51.)

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596	3692	Switzerland ...	*Electrically Heated Boilers.* (Revue Brown Boveri, Vol. 29, No. 1, 2, 3, Jan., Feb., March, pp. 51-52.)
597	3778	Switzerland ...	*The Thermal Pump (Reversed Heat Engine) Applied to Industrial Processes.* (A. Banman, Revue Brown Boveri, Vol. 29, No. 4, April, 1942, pp. 110-111.)
598	3792	U.S.A. ...	*Micro-Film Projection Reading Lamp.* (Rev. Sci. Inst., Vol. 13, No. 6, June, 1942, p. 271.)
599	3807	Germany ...	*Interference Light Filters.* (Z.V.D.I., Vol. 86, No. 19-20, 16/5/42, pp. 313-314.)
600	3815	Germany ...	*Heat Transfer Through Tubes Provided with Corrosion Resistant Layers.* (E. Kirchbaum, Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, pp. 337-338.)
601	3819	Germany ...	*Low Temperature Engineering (Specific Heat from Spectroscopic Data, etc.).* (K. Wesselmann, Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, p. 348.)

METEOROLOGY AND PHYSIOLOGY.

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602	*3313	Switzerland ...	*Medical Problems of High Altitude Flight (with Bibliography).* (F. V. Travel, Inter. Avia., No. 822, 26/6/42, pp. 1-5, 27-28.)
603	3344	Germany ...	*Gas Filters Against Radium Emanations in Pitch Blend Mines.* (E. Neitzel, Z.G.S.S., Vol. 37, No. 6, June, 1942, pp. 114-116.)
604	3400	Canada ...	*CO Poisoning in the Air.* (Flugwehr und Technik, Vol. 4, No. 2, Feb., 1942, p. 48.)
605	3421	Italy	*Delayed Parachute Drops.* (R. Verduzio, Rivista Aeronautica, Vol. 17, No. 9, Sept., 1941, pp. 507-536.)
606	3422	Italy	*Meteorological Conditions Over the South Atlantic Air Routes.* (A. Napoletano and B. Palemaio, Rivista Aeronautica, Vol. 17, No. 9, Sept., 1941, pp. 565-574.)
607	3466	U.S.A. ...	*Aviation Physiology.* (J. F. Fulton, Mech. Eng., Vol. 65, No. 5, May, 1942, pp. 385-396.)
608	3494	Germany ...	*Fighting Insect Pests by Means of Aircraft (with Special Reference to Malaric Carriers).* (F. Weyer, Flughafen, Vol. 10, No. 1, Jan., 1942, pp. 8-13.)
609	3577	Switzerland ...	*Stratosphere Flight.* (Aero Revue, Vol. 17, No. 1, Jan., 1942, pp. 9-10.)
610	3608	Italy	*High Altitude Oxygen Mask "Margaria."* (Riv. Aeronautica, Vol. 17, No. 12, Dec., 1941, pp. 691-694.)
611	3617	Germany ...	*The Production of Artificial Sunlight for Health Purposes.* (F. Lauster, E.T.Z., Vol. 2, No. 25-26, 2/7/42, pp. 297-301.)
612	3646	G.B.	*Bibliography of Published Information on the Physiological Effects of (1) Acceleration and Velocity; (2) Vibration.* (R.T.P.3, Bibliography No. 57, July, 1942.)
613	3647	G.B.	*Bibliography of Published Information on the Physiological Effects of Parachute Jumping.* (R.T.P.3, Bibliography No. 56, July, 1942.)

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614	3648	G.B. ...	... *Bibliography of Published Information on the Physiological Effects of Altitude.* (R.T.P.3, Bibliography No. 55, July, 1942.)
615	3649	G.B. ...	... *Bibliography of Published Information on High Altitude and Breathing Apparatus.* (R.T.P.3, Ministry of Aircraft Production, Bibliography No. 54, July, 1942.)
616	3743	Germany	... *Danger of Arsine Poisoning in Industry.* (Z.G.S.S., Vol. 35, No. 6, June, 1940, p. 135.)
617	3767	U.S.A.	... *Moonlight Diagram (Graphical Determination of Hours of Daylight, Moonlight and Darkness).* (O. H. Milmore, Coast Artillery J., Vol. 85, No. 2, March-April, 1942, pp. 55-57.)
			MISCELLANEOUS.
618	3256	Germany	... *Physikalische Berichte, Vol.* 23, *No.* 1, 1/1/42 (*Covering Abstracts Nos.* 1-140.)
619	3257	Germany	... *Physikalische Berichte, Vol.* 23, *No.* 8, 15/4/42 (*Covering Abstracts Nos.* 881-960).
620	3258	Germany	... *Physikalische Berichte, Vol.* 23, *No.* 9, 1/5/42 (*Covering Abstracts Nos.* 961-1,040).
621	3259	G.B. ...	... *Rotol Digest.* (Vol. 3, No. 26, 1/7/42.)
622	3260	G.B. ...	... *Rotol Digest.* (Vol. 3, No. 27, 8/7/42.)
623	3263	G.B. ...	... *Technical Abstracts issued by Aero Engine Dept., Bristol Aeroplane Co.* (Vol. 7, No. 1, 1/7/42.)
624	3264	G.B. ...	... *Technical Abstracts issued by Aero Engine Dept., Bristol Aeroplane Co.* (Vol. 7, No. 1, 8/7/42.)
625	3265	G.B. ...	... *Technical Abstracts issued by Aero Engine Dept., Bristol Aeroplane Co.* (Vol. 7, No. 1, 15/7/42.)
626	3266	G.B. ...	... *Rolls Royce Technical Abstracts and Information.* (Vol. 3, No. 7, July, 1942.)
627	3267	Germany	... *Physikalische Berichte, Vol.* 22, *No.* 23, 1/12/42. (Covering Abstracts Nos. 2,281-2,396.)
628	3268	Germany	... *Physikalische Berichte (Vol.* 22, *No.* 24, 15/2/42). (Covering Abstracts Nos. 2,397-2,616.)
629	3269	G.B. ...	... *I.A.E. Automobile Research Committee. Index of Abstracts for May,* 1942. (Covering Abstracts Nos. 790-829.)
630	3462	U.S.A.	... *The Philosophy of Engineering Education.* (R. L. Sackett, Mech. Eng., Vol. 64, No. 5, May, 1942, pp. 340-342 and 372.)
631	3481	G.B. ...	... *Rotol Digest.* (Vol. 3, No. 28, 15/7/42.)
632	3482	G.B. ...	... *Rotol Digest.* (Vol. 3, No. 29, 22/7/42.)
633	3485	G.B. ...	... *Technical Abstracts issued by the Aero Engine Dept., Bristol Aeroplane Co., Ltd.* (Vol. 7, No. 4, 22/7/42.)
634	3541	G.B. ...	... *Engineering in the Soviet Union.* (Engineering, Vol. 153, No. 3,989, 26/6/42, p. 516.)
635	3609	G.B. ...	... *Technical Abstracts issued by Aero Engine Dept., Bristol Aeroplane Co.* (Vol. 7, No. 5, 29/7/42.)
636	3613	G.B. ...	... *Rotol Digest.* (Vol. 3, No. 31, 5/8/42.)
637	3614	G.B. ...	... *Rotol Digest.* (Vol. 3, No. 30, 27/7/42.)

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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
638	3710	G.B.	*National Aeronautics Meeting, S.A.E., March, 1942. (Digest of Some Papers Presented.)* (Airc. Eng., Vol. 14, No. 161, July, 1942, pp. 198.)
639	3822	Germany ...	*World Population (Statistics for* 1940). (Z.G.S.S., Vol. 86, No. 21-22, 30/5/42, p. 351.)

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