December, 1943

Abstracts from the Scientific and Technical Press

(No. 117. October, 1943)

AND

Titles and References of Articles and Papers Selected from Publications

(Reviewed by R.T.P.3)

TOGETHER WITH

List of Selected Translations

(No. 63)

London:
"THE ROYAL AERONAUTICAL SOCIETY"
with which is incorporated "The Institution of Aeronautical Engineers"
4, Hamilton Place, W.1
Telephone: Grosvenor **3515** (3 lines)

ABSTRACTS FROM THE SCIENTIFIC AND TECHNICAL PRESS.

Issued by the

Directorates of Scientific Research and Technical Development, Ministry of Aircraft Production.

(Prepared by R.T.P.3.)

No. 117. October, 1943.

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

Requests from scientific and technical staffs for further information of translations should be addressed to R.T.P.3, Ministry of Aircraft Production, and not to the Royal Aeronautical Society.

Only a limited number of the articles quoted from foreign journals are translated and usually only the *original* can be supplied on loan. If, however, translation is required, application should be made in writing to R.T.P.3, the requests being considered in accordance with existing facilities.

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

The Effect of Nitrogen on the Properties of Certain Austenitic Valve Steels. (H. Cornelius and K. Fahsel, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 210-216.) (117/1 Germany.)

The valve steels commonly employed contain about 15 per cent. Cr, 13 per cent. Ni and 2 per cent. W (Tungsten). Recently austenitic Cr-Mn steels of much smaller Ni content have been proposed as a satisfactory alternative and it was claimed that the heat stability of such steels could be still further improved by small additions of N_2.

To investigate this matter, the authors prepared 14 samples of austenitic steels covering the following ranges of per cent. composition:—

C	Si	Mn	Ni	Cr	W	Ti	N_2
·43	1.7	1.1	3.1	11.7	0	0	.02
·59	3.5	6.7	9.1	18.3	1.2	.48	.23

The variation in N_2 content was obtained by adding different amounts of Ferrochrome (containing up to 6 per cent. N_2) to the melt (high frequency furnace). The specimens were hardened by air cooling after forging (1,050°C.) and subsequently tempered at 800°C. for 3 hours and again air cooled.

The tests were carried out both in this (so-called original) state and after a further annealing at 700°C. for 200 hours followed by air cooling.

A comparison of the mechanical properties obtained in the original and annealed state enabled conclusions as to the stability of the austenitic structure to be drawn.

The preliminary tests covered the elastic limit (.2 per cent. set), yield point (.2 per cent.), ultimate tensile, extension at fracture, contraction and impact strength, as well as magnetic saturation.

The authors conclude that the stabilising effect of N_2 on the austenitic structure of the steels is very small and that its introduction into the steel does not render possible any marked reduction in the Ni content as had been previously claimed. Under the most favourable circumstances the max. possible addition of N_2 ($\sim$ .25 per cent.) is equivalent to about 2 per cent. Ni, but in most cases considerably less (.5 per cent.). (Some previous investigators had claimed the replacement value of .2 per cent. N_2 to be the equivalent of 6 per cent. Ni.)

In addition to the mechanical tests detailed above, the resistance of the steels to both rapid and slow rates of deformation was investigated. For the former, a special pendulum apparatus devised by the author was utilised, the experiments covering the temperature range up to 850°C. For the slow rates of deformation, the D.V.L. creep test was carried out at 700°C.

For high rates of deformation (pendulum test) the addition of N_2 is definitely beneficial at temperatures up to 400°C. At the working temperature of the valve (850°C.), however, the N_2 appears to have no effect. From the creep tests at 700°C., the authors conclude that the N_2 produces only a very small effect.

Further tests carried out on scale formation, thermal conductivity and thermal expansion all showed that the N_2 content exerts only a very minor influence.

In conclusion, the specimens were nitrided in an atmosphere of NH_3 and tests carried out on the surface hardness and thickness of nitrided layer. It appeared again that the N_2 content of the alloy affected the results only slightly.

The final conclusion appears to be that the addition of N_2 to austenitic steels of the type discussed seems scarcely justified.

Such austenitic steels, especially when containing about .5 per cent. Ti, are sufficiently stable to replace the commonly employed valve steels of high nickel and tungsten contents, thus leading to a considerable saving in these two constituents.

The Effect of Welding Faults on the Static and Dynamic Strength of Welded Joints of Steel St. 52, with Notes on the Limits of Fault Detection by X-Ray Examination. (H. Keller and E. Klein, Schiff u. Werft, Vol. 44-24, No. 17-18, Sept., 1943, pp. 257-261.) (117/2 Germany.)

The experiments refer to welded steel plates of St. 52 material such as used in ship building.

(Abstractor's Note.—This steel has the following average compositions :—

C = .2%	Cu = .55%
Mn = 1.2%	P = .05%
Si = .5%	S = .05%

Ultimate tensile of commercial product 52-64 kg./mm.^{2}.)

Thickness of plate 15-22 mm., standard butt weld, V seam. A selenium electrode was employed, type Bohler K.V.A. The test specimen (35 to 45 mm. wide) were obtained either from the hull itself (making use of such portions as had to be removed in order to provide room for certain fittings) or from samples of work supplied by the welder during his periodic examination for efficiency.

In addition, special samples incorporating intentional faults were prepared by the authors.

In general, welding faults may be of the following types:—

1. Slag inclusion, mainly due to electrode sheathing.
2. Pores, due to gas absorption (vapourisation of sheathing).
3. Cracks, due to shrinkage or local hardening.
4. Local burning, due to excessive welding current.
5. Adhesion and root faults, due to the current being too low or the electrode moving too rapidly.

Slag and gas inclusions generally give rise to spherical cavities and if finely dispersed affect the strength of the weld only slightly (no notch effect). In the case of trained welders using modern equipment and suitable electrodes, the chance of producing large inclusions and thus weakening the weld, is practically negligible, and for this reason the authors rule out this source of trouble in the present investigation. On the other hand, faults 3 and 5 (crack and root faults) give rise to considerable notch effects and are considered by the authors as responsible for most of the subsequent failures, especially under fatigue.

Since the samples obtained from the hull or submitted by the welder were generally of high quality and especially free from cracks, the authors prepared additional test pieces in which these faults were exaggerated intentionally. Thus root or adhesion faults were induced by a quick pass of the electrode whilst artificial cracks were prepared by first forming a connection by means of welded-on straps. These were subsequently broken and the plates rewelded with a continuous seam in such a way that the fractured strap surfaces were retained as internal cracks. The position of these cracks was found by X-ray examination and the plate subsequently cut into strips of equal width each incorporating one crack.

The extent of root (adhesion) or crack faults was estimated by projecting the area of such faults (as revealed after test) on a plane at right angles to the axis of the specimen and dividing by the nominal cross-section of test specimen.

Tensile Tests.

About 35 samples were tested, of which 229 (originating mainly from the ship's hull or from the specimen submitted by the welder) showed neither root faults nor internal cracks of the weld when examined after ultimate failure. These so-called " faultless " specimens had an average tensile strength of 54 kg./mm.^{2} (50 per cent. of samples) which is only very little less than average values for the original plate. The scattering of this " faultless " specimen was however relatively large, ranging from 45 to 61 kg./mm.^{2}, whilst the ultimate for steel St. 52 falls between the limits 52-64 kg./mm.^{2}. It is evident that even in the absence of visible root and crack faults, other factors such as the notch effect of the burn or local hardening in the transition zone influence the results. In this connection it should be pointed out that all the welds were tested " as finished " so as to reproduce practical conditions. No attempts were made to improve the weld subsequently, either by milling off the bead or burned zone or by annealing the joint. There is no doubt that such measures would have improved the consistency of the results appreciably.

Effect of Root Faults on Ultimate Tensile.

After eliminating the " faultless " specimen, those showing adhesion or root faults after failure (45 specimens) were collected and their ultimate tensile plotted on a relative " fault size " basis, the latter being estimated from the projected area of the fault as already explained. The " fault sizes " examined varied from 1-15 per cent. of the nominal cross-section and over this range the mean ultimate tensile falls off linearly with increase in fault to about 42 kg./mm.^{2} at

https://doi.org/10.1017/S0368393100141112 Published online by Cambridge University Press

15 per cent. The scatter limits however overlap those of the "faultless" specimen, with the result that fault sizes up to 3 per cent. never produce a weakening below the lower limit of the faultless specimen.

In some cases, even fault sizes of 15 per cent. show an optimum tensile strength within the "faultless" limits.

It is thus obvious that root and adhesion faults must exceed 15 per cent. if their effects are not to be masked by other factors such as the notch effect associated with burning and changes in hardness of the metal surrounding the weld.

EFFECT OF CRACKS ON ULTIMATE TENSILE.

As already stated, the normal work samples were remarkably free from cracks and special specimens incorporating intentional cracks had to be prepared to cover a "fault" range up to 15 per cent. (Total number of specimens=75.) The mean tensile strength diminishes linearly with increase in fault size as before, dropping to 45 kg./mm.^{2} at 15 per cent. The scatter range again overlaps that of the faultless specimen with the result that optimum tensile values with 15 per cent. cracks fall within the range of strength values.

FATIGUE TESTS.

The tests were carried out under pulsating tensile load (zero to maximum) on specimen 45 mm. wide and 400 mm. long.

ROOT AND ADHESION FAULTS.

Eighty-four specimens were tested of which 34 were classed as "faultless," 34 showed faults ranging from 0 to 10 per cent., 8 from 10-20 per cent. and 8 above 20 per cent. (projected area of fault/area of cross-section).

FAULTLESS SPECIMEN.

The average fatigue strength (10^7 load cycles) was of the order of 15 kg./mm.^{2}, *i.e.*, only 28 per cent. of the mean ultimate tensile of the corresponding specimens. For the unwelded plate, the fatigue strength is of the order of 55-60 per cent. of the ultimate tensile which shows again that although the specimen weld was free from obvious root faults and cracks, and conformed otherwise to standard appearance, nevertheless the other factors already mentioned had introduced the equivalence of notch effects and seriously reduced the resistance under varying load.

The variability of these factors is reflected in the scattering of the fatigue strength which varied between 12 and 17 kg./mm.^{2} for the apparently "faultless" specimen.

FAULT GRADING 1-10 PER CENT.

The fatigue strength of all the 34 specimens of this grading fall within the scatter of the faultless specimen so that root faults of this magnitude are again hidden by other factors.

FAULT GRADING 10-20 PER CENT.

The fatigue strength of these 8 specimens fall within the limits 9 and 14 kg./mm.^{2} and thus show a marked deterioration.

FAULT GRADING $>$ 20 PER CENT.

None of the specimens reached a life of 10^7 cycles. A 35 per cent. fault averaged 5×10^6 cycles at 8 kg./mm.^{2}.

From the above it appears that root faults only exert a predominant influence if they exceed 10 per cent. in value.

CRACKS.

Altogether 60 specimens were tested, of which 24 had faults up to 10 per cent., 29 between 10 and 20 per cent. and 7 between 20 and 30 per cent. Whilst the faultless specimen had a fatigue strength lying between 12 and 17 kg./mm.^{2}, faults up to 10 per cent. gave values between 12 and 16 kg./mm.^{2}, *i.e.*, to all intents and purposes identical results. Faults between 10 and 20 per cent. had a fatigue strength lying between 8 and 14 kg./mm.^{2}. A few specimens with larger faults ($\sim$ 30 per cent.) had an average lift of 5×10^6 cycles at 10 kg./mm.^{2}.

The fatigue strength of welds with crack faults is thus very similar to that obtained with adhesion faults of comparable size.

Summing up, it appears that fault sizes have to exceed 10 per cent. before their effect on the tensile and dynamic strength becomes sufficiently large not to be hidden by other factors. The problem naturally arises of determining the possible fault size by non-destructive methods. For this purpose 81 of the static and 125 of the dynamic specimens were X-rayed before the tests and the photographs compared with the visual examination of the weld after destruction.

The results proved most disappointing. In many cases the photographs showed no trace of any fault, although the latter exceeded 15 per cent. About 50 per cent. of the faults appeared only as slight abnormalities on the photographs without any clue as to their length. The length of the fault was reproduced correctly in about 25 per cent. of the cases examined. In no case could a correct estimation of the fault area be made from the photograph.

The mechanical tests have shown that such faults must exceed 10 per cent. before their effects overshadow notch effects due to burning and hardening of the metal surrounding the weld seam. Since root faults and cracks exceeding 10-15 per cent. in projected area are in any case very unlikely to occur in practice, the authors question the utility of the present method of X-ray inspection of ship welding. Till something better has been devised, an ample margin of safety will be assured by working to the lower limit of the test results given in this paper, since on the actual hull any faults in the seam will have the support of the sound sections. In this respect the test specimen worked under much more strenuous conditions.

In conclusion, reference is made to ultra-sonic inspection methods for welds. In theory, such methods should give information on the size of the fault and are thus more promising. They have, however, not yet reached the state of development necessary for application in ship building.

Experiments on the Effects of Transverse Holes, Splines and Diameter Changes on the Torsional Fatigue Strength of Shafts. (W. Herold, Z.V.D.I., Vol. 81, No. 18, 1/5/37, pp. 505-509.) (117/3 Germany.)

The available experiments on fatigue strength lead to the conclusions that fracture occurs whenever the stress at any point exceeds a definite value which is a characteristic of the material.

If σ_n = nominal stress calculated by elementary theory, without allowing for stress concentration factors.

σ_{max} = actual stress peak,

then $\sigma_{max} = \beta_k \sigma_n$,

where β_k = notch effect of material (under fatigue) and is always > 1.

β_k depends on material and geometrical form of section and probably also to some extent on the size of the specimen.

Under static load, a similar relationship between nominal and maximum stress is found to hold, *i.e.*,

$$\sigma_{max} = \alpha_k \sigma_n$$

where α_k = shape coefficient which is generally assumed to depend on the geometrical form of the sections only and can be determined in certain simple cases theoretically. α_k can also be measured experimentally with the help of special small base extensometers or obtained from photoelastic investigations. Finally, the hydraulic or electric tank analogy method can be used. The extensometer measurements are not in very good agreement with the other methods (in this connection see Abstract 117/4) and there is some doubt as to whether d_k does not also depend in practice, to some extent, on the size of the specimen. Further experiments on this point are urgently wanted. β_k (fatigue) is always less than α_k (static) the stress peaks evidently tending to equalise themselves under alternating load (plastic flow).

In addition to α_k and β_k the factor

$$\eta_k = (\beta_k - 1)/(\alpha_k - 1)$$

is of interest. This is called the notch sensitivity, and indicates what fraction of the static stress increase due to the notch is effective in raising the stress under fatigue. It is reasonable to suppose that η_k will depend mainly on the material and could thus be used to estimate β_k provided α_k for the section were known. Published information on this point being rather scanty, the author has carried out torsional fatigue tests on plain and stepped steel shafts of which the tensile strength ranged from over 120 to about 40 kg./mm.^{2}. The maximum diameter D of the shafts was 20 mm. throughout, the ratio d/D thus varying from 1 to .5 (d=diameter of stepped portion). The fillet radius ρ varied from O (infinitely sharp) to 3 mm., thus covering a ρ/d range from O to .24.

(For the infinitely sharp step the transition radius is less than .1 mm.)

Comparison of the fatigue strength of the plain and stepped shafts gave β_k and using published data for α_k, η_k could be calculated for the different sections, on the assumption that α_k depends only on the shape and not on material.

The results show that η_k is practically constant for a given steel and does not depend on the shape of the section (*i.e.*, sharpness of fillet) over the limits investigated. The values obtained ranged from about .4 to .2, depending on the quality of the steel, the higher values generally corresponding to the stronger materials (ultimate tensile $\sim$ 100 kg./mm.^{2}).

It is interesting to note that whilst α_k varies from 1.35 to 5 (the latter figure corresponding to inf. sharp fillet), β_k only varies from 1.08 to 2.5. η_k, on the other hand, is a material constant, the values repeating to within ± 5 per cent. irrespective of shape of fillet.

It should be emphasised that these results primarily apply to samples of the size tested and the possibility of a scale effect on η_k is left open to further investigation.

Following these tests, the author carried out similar investigations on splined shafts. Both 4 and 10 splined sections were tested, the splines covering either the full length of the specimen or limited to roughly one half, the remainder of the shaft being stepped down. The transition radius from the plane to splined section was 10 mm. in all the specimens. In the case of the 10 splines the keyways were well rounded at the base, the side flanks having a small groove in the corner to provide clearance for the grinding wheel. This type of spline was common in motor car rear axles till fairly recently. As was to be expected, the notch effect of such a section is very high, due to the groove effect at the corner of the flank ($\beta_k = 1.92$, *i.e.*, maximum nominal stress of material at base of spline = fatigue strength of solid shaft 1.92). For the 10 splines with well rounded bases, on the other hand, $\beta_k = 1.09$. In both cases external diameter of shaft = 15 mm. diameter at bottom of spline = 11.8 mm. (4 splines), 11 mm. (10 splines), the splines going the full length of the specimen. The advantages of the 10 splines are therefore obvious.

If, as is usual, the splines are cut out of the solid shaft, the stress increase at the bottom of the keyway leads to a wastage of material, since the strength of the solid unsplined section of larger diameter cannot be fully utilised. If,

https://doi.org/10.1017/S0368393100141112 Published online by Cambridge University Press

however, the shaft is stepped down beyond the spline, the stresses in the outside fibres of this section can be made to approach those actually existing in the keyway. This equalisation of stress during power transmission should react favourably on β_k. In order to investigate this further the author carried out fatigue tests with stepped shafts which were only splined on one diameter. The results show that in the case of the 10 splined shaft previously investigated, the stresses became roughly equalised when the diameter of the step approximated to that of the bottom of the keyway. In this case the notch effect practically disappears ($\beta_k < 1.04$). In the case of the more highly stressed 4 spline design, the plain stepped shaft has to be about 10 per cent. smaller than the diameter of the spline base to ensure equal stressing of the two parts. In this case, however, although material is saved β_k is not appreciably affected, this emphasising the deleterious effect of the grinding wheel groove in the corner of the spline.

In conclusion, the author carried out tests on the effect of a transverse hole on β_k and η_k for cylindrical specimen of the same general dimensions as tested previously. The experiments covered five grades of steel, the hole being 3 mm. diameter and the diameter of the specimen 15 mm. The transverse hole is flared out at 45° at each end for a depth of .3 mm. β_k ranged from 1.72 to 2.25, the higher values generally corresponding to the stronger steels (tensile range 43 to 120 kg./mm.^{2}).

Assuming $\alpha_k = 3.4$ from published work, η_k is fairly constant for the range of materials investigated (average value .36).

The fact that the notch sensitivity β_k for transverse holes is so close to the corresponding value for fillets on the same class of steels (average $\beta_k = .30$) seems to indicate that this factor is indeed independent of the geometrical form of the section and reflects a characteristic of the material.

Determination of the Stress Concentration (Shape) Factor of Fillets on Stepped Shafts Under Torsion (Extensometer Measurements). (A. Weigand, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 217-219.) (117/4 Germany.)

The experiments were carried out on stepped shafts with a d/D ratio varying between .5 and .9 and sharpness of fillet ρ/d ranging from .1 to .25 (ρ = radius of fillet, d = diameter of step, D = diameter of shaft).

The shafts were subjected to pure torsion and the principal strains ϵ_1 and ϵ_2 were measured at a number of points along the surface of the step and including the fillet. For this purpose a special photo-electric extensometer with a base length of 1.3 mm. was employed (see Abstract 117/5), and by taking the average of three readings at points situated at 90° along the circumference of any one section, instrumental errors as well as the effect of a slight residual bending moment could be eliminated. (In pure torsion, ϵ_1 and ϵ_2 should be equal but of opposite sign.)

In the case of two-dimensional stress we have:—

$$\sigma_1 = E/(1-\mu^2)\,(\epsilon_1 + \mu\epsilon_2)$$
$$\sigma_2 = E/(1-\mu^2)\,(\epsilon_2 + \mu\epsilon_1),$$

where $\sigma_{1,\,2}$ = principal stresses corresponding to ϵ_1 and ϵ_2.

μ = Poissons ratio $= \frac{1}{2}\,(E/G) - 1$ $(= 1/m)$.

G = modulus of rigidity.

The shear stress τ is then given by

$$\tau = \tfrac{1}{2}\,(\sigma_1 - \sigma_2) = \{\,E/(1+\mu)\,\}\ \{\,\tfrac{1}{2}(\epsilon_1 - \epsilon_2)\tfrac{1}{2}\,\}$$

For the material utilised

$$E = 2.14 \times 10^6$$
$$G = .82 \times 10^6$$
$$\text{and } \mu = .305$$

https://doi.org/10.1017/S0368393100141112 Published online by Cambridge University Press

Therefore

$$\tau = .823\ (\epsilon_1 - \epsilon_2) \times 10^6$$

Putting

τ_0 = constant shear stress in stepped shaft at some distance from fillet,
τ_{max} = max. shear stress in fillet,

the shape coefficient $\alpha_k = \tau_{max}/\tau_0$.

The following table gives the results obtained :—

ρ/d	d/D	α_k (measured)	α_k (calculated)
.25	.5	1.22	1.23
	.67	1.19	1.20
	.82	1.13	—
	.90	1.09	—
.214	.50	1.25	1.27
	.70	1.20	1.22
	.82	1.19	—
	.90	1.10	—
.15	.50	1.36	1.37
	.70	1.28	1.30
	.80	1.23	—
	.90	1.15	—
.11	.50	1.45	1.49
	.60	1.41	1.44
	.70	1.35	1.38
	.80	1.30	1.32
	.90	1.22	—

The calculated values were obtained from the approximate equation of Sonntag:

$$\alpha_k = \beta\ (1.5 + 3\alpha)\ \{\ (1 + 4\alpha)/(1 + 6\alpha)\ \} + (1 - \beta - 2\alpha\beta)\ (1 + 1/12\alpha)$$

where $\alpha = \rho/d$ (sharpness of fillet)

$$\beta = d/D$$

This equation only holds provided $\beta \leqq 1/(1 + 2\alpha)$.

It will be noted that over this range the agreement between theory and experiment is satisfactory.

NOTE.—For a determination of α_k under bending for crankshaft fillets (web-gudgeon pin), see R.T.P. Translation No. 1,831. For these experiments a Junkers optical extensometer with a base length of 1.5 mm. was employed. For a standard Junkers engine crankshaft, α_k at this fillet is of the order of 2.8 (bending).

A Photo-Electric Extensometer with Very Small Working Base. (E. Lehr and H. Granacher, Forschung, Vol. 7, No. 2, April, 1936, pp. 66-74.) (117/5 Germany.)

In order to investigate the stress distribution on the surface of a loaded element, it is essential that the strain measurements be carried out over a very small base length (1-2 mm.) in order to ensure that peak values due to irregularities in the stress shall be properly recorded (fillets, notches, etc.). This necessarily entails very high orders of magnification if stresses of the order of .1 kg./mm.^{2} have to be estimated from the corresponding strains. Thus, in the case of steel subjected to single axis stress, a change in stress of 1 kg./mm.^{2} alters a 2 mm.

base by about 10^{-4} mm. A magnification of the order of 10 to 50,000 is thus required in order to obtain a reasonable size scale deflection of the extensometer.

In the extensometer devised by the author, a magnification of this order is obtained mainly by photo-electric means, the direct mechanical magnification being only of the order of 50.

The instrument depends on the variation in the amount of light transmitted through a narrow slot with change in width of the latter, the slot being mechanically linked to the mobile base point of the extensometer. The change in light transmitted is measured photo-electrically on a microammeter, the sensitivity of the photocell being such that a change in slot width of 1/200 mm. and subjected to compression loads up to 3,000 kg. (max. contraction $\sim$ 1.4 mm.). gives a scale deflection of about 3 mm. With the mechanical linkage of 50/1 between slot and base, this corresponds to an overall effective magnification of 30,000 which can easily be doubled by substituting a more sensitive galvanometer for the microammeter.

The instrument naturally depends on the source of illumination maintaining constant intensity over reasonable periods and this is ensured by very accurate current control. The instrument is calibrated on a tensile test machine against a standard Huggenberger 10 mm. base extensometer and it is stated that calibrations taken at the beginning and end of a test series (some of which lasted 3-4 days) did not differ by more than 1-2 per cent.

In order to investigate the possibilities of the new extensometer, a very complete investigation on the stress distribution over the surface of a heavy conical disc spring was carried out. This spring had a plate thickness of 10.42 mm. and an external diameter of 229 mm., with a central hole of 90 mm. diameter (spring constant 40,150 kg./cm.).

Two identical springs of this type were placed in series in a testing machine

Starting at the inner edge, extensometer measurements of the radial and circumferential strain (ϵ_r and ϵ_u), were carried out at 19 stations covering the distance between the inner and outer edges of the disc (7 cm.).

From these strain measurements the corresponding stresses were calculated from well known relations (two dimensional stress):—

$$\sigma_u = E/(1-\mu^2)\ (\epsilon_u + \mu\epsilon_r)$$
$$\sigma_r = E/(1-\mu^2)\ (\epsilon_r + \mu\epsilon_u)$$

where μ = Poisson's ratio = .3. The equivalent resultant stress was also calculated at each station from the formula

$$\sigma_{res} = \sqrt{(\sigma_u^2 + \sigma_r^2 - \sigma_u \cdot \sigma_r)}.$$

The results are given in tabular form for a net axial load of 3,000 kg., readings taken with a Huggenberger extensometer being also inserted for comparison. The results obtained with the two types of extensometer are in reasonable agreement at distances between 7 and 10 mm. from the inner edge. As was to be expected, the Huggenberger instrument, with its longer base, underestimates the circumferential stress peak at the inner edge by about 600 kg./mm.² (4,300 against 4,900 kg./mm.² with photoelectric) a similar difference between the two instruments exists at the outer edge of the spring, the shorter base instrument again giving the higher reading (397 against 271 kg./mm.²).

The author has also calculated the principal radial and circumferential stresses, using the flat plate approximation.

It appears that both the spring constant and the maximum stress at the inner edge (central hole) can be predicted with sufficient accuracy by this theory (resultant stress = 4,715 kg./mm. calculated against 4,960 observed and spring constant = 43,700 kg./cm. calculated against 40,150 kg./cm. observed).

The calculated stress does not, however, diminish as rapidly with increasing distance from central hole as is indicated by the experimental values.

Thus, at the outer edge, the theoretical resultant stress is still 1,500 kg./mm.^{2} whilst the experimental value is only 400.

Evidently the flat plate theory breaks down under these conditions. It is proposed to repeat the calculations making use of the theory of conical shells, when better agreement is to be expected.

An Electrical Fuel Reserve Meter for Aircraft. (R. Czerlinski and J. Zeyno, L.F.F., Vol. 20, Nos. 8-9, 16/10/43, pp. 263-267.) (117/6 Germany.)

The instrument estimates the fuel content of the tank by direct weight and for this purpose the tank is suspended by a system of electrically recording spring balances, based on the change in resistance principle. In order to compensate acceleration effects, the readings of the balances are not taken directly but are compared with those of a second balance loaded with a constant weight of a few grams and undergoing a deflection of the same order as the main balance under static conditions. If both balances are placed in close proximity, the ratio of their readings is independent of acceleration and inclination.

The main balances are designed by the authors to conform in their outer shape to the suspension bolts of the aircraft fuel tank. The exchange can therefore be carried out on standard designs without difficulty. The gauges consist essentially of stiff tubular springs having an extension of about .05 mm. for 100 kg. load. This change in dimension is transmitted to a constantan wire (.06 mm. thick) which is fixed to the tube in such a way that an increase in tank weight causes a reduction in the tension of the wire, the accompanying resistance change being recorded electrically. The preliminary tension in the resistance wire can thus be adjusted near to the elastic limit of the wire without danger of the wire breaking due to overload and the sensitivity of the recorder is a maximum. With an initial resistance of 36 ohm, the change of resistance is of the order of 60×10^{-3} ohm for a load change of 100 kg. (.05 mm. deflection). The initial tension is rendered independent of temperature change (difference in expansion of tubular spring and wire) by incorporating an invar steel compensating link. The effect of temperature change on the resistance of the wire itself is allowed for by placing a second similar wire (unstretched) inside the tubular spring (oil filled) and having the two wires in opposite arms of a Wheatstone bridge.

The inertia compensating balances are of very simple construction, the constantan wire being loaded directly with a 30 gm. weight. The effect of temperature on the resistance is allowed for as before by a second unstretched wire in the opposite arm of a bridge. Normally, the tank is suspended by means of six balances, three a side, the recording and compensating wires being suitably joined to form a single bridge circuit.

A similar circuit is formed by the two inertia compensating balances, the two bridges being finally linked so that the out-of-balance current corresponding to the ratio of the loads can be measured on a moving coil instrument. For this purpose each bridge was connected to a special Siemens bolometer relay giving an amplification between 2 and 4 mA. per mV. These relays have straight line characteristics up to 15 mA. and are stated to be independent of changes in the supply voltage of both bridge and relay circuits. The power consumption of the fuel weight meter is of the order of 15 Watts and thus can be easily supplied by the aircraft battery.

Laboratory and subsequent flight tests have shown that the recorder functions satisfactorily for inclination of the aircraft up to 50° and inertia effects up to 3 g.

Due to the small thermal lag in the bolometer amplifier, effects due to vibration of the aircraft are largely damped out and the fuel content of the tank estimated correctly to within ± 3 per cent.

Triptane—a New Fuel of High Octane rating. (Chemical and Engineering News, Vol. 21, No. 18, September 25, 1943, pp. 1560 and 1562.) (117/7 U.S.A.)

Triptane or 2, 2, 3-trimethylbutane has been known as a laboratory curiosity for a considerable time. Its production involved the use of zinc dimethyl (Grignard reaction) and the small yields obtainable rendered the product very expensive ($40 a gallon). On account of its exceedingly high knock rating (ON $\sim$ 150), possible commercial methods of manufacture have been studied and it is now claimed that a catalytic process has been evolved which utilises certain gaseous by-products of cracking and reforming plants and which will cut down the cost of triptane to about $1 a gallon.

The pilot plant has been in operation for 300 hours with no indication of decline of catalyst activity.

The process, in addition to triptane, yields two other valuable hydrocarbons: 2, 3 dimethylbutane and 2, 3 dimethylpentane, which are superior to alkylates as blending agents for aviation petrol.

The density of triptane is .69 and its melting point -25°C. The use of the pure material as an aviation fuel would thus require special anti-freeze precautions. It is stated, however, that a blend of 85 per cent. triptane and 15 per cent. petrol has a freezing point of -78°C.

The following table gives some of the physical constants of these new fuels:—

Compound.	Boiling Points.	Melting.	Density.
2, 3 dimethylbutane	58°C.	-128°C.	.66
Triptane (2, 2, 3-trimethylbutane) ...	81°C.	-25°C.	.69
2, 3 dimethylpentane	89.7°C.		.69

The Corrosion Resistance of Cladded Al-Zn-Mg Alloys. (W. Bungardt, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 207-209.) (117/7 Germany.)

The corrosion resistance of Al-Zn-Mg alloys containing little or no copper (so-called Hydronalium) is higher than that of Al-Cu-Mg alloys of the Dural class, whilst their original strength is of the same order ($\sim$ 45 kg./mm.^{2}). Dural cladded with Al is, however, superior to the Hydronalium over long exposure periods, provided the material has been age-hardened at room temperature. Hot age-hardening, on the other hand, largely destroys the benefits of the cladding (copper diffusion from the parent Dural sheet into Al covering).

The question naturally arises whether the corrosion resistance of the Hydronalium alloys could also be further improved by cladding. Tests have shown that cladding with aluminium produces no beneficial results in this case. If, however, a second Al-Zn-Mg alloy is used, a corrosion resistance equivalent to that of Al cladded Dural can be obtained in all cases, with the additional advantage that the cladded material can be used either in the cold or hot age-hardened condition without affecting the corrosion resistance.

The sheet for cladding purposes has the following per cent. composition:—

Zn	Mg	Mn	Fe	Si	Al
2.68	.62	.18	.01	.07	rest

The composition of the parent sheet is given below, the two alloys only differing in copper content. The composition of Dural is given for comparison.

Alloy	Zn	Mg	Cu	Mn	Fe	Si	V	Cr	Al
1	4.35	1.52	1.55	.15	.12	.08	.12	—	rest
2	4.35	3.51	.27	.30	.08	.09	—	.25	,,
Dural	—	.99	3.42	1.00	.50	.44	—	—	,,

The corrosion tests covered a period of 200 days and were carried out by the D.V.L. standard methods (stirring and intermittent immersion both for plain and looped specimen—the letter for stress corrosion effect).

The specimen sheets were 1 mm. thick with a cladding of .05 mm.

The original mechanical properties of the cladded materials are given below.

Alloy	Condition	Yield Point Kg./mm.²	Ultimate Kg./mm.²	Extension (10) %
1	*a*	27.0	42.3	21.1
	b	33.2	40.7	13.2
2	*a*	30.0	48.1	20.6
	b	42.5	48.6	11.0
Dural	*a*	26.6	43.7	19.7
	b	31.0	43.3	14.6

(*a*) Cold aged (room temperature).
(*b*) Hot aged (120° for 24 hours for alloys 1 and 2).
,, (160° for 72 hours for Dural).
Cladding for (1) and (2)—special alloy already discussed.
Cladding for Dural—99.5 per cent. Al.

It will be noted that alloy 2, condition *b*, is especially attractive for its high yield point.

The Weibel Process of Electric Welding in Aircraft Construction (Indirect Resistance Method). (F. Helbring, Luftwissen, Vol. 10, No. 7, July, 1943, pp. 198-201.) (117/9 Germany.)

The Weibel process makes use of special copper sheeted carbon electrodes which are carried in a V shaped water-cooled clamp held by the operator and slowly passed over the flange requiring welding, the metal acting as a bridge between the electrodes.

The process is specially suited for light alloy sheets .2 to 2 mm. thick, and excellent welds can be obtained in all materials amenable to gas (fusion) welding or the arc atom process (pure Al, Dural, Electron, Al-Si-Mg, etc.).

The distinctive features of the process are the electrode holder and the special shape of tip utilised.

The power consumption is very small, 50-250 amps at 3.5 to 8 volts, and can be obtained through a small transformer fed by the 220 or 380 3-phase A.C. supply.

The electrode holder is water-cooled and easily manipulated by hand. The two copper sheeted carbons (220 mm. long and 10 to 30 mm. diameter) are gripped at about 60 mm. from the tip so that their axes are inclined at 20°. Special attention is paid to the shape of the tip which is in the form of a double wedge, the inner flat surfaces forming an angle of about 15° with the direction of motion of the holder, whilst the outer sides are at about 30° to the sheet undergoing welding. The separation of the electrodes is effected by hand pressure (return spring incorporated in handle). The sheets to be welded are first flanged at 90°, the height of the flange depending on the thickness of the sheet. Great care has to be taken on the accurate fit of the parts, the success of the operation depending largely on this factor. After a preliminary cleaning (mechanical or chemical), a suitable flux (*e.g.*, Autogal, Firinit, etc.) is applied to the upper surface only and the electrodes separated to grip the flange. Due to the wedge shaped tip, contact is limited to a very small area leading to a rapid melting of the flange at this point. The passage of the electrode at a suitable speed by hand completes the seam, which can be up to 1,000 mm. long before the electrode requires cleaning. Control of the weld is much facilitated by imparting a slight vibratory (up and down) motion to the electrodes. This is effected by incorporating an out-of-balance mass into the electrode holder, this mass being operated by the cooling water. The vibration of the electrodes results into the seam assuming a fish scale appearance (length of steps about 3 mm.) instead of being uniform, and this is stated to be a special advantage when welding very thin sheet (.2 mm.). The special tapering of the electrodes employed in the Weibel process confines the softening effect of the heat supply to a narrow zone (about 20 mm. width) and this, together with the ease of operation, constitutes one of the main advantages of the process. Experience has shown that the Weibel process yields very consistent values for the tensile strength of the weld, and that the values are generally higher than those obtained by gas fusion for the same material. Even if the seam is not subsequently machined, the strength of the weld is generally within 10 per cent. of that of the parent material. At the same time the welds are stated to be highly resistant to corrosion. As already stated, the Weibel process is specially attractive for thin sheet metal work (flange welding) and various examples are illustrated. In a subsequent article, the fabrication of but-welds by the same process will be described, as well as an automatic welding machine, incorporating the Weibel process.

New Miniature Electric Arc Welding Appliances. (Luftwissen, Vol. 10, No. 7, July, 1943, p. 202.) (117/10 Germany.)

The miniature welding appliances brought out by Siemens and Halske are intended to replace soldering previously employed in instrument manufacture. This not only leads to a considerable economy in tin, but the work is speeded up since the rather complicated cleaning of the joint, which is essential in soldering, is now much simplified. Thus, when connecting up wire spools by welding, the insulating lacquer on the wire need not now be removed.

The welding unit is supplied in three sizes, the smallest being specially intended for the welding of wires ranging from .02 to .5 in diameter. The largest size will handle cross sections up to 10 $mm.^2$. In each case the transformer is plugged into the ordinary A.C. supply (220 or 110 volt).

The welding tool is no larger than the corresponding soldering iron, and carries a carbon electrode, the second electrode being formed by the work piece which is held in a special clamp.

The attachment of the carbon electrode in the holder is very ingenious.

For the welding of very small wires the electrode is attached to the end of a reed which vibrates in step with the A.C. supply through the agency of an electro-magnet.

The reed is carried inside a steel tube provided with a lateral hole towards which the electrode vibrates, and which faces the joint to be welded. A condenser in circuit with the magnet ensures that the arc is struck at the instant at which the P.D. between carbon electrode and work piece has reached the high value necessary for welding.

For slightly heavier work an alternative tool with a central carbon electrode attached to an iron plunger is used. In this case the tubular container finishes off with a ceramic guide and perforated welding head.

The arc is struck at will by an electro-magnet which surrounds the plunger.

In both types the carbon electrodes are easily replaceable.

In principle, all the heavy metals can be welded, the easiest welds being of copper with copper, bronze, silver and nickel.

For Al. welds a special carbon electrode is provided.

Electrolytic deposits do not affect weldability provided such deposits do not melt.

Thus tin or zinc deposits on iron or steel are unsuitable. Brass is best welded when in its natural state, although galvanic deposits do not offer pronounced difficulties.

Non-conducting deposits on Al. (such as anodic or phosphate layers) must be removed prior to welding.

A Photo-Electric Torsiograph. (W. Spillmann, Schweizer Archiv., Vol. 8, No. 8, August, 1942, pp. 252-255.) (117/11 Switzerland.)

The torsiograph operates on the stroboscope principle, the relative displacement of two flywheels being measured by the amount of light transmitted through suitably spaced slots. For this purpose, the two flywheels are in the form of hollow drums, which rotate one inside the other. The drums are closed at one end and their supporting shafts are in line, but face in opposite direction. The inner drum is very light and provided with a belt drive to the shaft under investigation, or can be driven directly from the end of this shaft. The second drum is heavy and acts as a reference inertia mass. It is driven from the first drum by means of a radial spring member, the relative motion being limited to $\pm 5^\circ$ by means of a stop. Both drums are fitted with 12 slots inclined at 45° to the axis, the external drum slots being illuminated by a close fitting ring carrying 11 miniature electric light bulbs. The light entering the inner drum is caught by a mirror (paraboloid of revolution) attached to the solid end of the drum and reflected on to a stationary photo-cell (cæsium gas-filled) supported inside the hub of the inertia drum. The time lag of this cell is so short that it can be neglected.

The photoelectric current is observed by means of a cathode ray oscillograph, a polar diagram being preferable on account of the simple relationship between r.p.m. and harmonic order. The basic circle for this diagram is obtained by generating a sine vibration of shaft frequency which is then split up into two components at 90° phase difference and which are passed to the first control grid of a special amplifier and then suitably applied to the two pairs of deflection plates of the oscillograph. The photo-cell controls through a second valve grid the anode current in step with the torsional vibrations.

The amplifier has a linear scale over the frequency range 1 to 10,000 cycles/sec. Calibration is effected in a simple manner by oscillating the torsiograph by hand through a known angle.

The natural frequency of the inertia mass of the instrument is of the order of 3.8 sec., and the amplitude of low frequency vibrations ($\sim$ 20/sec.) are recorded correctly to within 3 per cent. For higher frequencies the error is negligible.

The natural frequency of the belt drive can also be made sufficiently high to have no effect on the measurements.

A direct friction drive can also be utilised, the torsiograph pulley being provided with an outer covering of thin rubber for this purpose.

Direct comparison of the readings of the new photo-electric torsiograph with other known types (mechanical Geiger or electrical capacity type) on a special test bench has shown that the readings are consistent and trustworthy. Its employment on Diesel and aircraft engines has similarly demonstrated its robustness. It might be objected that the finite number of slots and lamps necessarily introduce a light flicker even in the absence of slot width changes (*i.e.*, no torsional vibration). This so-called optical frequency is given by

$$f_{opt} = n/60 \{ 1/(1/z_1 + 1/z_2) \}$$

where n = r.p.m.
z_1 = number of point sources of light.
z_2 = number of slots.

With $z_1 = 11$.
$z_2 = 12$.

f_{opt} is of the 132nd order, which should be negligible in the case of small amplitudes.

It must, however, not be forgotten that the above calculation applies to point sources or narrow slots.

https://doi.org/10.1017/S0368393100141112 Published online by Cambridge University Press

By frosting the bulbs in a special manner and interposing a thin cylinder of ground glass between the lights and the external series of slots, the light flicker at constant slot width can be completely eliminated.

Spot Welding of Aluminium Alloys in Aircraft Construction. (A. V. Zeerleder, Inter. Avia., No. 879-880, 9/8/43, pp. 1-7.) (117/12 Switzerland.)

The welding of heat hardened Al. alloys in aircraft construction is attractive from the point of view of production if the dangers due to softening of the material at the seam and change in structure of the sheet in the neighbourhood of the weld could be overcome.

Spot welding appears to offer special advantages in this connection since the heat is localised and only applied for a short period ($\sim$ 1/10 sec.).

The subsequent cooling is very rapid (heat conduction to the surrounding material) and the small size of the annular softened region should not produce a serious drop in strength.

Test figures show that this is indeed the case and that provided the welding machine is controlled properly, spot welds of high and consistent strength can be obtained.

According to the author, the following average shearing strength in kg. per spot should be obtainable under these conditions.

Thickness of sheet (m/m.)	Metal Pure Al (hard).	Avienal (Al-Cu-Mg) age hardened.	Anticorodal (Al-Mg.Si) age hardened.	Peraluman (Al-Mg) (soft).
·5	50	100	100	100
1	100	190	150	200
2	220	320	380	480
3	250	430	480	—

The scatter of the test result depends on the sheet thickness, and in the case of Avional (Dural) amount to about ± 20 per cent. for .5 mm. and ± 15 per cent. for 3 mm. sheet. If for the same material we assume the specific strength of the 1 mm. present sheet as 100 per cent., the strength of the welding point decreases from 105 per cent. (.5 mm. sheet) to 70 per cent. for the 3 mm. sheet. The specific strength of the weld thus decreases with increase of sheet gauge.

As regards the spacing of the spots, similar considerations to those holding for riveting apply. The closer the spacing, the greater the proportion of current lost by shunt action of its neighbouring spot. For 1 mm. gauge, a 20 mm. spacing is recommended.

For sheet gauges up to 1.5 mm. and in the absence of excessive fatigue loads, spot welding may replace the much more expensive riveting in aircraft construction besides speeding up production considerably.

This, however, only applies if the process can be accurately controlled under practical conditions. Lack of such control in the past has caused the strength of individual spot welds in light alloy to vary in the ratio of 5 to 1 in practice (as distinct from laboratory results) leading to a rejection of the process in this important field, whilst the spot welding of iron sheet has already been adopted extensively.

The main difficulty with light alloys is the close approach of necessary welding temperature to the melting point of the alloy combined with the great heat conductivity of the material. (In the case of steel the melting point exceeds the welding temperature by 400°C.) The spot welding of light alloys thus necessitates the passage of very heavy currents for very short periods. Whilst 1 mm. sheet iron can be satisfactorily spot welded with a maximum current of 10,000 amps., the light alloy requires 18,000 amps. for the same thickness, increasing to 28,000 amps. for 2.5 mm. gauge.

According to the author, complicated welding programmes in which the current is both variable and intermittent (electronic control) are not justified by practical results. All that is required is the maintenance of a constant current amplitude over a definite number of cycles (both factors depending on nature and thickness of material).

Since the heat generated depends on the contact resistance, great care must be taken to remove any oxide layer on the sheets. The author recommends strongly that the welding machine be fitted with some form of current indicator, so that variation of the current from optimum values be immediately detected and the machine blocked. Besides time (*i.e.*, number of cycles) and current, the contact pressure between the electrodes (water-cooled copper) and the sheet requires careful control. Excessive pressure dimples the metal whilst insufficient pressure causes arcing and highly undesirable alloying of the copper electrodes with the sheet.

For 1 mm. sheet, the author recommends a contact pressure of 250 kg. using 5 mm. electrodes. This pressure is usually applied hydraulically and maintained constant during the welding period. A more complicated pressure programme, advocated in some quarters, in which a preliminary pressure of 600 kg. is applied prior to the passage of the current and followed by an equally high pressure after the completion of the weld (which is carried out at 300 kg.) yields no better results according to the author.

Providing the welding machine is of sufficient output and the current, time and pressure controlled to the limits required, the author feels confident that consistent results can be obtained for sheet metal gauges between .5 and 1.5 mm.

The article concludes with a useful bibliography (18 items).

LIST OF SELECTED TRANSLATIONS.

No. 63.

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

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

AERO AND HYDRODYNAMICS.

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
1930	Holst, E.	*Measurement of the Aerodynamic Forces on Small Oscillating Wing Models.* (L.F.F., Vol. 20, No. 5, 16/6/43, pp. 137-146.)
1936	Helmbold, H. B. ... Keune, J.	*Contribution to the Profile Theory, Part III.* (L.F.F., Vol. 20, No. 5, 16/6/43, pp. 152-170.)
1937	Krahn, E.	*Calculation of the Second Janzen-Rayleigh Approximation of the Compressible Flow Past a Profile.* (L.F.F., Vol. 20, No. 5, 16/6/43, pp. 147-151.)
1940	Hantzsche, W. ... Wendt, H.	*The Effect of Compressibility on Thin Slightly Cambered Profiles at Subsonic Speeds.* (Z.A.M.M., Vol. 22, No. 2, April, 1942, pp. 72-86.)
1960	Helmbold, H. B. ... Keune, F.	*Contributions to the Profile Theory, Part V.* (L.F.F., Vol. 20, No. 6, 30/6/43, pp. 192-195.)

AIRCRAFT AND AIRSCREWS.

1929	Nagel, M.	*Photographic Method for Investigating Short Period Rolls of Photographic Reconnaissance Aircraft.* (Luftwissen, Vol. 10, No. 2, Feb., 1943, pp. 36-37.)
1939	Zuerl	*Horten All-Wing Gliders.* (Der Flieger, Vol. 22, No. 4, April, 1943, pp. 108-109.)
1941	——	*Nozzle Propellers.* (Flugsport, Vol. 35, No. 8, 21/4/43, pp. 92-95.)
1973	——	*Gotha GO. 147 Tailless Aircraft.* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 108.)
1974	Tank, K.	*High Performance Fighters.* (Luftwissen, Vol. 10, No. 4, April, 1943, pp. 99-103.)

ENGINES AND FUELS.

1933	Kouba, H.	*Measures for Ensuring Reliability of Aircraft Engines.* (Luftwissen, Vol. 10, No. 2, Feb., 1943, pp. 38-42.)
1935	Gnam, E.	*Experimental Determination of the Blade Temperature of Gas Turbine Under Load.* (Luftwissen, Vol. 10, No. 4, April, 1943, pp. 110-113.)

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
1959	Schwarz, H. ...	*Design Characteristics of Modern Enemy Aero Engine Pistons (British, American, Russian and French).* (Luftwissen, Vol. 9, No. 10, Oct., 1942, pp. 283-289, and No. 11, November, 1942, pp. 320-328.)
1962	Penzig	*Mixture Distribution and Volatility of Fuels.* (Z.V.D.I., Vol. 85, No. 11, March, 1941, pp. 273-274.)

MATERIALS.

1932	Tager, A. ... ... Kargin, V. A.	*Investigation into the Reversibility of Solutions of Nitrocellulose, Benzylcellulose and Gelatine.* (J. Phys. Chem., U.S.S.R., Vol. 15, No. 9, 1941, pp. 38-42.)
1938	Kargin, V. A. ... Slonimsky, C. L.	*Physical Properties of High Polymers.* (J. Phys. Chem., U.S.S.R., Vol. 15, No. 9, 1941, pp. 1022-1028.)
1968	Tager, A. ... ... Kargin, V. A.	*The Solubility and Swelling of Cellulose Eshers.* (J. Phys. Chem., Vol. 15, No. 9, 1941, pp. 1035-1053.)
1972	Dies, H.	*The Influence of Carbide Formers on the Yield Point on Steel at Room Temperature.* (Archiv. f. das Eisen, Vol. 16, No. 9, March, 1943, pp. 333-340.)

ELASTIC THEORY.

1943	Dehlinger, M. ...	*Absolute and Potential Creep Strength in Relation to Fatigue Strength.* (Z. fur Metallk., Vol. 32, No. 6, June, 1940, pp. 199-200.)
1969	Haas, B.	*The Behaviour of Material and Structures Under Static and Dynamic Stresses.* (Luftwissen, Vol. 8, No. 11, Nov., 1941, pp. 338-343.)

PRODUCTION.

1954	——	*Lead Mallet for Swaging Electron Metal (Workshop and Aerodrome Notes).* (Flugsport, Vol. 33, No. 25, 10/12/41, pp. 479-481.)
1956	——	*Adapter for Closing Inaccessible Rivets (Workshop and Aerodrome Notes).* (Flugsport, Vol. 33, No. 25, 10/12/41, p. 480.)
1957	Heyes, J. ... ... Lueg, W.	*A New Method for Defining the Surface Qualities of Materials.* (Report of the K.W. Inst. f. Eisen, Dusseldorf; 18/10/41, Vol. 34, No. 3, 1942, Treatise 430.)
1970	——	*Bidurit Hard Metal Tools.* (Handbook.)

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.

Tactics and General Strategy.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
1	13223	U.S.A. ...	*The Truman Report on American Aircraft and Output.* (Flight, Vol. 44, No. 1,806, Aug. 5, 1943, pp. 141-142.)
2	13247	G.B.	*The Work of the Royal Observer Corps.* (C. G. Grey, Aeroplane, Vol. 65, No. 1,682, 20/8/43, pp. 209-211.)
3	13285	G.B.	*Balance Sheet of Area Bombing.* (P. G. Masefield, Aeroplane, Vol. 65, No. 1,681, 13/8/43, pp. 183-187.)
4	13294	U.S.A. ...	*Invasion Communications. The Work of Signal Corps.* (R. L. Sigerson, Scientific American, Vol. 169, No. 2, Aug., 1943, pp. 53-55.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
5	13310	G.B. ...	... *R.A.F. Mark Target Areas with "Rings" of Green Flares (German Report).* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 220.)
6	13313	G.B. ...	... *R.A.F. Set Up Air Cover from Landing Grounds on Sicily (Photographs).* (Flight, Vol. 44, No. 1,809, 26/8/43, pp. 226-227.)
7	13318	U.S.A.	... *Theories of Air Power—An American Analysis.* (F. A. de V. Robertson, Flight, Vol. 44, No. 1,809, 26/8/43, pp. 234-235.)
8	13319	G.B. ...	... *Tonnage of Bombs Dropped on Germany (Air Ministry Figures).* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 236.)
9	13338	Sweden	... *Sweden's New Air Traffic Company.* (Flight, Vol. 44, No. 1,808, 19/8/43, p. 191.)
10	13341	Italy ...	... *Italy's Air Power.* (V. L. Gruberg, Flight, Vol. 44, No. 1,808, 19/8/43, pp. 193-196.)
11	13348	Germany	... *German Views of Allied Invasion of Sicily.* (Flight, Vol. 44, No. 1,808, 19/8/43, pp. 197-199.)
12	13522	U.S.A.	... *Truman Committee Report on U.S. Aircraft and Production.* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, p. 60.)
13	13564	U.S.A.	... *23½ Billion Dollars Appropriation for A.A.F.* (K. E. Johnsen, American Aviation, Vol. 7, No. 3, 1/7/43, pp. 33, 36, 41.)
14	13569	U.S.A.	... *Fundamentals of Air Fighting.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 24-27.)
15	13593	U.S.A.	... *Natal Aircraft Base.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 86, 167.)
16	13623	G.B. ...	... *The Rôle of Naval Aircraft in the Capture of Madagascar.* (B. J. Hurren, Aeronautics, Vol. 8, No. 6, July, 1943, pp. 31-33.)
17	13861	Germany	... *German White Paper on Allied Raids.* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 133.)
18	13951	G.B. ...	... *The Dive Bomber. Its Restricted Value.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 32.)
19	14132	G.B. ...	... *The Bombing of the Ploesti Oil Fields.* (Petroleum Times, Vol. 47, No. 1,202, 21/8/43, pp. 423-425, 451.)
			Training and Research.
20	13201	U.S.S.R.	... *Russia's Fighter Command.* (M. M. Gromov, Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, pp. 27-28, 146-147.)
21	13212	U.S.A.	... *Training School for Bombardiers.* (F. J. Rilling, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 52-54.)
22	13290	U.S.A.	... *The Soulé-Ratkin Pre-Flight Trainer (Simulates Actual Flying Conditions).* (A. Klemin, Scientific American, Vol. 169, No. 2, Aug., 1943, p. 88.)
23	13525	G.B. ...	... *The Rolls-Royce Aero Instruction School.* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, pp. 70-71.)
24	13528	G.B. ...	... *Study and Training in the W.A.A.F.* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, p. 79.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
25	13562	U.S.A. ...	*New Aircraft Recognition Systems Adopted by U.S. Navy.* (American Aviation, Vol. 7, No. 3, 1/7/43, p. 26.)
26	13575	U.S.A. ...	*Aircraft Recognition Hints.* (S. W. Gardner, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 60, 169-170.)
27	13591	G.B.	*Air Transport Command of the R.A.F.* (E. C. Shepherd, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 37, 173.)
28	13630	France ...	*Fighting French Air Lines.* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 49.)
29	13768	G.B.	*Training of Telegraphist Air Gunner.* (J. Russell, Aeronautics, Vol. 8, No. 5, June, 1943, pp. 54-55.)
30	13799	G.B.	*School for Air Gunners.* (Flight, Vol. 44, No. 1,802, 8/7/43, pp. 46-48.)
31	13810	G.B.	*De Havilland Technical Training.* (Flight, Vol. 43, No. 1,801, 1/7/43, p. 13.)
32	13811	G.B.	*Sperry School.* (Flight, Vol. 43, No. 1,801, 1/7/43, pp. 18-19.)
33	14084	Sweden ...	*Swedish Research.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 252.)

Design Features of Military Aircraft.

34	13167	U.S.A. ...	*Protective Engineering for Delicate Military Equipment (Mounting Instruments and Other Vital Equipment in Planes, Tanks and Ships).* (P. C. Roche, Mechanical Engg., Vol. 65, No. 8, Aug., 1943, pp. 581-587.)
35	13224	Italy	*Italian Device to Prevent the Loss of Lateral Stability in Aircraft.* (C. Santangelo, Flight, Vol. 44, No. 1,806, August 5, 1943, p. 143.)
36	13228	G.B.	*Standardisation of Aircraft Controls.* (Flight, Vol. 44, No. 1,806, August 5, 1943, pp. 146-147.)
37	13246	U.S.S.R. ...	*Russian Aircraft Timbers.* (Aeroplane, Vol. 65, No. 1,682, 20/8/43, p. 202.)
38	13272	G.B.	*Pilot's Plastic Seat.* (Aircraft Production, Vol. 5, No. 59, Sept., 1943, pp. 429-430.)
39	13565	U.S.A. ...	*New Device for Facilitating Night Landings (Small Mirror Reflecting Light when Plane is Three Feet from Ground).* (American Aviation, Vol. 7, No. 3, 1/7/43, p. 65.)
40	13624	G.B.	*The Ideal "Tank Buster."* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 34.)
41	13776	U.S.S.R. ...	*Soviet Aircraft Designers.* (Aeronautics, Vol. 8, No. 5, June, 1943, p. 70.)
42	13837	Germany ...	*The Structures of German Aeroplanes.* (M.A.P. Reports on Enemy Aircraft, Aug., 1943.)
43	13855	U.S.A. ...	*Lockheed Airdraulics and Hydraulics.* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, pp. 125-127.)
44	13872	U.S.A. ...	*Aircraft Armour—An Analysis of the Defences Required for Protection in Combat.* (H. J. Alter, Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 91-95.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
45	13989	U.S.A.	...	*Auxiliary Gasoline Tanks Suspended Under Wing of Lockheed Lightning P. 38 (Steel Tank Weighing 90 lb. Carries 1,000 lb. of Fuel).* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 41.)

Equipment of Military Aircraft.

46	13211	U.S.A.	...	*Protecting Flyers Against Cold.* (D. O'Herty, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 51, 108-112.)
47	13214	U.S.A.	...	*Garment Parachute (Patent).* (R. Carter, Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 56.)
48	13244	G.B. ...	...	*Airborne Lifeboat (Photograph).* (Aeroplane, Vol. 65, No. 1,682, 20/8/43, p. 202.)
49	13245	U.S.A.	...	*New Type of Stretcher for Transporting Sick and Wounded by Air (Photo).* (Aeroplane, Vol. 65, No. 1,682, 20/8/43, p. 203.)
50	13735	G.B. ...	...	*Body Armour for Bomber Crews.* (Air. Tech., Vol. 3, No. 1, 15/7/43, p. 8.)
51	13292	U.S.A.	...	*Life Raft Automatically Ejected from Forced Down Plane.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 90.)
52	13307	G.B. ...	...	*Airborne Lifeboats Dropped by Parachutes.* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 217.)
53	13588	U.S.A.	...	*Portable Aircraft Starter.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 112.)
54	13806	U.S.A.	...	*Flak Jacket for U.S. Air Crews.* (Flight, Vol. 43, No. 1,801, 1/7/43, pp. 6, 11.)
55	14089	Germany	...	*Axis Equipment Used During the Final Stages of the North African Campaign.* (Flight, Vol. 44, No. 1,810, 2/9/43, pp. 257-261.)
56	14097	G.B. ...	...	*Paper Parachutes for Emergency Supplies.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 264.)

Armament and Explosives.

57	13208	U.S.A.	...	*The Aerial Bomb.* (S. R. Stribling, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 38-40, 112-114.)
58	13280	U.S.A.	...	*External Bomb Racks for Flying Fortresses (Photograph).* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 172.)
59	13299	U.S.A.	...	*Ball Powder—Smokeless Propellant, Made Under Water.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 59.)
60	13387	G.B. ...	...	*Slow Combustion Cartridge Emergency System.* (H. D. Shaw, Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 159.)
61	13774	G.B. ...	...	*Automatic Supply of Charged Magazines to Guns in Turrets of Aircraft (Boulton Paul Patent).* (Aeronautics, Vol. 8, No. 5, June, 1943, p. 63.)
62	13813	G.B. ...	...	*The Horse-Power of Aircraft Guns.* (Engineer, Vol. 176, No. 4,572, 27/8/43, p. 168.)
63	13876	U.S.A.	...	*The Morden Bombsight.* (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, p. 137.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
64	13984	U.S.A. ...	*Rifle Sighting Done with Mirrors (Rapid Transfer of Sight Setting of "Master" Rifle to Production Models).* (Sci. Am., Vol. 169, No. 1, July, 1943, pp. 30-31.)
65	14086	Germany ...	*Six-Barrelled Smoke Thrower Used by the Germans on Russian Front.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 256.)

Military Types of Aircraft (G.B.).

66	13205	G.B.	*DeHavilland "Flamingo" Transport (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 36.)
67	13230	G.B.	*Albacore Torpedo Bombers in Malta (Photo).* (Flight, Vol. 44, No. 1,806, August 5, 1943, pp. 148-149.)
68	13256	G.B.	*Mosquitos from Canada.* (Aeroplane, Vol. 6, No. 1,682, 20/8/43, p. 201.)
69	13317	G.B.	*Handley Page Halifax II, Series 1A.* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 233.)
70	13511	G.B.	*The Wellington as a Torpedo Bomber.* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, pp. 230-231.)
71	13516	G.B.	*Hawker Hurricane 11D with 40 mm. Cannon (Photo).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 234.)
72	13518	G.B.	*The Blenheim Family. Review of Earlier Types.* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, pp. 239-245.)
73	13526	G.B.	*The de Havilland Mosquito II (Recognition Details).* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, p. 73.)
74	13529	G.B.	*Spitfires for Air-Sea Power Work.* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, pp. 80-81.)
75	13580	G.B.	*Handley Page "Halifax II" (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 63.)
76	13615	G.B.	*The Hurricane 11D "Tank Buster."* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 34.)
77	13631	G.B., U.S.A.	*The Hawker Typhoon and the Republic Thunderbolt.* (Aeronautics, Vol. 8, No. 6, July, 1943, pp. 50-53.)
78	13770	G.B.	*The Fairey Albacore and the Seafire (Photograph).* (Aeronautics, Vol. 8, No. 5, June, 1943, p. 55.)
79	13792	G.B.	*Typhoon Bomber.* (Flight, Vol. 44, No. 1,802, 8/7/43, pp. 33-35.)
80	13795	G.B.	*Hawker Henley (Recognition Details).* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 38.)
81	13796	G.B.	*Miles Martinet (Recognition Details).* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 39.)
82	13856	G.B.	*Bristol Blenheim IV (Photographs).* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, pp. 128-129.)
83	13943	G.B.	*The Blenheim Family.* (Aeroplane Spotter, Vol. 4, No. 91, 26/8/43, pp. 196-197.)
84	14082	G.B.	*Defiant II Target Tug (Recognition Details).* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 250.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
85	14083	G.B. ...	... *Percival Proctor (Recognition Details).* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 251.)
86	14085	G.B. ...	... *Torpedo Beaufighter.* (Flight, Vol. 44, No. 1,810, 2/9/43, pp. 244, 253-255.)
87	14124	G.B. ...	... *Trans-Atlantic Mosquito with Tanks Fitted to Wings (Photo).* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 261.)
88	14127	G.B. ...	... *Bristol Beaufighter as Torpedo Bomber (Photograph).* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, pp. 271-272.)

Military Types of Aircraft (U.S.A.).

89	13202	U.S.A.	... *Martin "Martian" (P. 26A) (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 35.)
90	13204	U.S.A.	... *Brewster "Buccaneer" (S.B.2.A.) (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 36.)
91	13210	U.S.A.	... *Development of the Ryan P.T. 25 Trainer.* (W. Vandermeer, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943. pp. 50, 128-130.)
92	13213	U.S.A.	... *Navy Douglas S.B.D. 3 (Photo).* (Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, p. 55.)
93	13218	U.S.A.	... *Stinson "Sentinel" (L-5) (Photo).* (Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, p. 68.)
94	13309	U.S.A.	... *The Martin B. 26 (Marauder).* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 219.)
95	13340	Canada	... *Avro Lancasters on Special Airline Service.* (Flight, Vol. 44, No. 1,808, 19/8/43, p. 192.)
96	13377	U.S.A.	... *North American Mitchells B. 25 (Photograph).* (Flight, Vol. 44, No. 1,807, 12/8/43, pp. 172-173.)
97	13383	U.S.A.	... *North American Mitchell (Photo).* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 145.)
98	13512	U.S.A.	... *The Invader—American Dive Bomber (The North American A-36 Fighter Dive Bomber Version of the P-51 Mustang).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 231.)
99	13517	U.S.A.	... *Martin Marauder Two-Motor Medium Bomber (Photo).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 236.)
100	13519	U.S.A.	... *The Curtiss C. 76 (Recognition Details).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 247.)
101	13568	U.S.A.	... *Aeronca PT-23 A.E. Primary Trainer (Drawings).* (American Aviation, Vol. 7, No. 3, 1/7/43, p. 70.)
102	13571	U.S.A.	... *Mustang Adapted for Dive Bombing.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 43.)
103	13572	U.S.A.	... *The Lockheed Lightning.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 44-45, 162.)
104	13578	U.S.A.	... *Boeing 314 Flying Boat (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 62.)

ITEM NO.	R.T.P REF.		TITLE AND JOURNAL.
105	13579	U.S.A. ...	*Lockheed Constellation (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 62.)
106	13632	U.S.A. ...	*The N.A. 73—Mustang (Photograph).* (Aeronautics, Vol. 8, No. 6, July, 1943, pp. 56-57.)
107	13756	U.S.A. ...	*Flying Ambulances (Piper HE-1 (Silhouette).* (American Exporter, Vol. 133, No. 1, July, 1943, p. 29.)
108	13773	U.S.A. ...	*The Vought-Sikorsky Helicopter VS-300.* (Aeronautics, Vol. 8, No. 5, June, 1943, pp. 62-63.)
109	13777	U.S.A. ...	*Fortress II or B17F. (Photograph).* (Aeronautics, Vol. 8, No. 5, June, 1943, p. 73.)
110	13801	U.S.A. ...	*Sikorsky R. 4 Helicopter (Photograph).* (Flight, Vol. 43, No. 1,801, 1/7/43, p. 5.)
111	13827	U.S.A. ...	*Mustang as a Fighter-Dive Bomber.* (Flight, Vol. 44, No. 1,805, July, 1943, p. 114.)
112	13852	U.S.A. ...	*Lockheed 18 Lodestar Transports Towing Waco CG-4A Gliders (Photo).* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 116.)
113	13942	U.S.A. ...	*The Vultee-Stinson L-5 Sentinel (Recognition Details).* (Aeroplane Spotter, Vol. 4, No. 91, 26/8/43, p. 195.)
114	14095	U.S.A. ...	*The New Version of the Liberator.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 261.)
115	14098	U.S.A. ...	*The Curtiss Seagull.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 266.)
116	14125	U.S.A. ...	*Vought-Sikorsky Y.R. 4 Helicopter Equipped with Amphibious Undercarriage (Photo).* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 264.)
117	14128	U.S.A. ...	*Lockheed P. 38 Lightnings Fitted Out for Photographic Reconnaissance Work (Photo).* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 273.)

Military Types of Aircraft (U.S.S.R.).

118	13251	U.S.S.R. ...	*Iliuchin 1L-2 Stormoviks (Photograph).* (Aeroplane, Vol. 65, No. 1,682, 20/8/43, p. 216.)
119	13252	U.S.S.R. ...	*Iliuchin DB-3F Bombers (Photograph).* (Aeroplane, Vol. 65, No. 1,682, 20/8/43, p. 216.)
120	13282	U.S.S.R. ...	*The Russian Fighter Lagg-3.* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 175.)
121	13381	U.S.S.R. ...	*Russian Fighter Lagg-3.* (Flight, Vol. 44, No. 1,807, 12/8/43, pp. 178-180.)
122	13384	U.S.S.R. ...	*Tupolev T.B. 7 Four-Motor Heavy Bomber.* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 147.)
123	13527	U.S.S.R. ...	*The Petlyakov PE-2 (Recognition Details).* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, p. 73.)
124	13791	U.S.S.R. ...	*New Russian Fighter LA. 5.* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 32.)

Military Types of Aircraft (Germany).

125	13207	Germany ...	*Ju. 87B Dive Bomber (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 37.)
126	13250	Germany ...	*German Aircraft in Russia.* (N. Denisov, Aeroplane, Vol. 65, No. 1,682, 20/8/43, p. 216.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
127	13287	Germany	...	*The Heinkel 177 (Recognition Details).* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 189.)
128	13339	Germany	...	*Messerschmitt 323 Transport (Photograph).* (Flight, Vol. 44, No. 1,808, 19/8/43, p. 191.)
129	13349	Germany	...	*Focke-Wulf F.W. 200C (Condor) (Photo).* (Flight, Vol. 44, No. 1,808, 19/8/43, p. 197.)
130	13350	Germany	...	*Heinkel He. 115 (Recognition Details).* (Flight, Vol. 44, No. 1,808, 19/8/43, p. 202.)
131	13376	Germany	...	*High Performance Fighters.* (K. Tank, Flight, Vol. 44, No. 1,807, 12/8/43, p. 171.)
132	13514	Germany	...	*Particulars of Enemy Aircraft (Air Ministry Release).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 232.)
133	13577	Germany	...	*Dornier—217E (Silhouette).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 61.)
134	13581	Germany	...	*Junkers Ju. 90B (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 63.)
135	13625	Germany	...	*Two Enemy Twin-Engined Aircraft, Me. 210 and Henschel 129.* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 35.)
136	13766	Germany	...	*Comprehensive Survey of Focke Wulf F.W. 190 A-3 (M.G.'s Radio Equipment, etc.).* (Aeronautics, Vol. 8, No. 5, June, 1943, pp. 38-42.)
137	13771	Germany	...	*Gotha VI First Asymmetrical Aircraft.* (Aeronautics, Vol. 8, No. 5, June, 1943, p. 57.)
138	13787	Germany	...	*Ju. 87 as a Medical Test Plane.* (Diringshofen, Germany and You, Vol. 13, No. 6, June 15, 1943, pp. 154-155, 166.)
139	13800	Germany	...	*Further Details of Messerschmitt Me. 323.* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 49.)
140	13831	Germany	...	*Messerschmitt Me. 108B Taifun (Recognition Details).* (Flight, Vol. 44, No. 1,805, July, 1943, p. 118a.)
141	13832	Germany	...	*Bucker Bu. 181 Bestmann (Recognition Details).* (Flight, Vol. 44, No. 1,805, July, 1943, p. 118b.)
142	13857	Germany	...	*Junkers Ju. 52/3m.F. (Recognition Details).* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 131.)
143	13860	Germany	...	*Improved Version of Ju. 87D (Photograph).* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 133.)
144	13944	Germany	...	*The Messerschmitt Me. 323 (Recognition Details).* (Aeroplane Spotter, Vol. 4, No. 91, 26/8/43, p. 198.)
145	14025	Germany	...	*Messerschmitt 210 A-1.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, p. 1.)
146	14026	Germany	...	*Messerschmitt Me. 323.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, p. 1.)
147	14028	Germany	...	*Me. 109 G-2.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-2.)
148	14029	Germany	...	*New German Aircraft Types (Me. 323).* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-2.)
149	14030	Germany	...	*Ju. 86 BV. 222 DB. 606.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-2.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
150	14034	Germany ...	*Dornier* 217 *E*-1. (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-9.)
151	14035	Germany ...	*Focke-Wulf* 190 *A*-3. (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-10.)
152	14081	Germany ...	*Henschel* 129 *Attack Bomber* (*Photo*). (Flight, Vol. 43, No. 1,810, 2/9/43, p. 247.)
153	14090	Germany ...	*Focke-Wulf F.W.* 200 (*Condor*) (*Photo*). (Flight, Vol. 44, No. 1,810, 2/9/43, p. 257.)
154	14091	Germany ...	*Junkers* 290 (*Photo*). (Flight, Vol. 44, No. 1,810, 2/9/43, p. 259.)
155	14129	Germany ...	*Captured Me.* 109*C* (*Photo*). (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 275.)

Military Types of Aircraft (Italy).

156	13226	Italy	*Fiat B.R.* 20 (*Recognition Details*). (Flight, Vol. 44, No. 1,806, August 5, 1943, p. 144.)
157	13227	Italy	*Fiat G.* 12 (*Recognition Details*). (Flight, Vol. 44, No. 1,806, August 5, 1943, p. 145.)
158	13283	Italy	*Savoia-Marchetti S.M.* 81 *Pipistrello* (*Photo*). (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 179.)
159	13308	Italy	*Cant Z*-501 (*Photograph*). (Flight, Vol. 44, No. 1,809, 26/8/43, p. 218.)
160	13342	Italy	*S.M.* 84 *Torpedo Bombers*. (Flight, Vol. 44, No. 1,808, 19/8/43, pp. 9, 193.)
161	13343	Italy	*Piaggio P.* 108 *Four-Engined Italian Bomber* (*Photo*). (Flight, Vol. 44, No. 1,808, 19/8/43, p. 193.)
162	13344	Italy	*Fiat B.R.* 20 "*Cicogna*" *Bomber* (*Photo*). (Flight, Vol. 44, No. 1,808, 19/8/43, p. 194.)
163	13345	Italy	*Macchi C.* 202 *Single-Seater Fighter* (*Photo*). (Flight, Vol. 44, No. 1,808, 19/8/43, p. 195.)
164	13346	Italy	*Reggiane Re.* 2,000 *Single-Seater Fighter* (*Photo*). (Flight, Vol. 44, No. 1,808, 19/8/43, p. 195.)
165	13351	Italy	*Fiat R.S.* 14 (*Recognition Details*). (Flight, Vol. 44, No. 1,808, 19/8/43, p. 203.)
166	13380	Italy	*Breda* 88 (*Recognition Details*). (Flight, Vol. 44, No. 1,807, 12/8/43, p. 177.)
167	13619	Italy	*New Italian Bomber—Piaggio P.* 108. (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 36.)
168	13807	Italy	*The Cant Z.* 1,008 (*Photograph*). (Flight, Vol. 43, No. 1,801, 1/7/43, p. 12.)
169	13808	Italy	*Savoia Marchetti SM.* 82 (*Canguru*) (*Recognition Details*). (Flight, Vol. 43, No. 1,801, 1/7/43, p. a.)
170	13809	Italy	*Savoia Marchetti SM.* 83 (*Recognition Details*). (Flight, Vol. 43, No. 1,801, 1/7/43, p. b.)
171	13858	Italy	*Savoia Marchetti SM.* 82 *Canguru* (*Recognition Details*). (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 131.)
172	14092	Italy	*Savoia SM.* 82 (*Photo*). (Flight, Vol. 44, No. 1,810, 2/9/43, p. 250.)
173	14093	Italy	*Fiat G.* 12 (*Photo*). (Flight, Vol. 44, No. 1,810, 2/9/43, p. 260.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Military Types of Aircraft (Rumania).
174	13805	Rumania ...	*Rumania's Air Force (Obsolescent Types).* (Flight, Vol. 43, No. 1,801, 1/7/43, pp. 9-11.)
			Military Types of Aircraft (Japan).
175	13206	Japan ...	*Nakajima* 94 *(Army) (Recognition Details).* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 37.)
176	13286	Japan ...	*The Mitsubishi Naval OB*-01 *(Recognition Details).* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 189.)
177	13316	Japan ...	*Kawanishi T.* 97 *(Recognition Details).* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 232.)
178	13382	Japan ...	*New Japanese Aircraft.* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 145.)
179	13523	Japan ...	*Nakajima G.* 97.2 *Torpedo Bomber (Photograph).* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, p. 63.)
180	13941	Japan ...	*The Mitsubishi Navy SHS*-00 *Float Plane Fighter (Recognition Details).* (Aeroplane Spotter, Vol. 4, No. 91, 26/8/43, p. 195.)
			Military Types of Aircraft (France).
181	13379	France ...	*Caudron Goéland Transport Aircraft (Recognition Details).* (Flight, Vol. 44, No. 1,807, 12/8/43, p. 176.)
182	13385	France ...	*Caudron Goéland Transport (Photo).* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 153.)
183	13790	France ...	*Caudron C* 440 *Aircraft (Photograph).* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 29.)
			Military Types of Aircraft (Sweden).
184	13311	Sweden ...	*Sweden's New Fighter J.* 22. (Flight, Vol. 44, No. 1,809, 26/8/43, pp. 221-222.)
185	13281	Sweden ...	*New Swedish Fighter—J.* 22 *(Photograph).* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 174.)
			Military Types of Aircraft (Argentine).
186	13826	Argentine ...	*New Argentine Trainer Impa RR*-11. (Flight, Vol. 44, No. 1,805, July, 1943, p. 114.)
			Gliders and Gliding.
187	13209	U.S.A. ...	*Pre-Glider Training.* (R. L. McIntyre, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 45-46, 106.)
188	13288	U.S.A. ...	*Unloading Waco CG*-4*A Glider (Photo).* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, p. 196.)
189	13352	U.S.A. ...	*Performance of Towed Gliders, American Views.* (Flight, Vol. 44, No. 1,808, 19/8/43, pp. 204-205.)
190	13520	U.S.A. ...	*The Waco C.G.*-4*A Hadrian I American Transport Glider (Recognition Details).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 247.)
191	13559	U.S.A. ...	*Amphibious Transport Glider (Photograph).* (American Aviation, Vol. 7, No. 3, 1/7/43, p. 17.)
192	13589	U.S.A. ...	*Glider Pilot Training.* (J. Stuart, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 119-122, 130, 135.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
193	13786	Germany ...	*Gliding as Pre-Military Training.* (W. Wagner, Germany and You, Vol. 13, No. 6, June 15, 1943, pp. 149-150.)
194	13789	G.B.	*Glider Flight Across the Atlantic.* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 28.)
195	13802	U.S.A. ...	15 *Seater CG Glider (Photograph).* (Flight, Vol. 43, No. 1,801, 1/7/43, p. 6.)
196	13954	G.B.	*Glider Crosses Atlantic, Future Possibilities.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 34.)
197	13955	Germany ...	*A "Powered" Glider—Six-Engined M.E. 323.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 34.)
198	14094	Germany ...	*D.F.S. 230 Glider (Photo).* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 261.)
			Fleet Air Arm, A/C. Carriers.
199	13365	G.B.	*Ship Flying and Aircraft Carriers—IV.* (P. Bethell, Engineering, Vol. 156, No. 4,049, 20/8/43, pp. 141-144.)
200	13755	U.S.A. ...	*Floating Sea Bases.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 28.)
201	13838	G.B.	*Ship Flying and Aircraft Carriers—IV.* (P. Bethell, Engineering, Vol. 156, No. 4,050, 27/8/43, pp. 161-163.)
202	13870	U.S.A. ...	*Naval Armament—Sea and Air Weapons of Our First Line of Defence.* (W. H. P. Blandy, Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 81-86.)
203	13902	U.S.A. ...	*Naval Aviation—Then and Now.* (Trade Winds, Vol. 6, No. 12, June, 1943, pp. 4-6, 18.)
204	13929	G.B.	*Ship Flying and Aircraft Carriers—II.* (P. Bethell, Engineering, Vol. 156, No. 4,045, 23/7/43, pp. 61-63.)
205	14016	G.B.	*Ship Flying and Aircraft Carriers—II.* (P. Bethell, Engineering, Vol. 156, No. 4,044, 16/7/43, pp. 41-44 and 50.)
206	14126	G.B.	*Shipborne Air Power.* (Aeroplane, Vol. 65, No. 1,684, 4/9/43, pp. 267-270.)
			Servicing and Maintenance.
207	13202	U.S.A. ...	*Aircraft Maintenance in the Desert.* (R. Toland, Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, pp. 29, 104-106.)
208	13376	G.B.	*W.R.N.S. Air Mechanics.* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, pp. 155-158.)
209	14163	G.B.	*Military Airport Paved with Concrete in Near-Zero Weather Using Special Technique to Beat Rush Schedule.* (Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, p. 3.)
210	14167	Canada ...	*Winter Maintenance Methods for R.C.A.F. Airfields.* (Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, p. 6.)
			A.R.P. and Balloons.
211	13439	G.B.	*Sky Ships.* (A. C. Hardy, Pet. Times, Vol. 47, No. 1,195, 15/5/43, pp. 227 and 237.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
212	13635	U.S.A. ...	*New American Light Weight Gas Masks.* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 66.)
213	13915	U.S.A. ...	*U.S. Barrage Balloons.* (R. G. Picinich, Sci. Am., Vol. 169, No. 1, July, 1943, pp. 6-8.)

AERODYNAMICS AND HYDRODYNAMICS.

Aerodynamic Theory.

214	12714	Germany ...	*On an Approximate Method for Determining the Two-Dimensional Potential Flow of a Compressible Fluid.* (W. Grobier, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 184-191.)
215	13194	G.B.	*Nozzles for Steam and Air Flow.* (Mechanical World, Vol. 113, No. 2,943, 28/5/43, p. 598.)
216	13936	G.B.	*The Properties of Fluids.* (S. C. Bradford, Phil. Mag., Vol. 34, No. 234, July, 1943, pp. 433-471.)
217	14037	Germany ...	*The Theory of Compressible Potential Flow (III) (Characteristics, Bicharacteristics and Eikonal of the Linearised Fundamental Equation).* (M. Pinl, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 305-311.)
218	14057	U.S.A. ...	*Correlating Fluid Viscosity.* (A. S. Smith and others, Ind. Eng. Chemistry (Ind. Edition), Vol. 35, No. 6, June, 1943, pp. 705-711.)
219	14235	U.S.A. ...	*Aerodynamic Centre, Control and Stability of Aeroplanes.* (H. Reissner, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 625-628.)
220	14437	U.S.A. ...	*Aerodynamic Considerations of Rotors in Hovering and Vertical Climb Conditions.* (C. H. Kaman, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 201-208.)
221	14441	U.S.A. ...	*Regions of Infinite Acceleration and Flow Realms in a Compressible Fluid.* (M. C. Scherberg, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 223-226, 231.)
222	14489	G.B.	*Wind Power for Small Generating Plants.* (Electrical Review, Vol. 133, No. 3,430, August 20, 1943, p. 246.)
223	14552	G.B.	*Bibliographies of Published Information on Wind Tunnels.* (R.T.P.3 Bibliographies, No. 88, Sept., 1943.)

General Hydrodynamics.

224	13818	G.B.	*Steering Experiments (Ship's Rudder) (Contd.).* (R. W. L. Gawn, Engineer, Vol. 176, No. 4,572, 27/8/43, pp. 175-176.)
225	13928	G.B.	*Steering Experiments.* (R. W. L. Gawn, Engineer, Vol. 176, No. 4,568, 30/7/43, pp. 97-98.)
226	13930	G.B.	*Modern Liquid State Theory in Relation to Engineering.* (R. S. Silver, Engineering, Vol. 156, No. 4,045, 23/7/43, pp. 64-65.)
227	14073	Switzerland ...	*A Hydraulic Ram Working on Wave Propagation (Contd.).* (G. Eichelberg, Schweizerische Bauzeitung, Vol. 120, No. 17, Oct. 24, 1942, pp. 191-193.) (Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 174-175.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
228	14208	G.B. ...	... *Water Circulation in Steam Boilers.* (J. Webster, Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 227-230.)
229	14453	G.B. ...	... *Fluid Mechanics and Statistical Methods in Engineering (Book Review).* (H. L. Dryden, T. von Kármán and others, Nature, Vol. 152, No. 3,848, July 31, 1943, p. 119.)
230	14481	G.B. ...	... *Boiler Hydraulics (Allowances for Friction and Other Losses)—II.* (J. Webster, Mechanical World, Vol. 114, No. 2,957, September 3, 1943, pp. 265-267.)
231	14508	G.B. ...	... *The Derivation of the Tidal Equations.* (H. Jeffreys, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, pp. 20-22.)
232	14511	G.B. ...	... *On the Generation of Waves on Shallow Water by Wind.* (H. Pondi, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, p. 67.)
233	14839	G.B. ...	... *Water Circulation in Steam Boilers—III. The Principle of Forced Circulation.* (J. Webster, Mechanical World, Vol. 114, No. 2,958, September 10, 1943, pp. 308-312.)

AIRCRAFT AND AIRSCREWS.

Civil Aviation and Air Cargo.

234	13233	U.S.A.	... *Air Transport—Past and Future.* (W. W. Davis, Mechanical Engg., Vol. 65, No. 7, July, 1943, pp. 471-485.)
235	13248	G.B. ...	... *The Evil of Transport Monopoly.* (Sir A. Cobham, Aeroplane, Vol. 65, No. 1,682, August 20, 1943, pp. 212-213.)
236	13254	G.B. ...	... *International Control of Air Services.* (Aeroplane, Vol. 65, No. 1,682, August 20, 1943, p. 225.)
237	13322	U.S.A.	... 25 *Years of Air Mail Service.* (C. P. Craddick, U.S. Air Services, Vol. 28, No. 2, June, 1943, pp. 14-16.)
238	13353	G.B. ...	... *Recommendations of Four M.P.s on Air Transport Policy.* (Flight, Vol. 44, No. 1,808, August 19, 1943, pp. 206-207.)
239	13450	G.B. ...	... *Commercial Air Transport.* (F. Handley Page, Mech. World, Vol. 113, No. 2,946, 18/6/43, pp. 663-664.)
240	13530	G.B. ...	... *Post-War International Air Transport.* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, p. 82.)
241	13590	Canada	... *Canadian Pacific Airlines.* (B. Keith, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 28-30, 152.)
242	13621	G.B. ...	... *Fundamentals of Air Transport.* (G. E. Woods Humphery, Aeronautics, Vol. 8, No. 6, July, 1943, pp. 28-30.)
243	13793	G.B. ...	... *Air Transport. Post-War Policy. (Address to Royal Empire Society.)* (Sir F. Sykes, Flight, Vol. 44, No. 1,802, July 8, 1943, pp. 36-37.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
244	13794	G.B. ...	... *Air Transport for London.* (Flight, Vol. 44, No. 1,802, July 8, 1943, p. 37.)
245	13803	G.B. ...	... *S.B.A.C. and Air Transport.* (Flight, Vol. 43, No. 1,801, July 1, 1943, p. 7.)
246	13904	U.S.A.	... *New Flight Advisory Service of the C.A.A.* (Civil Aeronautics Journal, Vol. 4, No. 7, 5/7/43, p. 89.)
247	13905	U.S.A.	... *Aviation—Nation's Largest Industry.* (C. I. Stanton, Civil Aeronautics Journal, Vol. 4, No. 7, 5/7/43, p. 91.)
248	13906	U.S.A.	... *Analysis of Non-Air Carrier Accidents*, 1942. (Civil Aeronautics Journal, Vol. 4, No. 7, 5/7/43, p. 93.)
249	14131	G.B. ...	... *Foodstuffs by Air.* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 280.)
250	14161	G.B. ...	... *Air Transport and Civil Aviation Year Book. London*, 1943 (*Ford Publishing Co.*). (Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, p. 1.)

Civil and Special Aircraft Types.

251	13222	Germany	... *The Horten IV—Tailless All-Wing Aircraft.* (Flight, Vol. 44, No. 1,806, August, 1943, pp. 139-140.)
252	13253	U.S.A.	... *The Kaiser-Hughes HK-1 Cargo Flying Boat.* (Aeroplane, Vol. 65, No. 1,682, August 20, 1943, p. 224.)
253	13255	G.B. ...	... *D.H. Mosquitoes for Civil Transport.* (Aeroplane, Vol. 65, No. 1,682, August 20, 1943, pp. 200-224.)
254	13375	G.B. ...	... *The Tandem Monoplane (Historic Interest).* (Flight, Vol. 44, No. 1,807, 12/8/43, pp. 167-168.)
255	13613	G.B. ...	... *Henson's Aeroplane.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 32.)
256	13617	G.B. ...	... *The Heston Racer.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 36.)
257	13758	U.S.A.	... *New Cargo Plane—Cessna "Loadmaster."* (American Exporter, Vol. 133, No. 1, July, 1943, p. 29.)
258	13765	G.B. ...	... *The Civil Strato Plane.* (D. C. Greenwood, Aeronautics, Vol. 8, No. 5, June, 1943, pp. 33-35.)
259	13959	G.B. ...	... *Airworthiness of Civil Aircraft (Handbook).* (Times, Trade and Engineering, Vol. 53, No. 954, August, 1943, p. 36.)

General Design and Construction.

260	13456	U.S.A.	... *Wing Weight Estimating Simplified (S.A.W.E. Paper No. 20).* (C. R. E. Englebry, Paper Presented at S.A.W.E. Meeting, 7/5/43.)
261	13457	U.S.A.	... *Engineering Progress and Cost Control (S.A.W.E. Paper No. 21).* (E. E. Roberts, Paper Presented at S.A.W.E. Meeting, 29/4/43.)
262	13458	U.S.A.	... *Preliminary Design—Equations for Aircraft Weight Estimation (S.A.W.E. Paper No. 22).* (W. Simon, Paper Presented at S.A.W.E. Meeting, April 27-29, 1943.)
263	13460	U.S.A.	... *Wood Can Save Weight (S.A.W.E. Paper No. 24).* (J. M. Jacobson, Paper Presented at S.A.W.E. Meeting, Aug. 6, 1943.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
264	13461	U.S.A. ...	*The Significance of Weight Control (S.A.W.E. Paper No. 27).* (J. E. Ayers, Paper Presented at S.A.W.E. Meeting, 7/5/43.)
265	13570	U.S.A. ...	*Plastic Bonded Plywood Aircraft.* (W. Winter, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 34-36, 175.)
266	13586	U.S.A. ...	*Plywood Binding Nut (Used for Fastening Metal and Wood.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 112.)
267	13626	G.B.	*Plastics and Metals for Structural Units—A Critical Comparison.* (J. S. Trevor, Aeronautics, Vol. 8, No. 6, July, 1943, pp. 36-37.)
268	13627	G.B.	*The Aircraft Tail Unit.* (W. E. Hick, Aeronautics, Vol. 8, No. 6, July, 1943, pp. 38-40.)
269	13633	U.S.A. ...	*Bendix Landing Gear Patent (Wheel Automatically Rotated by an Electric Motor).* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 62.)
270	13653	Canada ...	*Canadian Plastic Skis.* (Aircraft Productions, Vol. 5, No. 58, August, 1942, p. 363.)
271	13656	G.B.	*Alternative Materials for Supplementary Fuel Tanks.* (Aircraft Production, Vol. 5, No. 58, August, 1942, pp. 376-377.)
272	13657	G.B.	*Spring Undercarriages.* (Aircraft Production, Vol. 5, No. 58, August, 1942, p. 377.)
273	13767	G.B.	*Cockpit Classification.* (G. White, Aeronautics, Vol. 8, No. 5, June, 1943, pp. 50-52.)
274	13916	U.S.A. ...	*S.A.W.E. Weight Handbook (Preprint).* (Vol. 2, Section 11, Armament, 1943.)
275	13917	U.S.A. ...	*S.A.W.E. Weight Handbook (Preprint).* (Vol. 2, Section 11, Propeller Equipment, 1943.)
276	13990	U.S.A. ...	*Wooden Aircraft Problems.* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 41.)
277	14069	U.S.A. ...	*Problems in Aircraft Structural Research.* (F. R. Shanley, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 166-168.)
278	14123	G.B.	*New Type of Landing Gear Incorporating a Caterpillar Track (Photo).* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 259.)
279	14130	G.B.	*Glenn Martin Design for Post-War Freight Carrying Aeroplanes.* (Aeroplane, Vol. 65, No. 1,684, 3/9/43, p. 280.)

Performance and Testing.

281	13473	U.S.A. ...	*Aircraft Structural Testing.* (B. L. Springer, Paper Presented at S.A.E. Meeting, Jan. 11 and 15, 1943.)
282	13574	U.S.A. ...	*Airline Fuel Consumption (II).* (M. G. Beard, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 59, 90-94.)

ITEM NO.	R.T.P REF.		TITLE AND JOURNAL.
283	13836	Germany ...	*German Pressure Chambers for Altitude Research (Photo).* (Flight, Vol. 44, No. 126, July, 1943, p. 126.)
284	13851	U.S.S.R. ...	*Experimental Investigation of Impact in Landing on Water.* (R. L. Kreps, N.A.C.A. Technical Memorandum, No. 1,046, August, 1943.)
285	13991	U.S.A. ...	*Gliders Proposed to Assist Take-Off.* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 42.)

Airscrews and Helicopters.

286	13775	G.B.	*Aeroturbine Screw Propeller (Patent).* (Aeronautics, Vol. 8, No. 5, June, 1943, p. 63.)
287	13830	G.B.	*Rotol V.P. Marine Propeller.* (Flight, Vol. 44, No. 1,805, July, 1943, p. 118.)
288	13853	G.B.	*Rotol V.P. Propellers for Ships.* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 117.)
289	13926	G.B.	*Rotol V.P. Marine Propellers.* (Engineer, Vol. 176, No. 4,568, 30/7/43, pp. 87-88.)
290	13948	G.B.	*Variable Pitch Propellers in Motor Shipbuilding.* (Times, Trade and Engineering, Vol. 53, No. 954, August, 1943, p. 30.)
291	13956	G.B.	*Airscrew Evolution—from Car to Propeller.* (Times, Trade and Engineering, Vol. 53, No. 954, August, 1943, p. 35.)
292	13988	U.S.A. ...	*Helicopter Progress.* (A. Klemin, Sci. Am., Vol. 169, No. 1, July, 1943, p. 40.)
293	14021	G.B.	*Marine Propeller Blade Deflection.* (J. F. C. Conn, Engineering, Vol. 156, No. 4,044, 16/7/43, pp. 58-60.)

Airports and Maintenance.

294	13217	U.S.A. ...	*Control Tower for Airport Operations.* (C. Crowley, Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, pp. 67, 126-128.)
295	13616	G.B.	*Use of Camouflage.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 35.)
296	13817	G.B.	*Local Soil Stabilised with Cement Used for Paving American Airports.* (Engineer, Vol. 176, No. 4,572, 27/8/43, p. 174.)
297	13828	G.B.	*Design for a London Airport.* (Flight, Vol. 44, No. 1,805, July, 1943, p. 115.)
298	13841	G.B.	*The Stabilisation of Soil by Cement.* (Engineering, Vol. 156, No. 4,050, 27/8/43, pp. 165, 170.)
299	13859	G.B.	*Design for a Post-War Airport.* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 132.)
300	13952	G.B.	*A London Airport.* (Times, Trade and Engineering, Vol. 53, No. 954, August, 1943, p. 32.)
301	14017	G.B.	*Problems of Land Drainage.* (E. Latham, Engineering, Vol. 156, No. 4,044, 16/7/43, pp. 44-45.)
302	14145	G.B.	*The Rôle of Moisture in Soil Mechanics.* (R. K. Schofield, Chemistry and Industry, Vol. 62, No. 36, 4/9/43, pp. 339-341.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
303	14162	G.B. ...	... *Public Works Engineers Year Book*, 1943, *including Proceedings of the* 1942 *Public Works Congress (Data on the Layout and Drainage of Airports, Runway Design for Heavy Aircraft Wheel Loads, etc.)*. (Aerodrome Abstracts (Nos. 78-100), Vol. 2, No. 5, September, 1943, p. 1.)
304	14164	U.S.A.	... *Heavy Duty Asphaltic Runways.* (B. E. Gray, Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, pp. 3-4.)
305	14165	U.S.A.	... *Camouflage Paints and Their Application to Road and Building Surfaces.* (L. G. Gabriel, Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, p. 5.)
306	14166	U.S.A.	... *Maintenance of Aircraft Runways Surfaces in Winter (U.S. Civil Aeronautics Board).* (Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, p. 6.)
307	14168	Canada	... *Wartime Experience in Runway Clearance.* (T. Roberts, Aerodrome Abstracts (Nos. 78-100), Vol. 11, No. 5, September, 1943, pp. 6-7.)

ENGINES AND ACCESSORIES.

Named Types.

308	13284	Germany	... *The Junkers Jumo 211B, Series I, Aero Motor.* (Aeroplane, Vol. 65, No. 1,681, 13/8/43, pp. 181-182.)
309	13314	Germany	... *The Junkers Jumo 211 Series.* (Flight, Vol. 44, No. 1,809, 26/8/43, pp. 228-231.)
310	13388	Germany	... *The Junkers Jumo 211A Aero Engine (M.A.P. Report).* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, pp. 165-167.)
311	13524	Germany	... *The Mercedes-Benz DB. 601A (M.A.P. Report).* (Aeroplane, Vol. 65, No. 1,677, 16/7/43, pp. 66-69.)
312	13585	U.S.A.	... *The 220 h.p. Lycoming (Photograph).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 110.)
313	13654	G.B. ...	... *The Cheetah X Engine, Pt. I, Performance and Design. Machining the Crankshaft and Master Connecting Rod.* (J. A. Oates, Aircraft Production, Vol. 5, No. 58, Aug., 1942, pp. 364-375.)
314	13741	G.B. ...	... *Bristol Hercules Sleeve Valve Engine (Schematic Drawing).* (Air Tech., Vol. 3, No. 1, 15/7/43, p. 49.)
315	13757	U.S.A.	... *Ranger 12-Cylinder In-Line Inverted "V" Air-Cooled Aircraft Engine.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 29.)
316	13823	Germany	... *Series Modifications to Junkers Jumo 211 Engines.* (M.A.P. Reports on Enemy Aircraft, Aug., 1943.)
317	13824	Germany	... *Heinkel H.E. 111H. Examination of Jumo 211A Engine, including Installation.* (M.A.P. Reports on Enemy Aircraft, Aug., 1943.)
318	13825	Germany	... *Junkers Ju. 88A1. Examination of Engines 2 Jumo 211B (1) Installation and Fuel and Oil System.* (M.A.P. Reports on Enemy Aircraft, Aug., 1943.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
319	13903	U.S.A. ...	*The Cyclone* 14. (Trade Winds, Vol. 6, No. 12, June, 1943, pp. 14-16.)
320	13958	Germany ...	*New German Engines. M.A.P. Examinations.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 36.)
321	14023	Germany ...	*Examination of Mercedes-Benz D.B.* 601*N and D.B.* 601 *N*1. *Engines and Installation of Messerschmitt* 109 *E*7 *and* 109 *F*1/2. (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-7.)
322	14024	Germany ...	*Examination of Mercedes-Benz D.B.* 601*A Engines, Mountings and Cooling Systems of M.E.* 109, *M.E.* 110 *and Heinkel H.E.* 111*P.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-18.)
323	14031	Germany ...	*Examination of B.M.W.* 132*K* (1) *and* 132*N Engines of Heinkel* 115 *Seaplane and Dornier* 17*P Aeroplane.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-7.)
324	14032	Germany ...	*Examination of Bramo-Fafnir* 323 *P*-1 *Engine and Installation of Dornier* 17*Z.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-15.)
325	14036	Germany ...	*Examination of B.M.W.* 801 *A*/1 *Engines of Dornier* 217 *E*/1. (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-24.)

Diesel Engines.

326	13468	U.S.A. ...	*Control and Suppression of Diesel Engine Noise, Theory and Practice.* (R. L. Leadbetter, Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
327	13471	U.S.A. ...	*The Fairbanks-Morse Diesel Engine as a Research Tool for Pre-Evaluation of Heavy Duty Motor Oils.* (H. L. Noir and others, Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
328	13475	U.S.A. ...	*Comparison of Laboratory Diesel Engine Tests with Service Performance.* (Wetmiller, R., Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
329	13476	U.S.A. ...	*Development of a Light Weight Diesel Engine.* (J. C. Fetters, Papers Presented at S.A.E. Meeting, June 2 and 3, 1943.)
330	13478	U.S.A. ...	*Diesel Maintenance in the Fleet.* (R. J. Moore, Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
331	13669	U.S.A. ...	*Marine Diesel Auxiliaries (Installation Problems).* (R. L. Boyer, Mech. Engg., Vol. 65, No. 6, June, 1943, pp. 431-432.)

Accessories (Cylinders, Rings, etc.).

332	13200	G.B.	*Aluminium Aircraft Engine Parts (Abstract of S.A.E. Paper).* (Light Metals, Vol. 6, No. 65, June, 1943, p. 310.)
333	13291	U.S.A. ...	*Supercharger Installed as an Integral Part of the Power Plant.* (Scientific American, Vol. 169, No. 2, Aug., 1943, pp. 88-89.)

ITEM NO.	R.T.P. REF		TITLE AND JOURNAL.
334	13423	G.B. ...	... *Compression Rings.* (M. O. Teetor, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 185-186.)
335	13453	G.B. ...	... *Nozzles for Steam and Air Flow.* (Mech. World, Vol. 113, No. 2,946, 18/6/43, pp. 684-685.)
336	13465	U.S.A.	... *Substitution for Aluminium in Brake Cylinder Pistons.* (J. F. Bachman, Paper Presented at S.A.E. Meeting, June 9-10, 1943.)
337	13490	G.B. ...	... *High Speed Helical Gears and the Elimination of Transmission Noises.* (Machinery, Vol. 62, No. 1,597, 20/5/43, p. 552.)
338	13507	G.B. ...	... *Nozzles for Steam and Air Flow.* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 655.)
339	13549	G.B. ...	... *Nozzles for Steam and Air Flows.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, p. 626.)
340	13850	G.B. ...	... *Flexible Shaft Couplings.* (W. Steeds, Engineering, Vol. 156, No. 4,050, 27/8/43, p. 174.)
			Turbines, Pumps, Boilers.
341	13183	G.B. ...	... *Centrifugal Pumps Inlet and Cavitation.* (A. P. MacPulworth, Mechanical World, Vol. 114, No. 2,953, 6/8/43, pp. 143-146.)
342	13356	G.B. ...	... *Regenerative Feed Heating in Steam Turbine Installations.* (W. Wadkin, Mechanical World, Vol. 114, No. 2,954, 13/8/43, pp. 175-178.)
343	13362	G.B. ...	... *Centrifugal Pumps, Inlet and Cavitation—II.* (A. P. MacPulworth, Mechanical World, Vol. 114, No. 2,954, 13/8/43, pp. 188-191.)
344	13363	U.S.S.R.	... *Ramzin's Uniflow Boiler. Extensive Development in Russia.* (Mechanical World, Vol. 114, No. 2,954, 13/8/43, p. 194.)
345	13392	G.B. ...	... *Natural Circulation Water Tube Boilers,* 1932 *to Date.* (Sci. Lib. Bibling. Series, No. 591, 1943.)
346	13505	G.B. ...	... *Boiler Water Treatment.* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 650.)
347	13509	G.B. ...	... *Turbine Blade Deposits.* (D. W. Rudorff, Met. Vick. News Bull., No. 866, 14/5/43, p. 4.)
348	13510	G.B. ...	... *Steam Turbine Vibration.* (Met. Vick. News Bull., No. 866, 14/5/43, p. 7.)
349	13675	U.S.A.	... *Victor-Acme Position Displacement Gas Pumps.* (Mech. Engg., Vol. 65, No. 6, June, 1943, p. 36.)
			Oil and Steam Engines.
350	13718	G.B. ...	... *The Honn Oil Engine.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, p. 238.)
351	13815	G.B. ...	... *Oil Engines for Landing Craft.* (Engineer, Vol. 176, No. 4,572, 27/8/43, pp. 171-172.)
352	13845	G.B. ...	... *Oil Engines for Landing Craft.* (Engineering, Vol. 156, No. 4,050, 27/8/43, pp. 174-175.)
353	13947	G.B. ...	... *High Speed Oil Engines.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 28.)
354	13949	G.B. ...	... *Cargo Ship Propulsion—Steam Reciprocating Engines.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 30.)
			Testing and Efficiency.
355	13229	Germany	... *Type Testing the Jumo 211D.* (Flight, Vol. 44, No. 1,806, August 5, 1943, p. 147.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
356	13431	G.B. ...	... *Control of Oil Consumption in High Speed Oil Engines.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 200.)
357	13715	G.B. ...	... *Cylinder Temperatures Accurately Recorded by Means of Thermocouple Sparking Plugs.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, p. 228.)
358	13821	G.B. ...	... *Bench Tests of Jumo 211D Engines.* (M.A.P. Reports on Enemy Aircraft, Aug., 1943.)
359	13822	G.B. ...	... *Detail Examination of Fuel Injection Pumps from Jumo 211A, Series 1, 2,113, Series 1, and 211D, Series 1, Engines.* (M.A.P. Reports on Enemy Aircraft, Aug., 1943.)

Servicing.

360	13712	G.B. ...	... *Protection of Engines and Vehicles in Storage.* (P. V. Lamarque, I.A.E. Automobile Research Committee, No. 1,943/6.)
361	13738	U.S.A.	... *Servicing the Allison V-12 (Liquid-Cooled) Engine.* (C. B. F. Macauley, Air Tech., Vol. 3, No. 1, 15/7/43, pp. 19-33.)
362	13812	G.B. ...	... *Pre-Heating the Engines of a Mitchell at an Alaskan Airfield (Photograph).* (Flight, Vol. 43, No. 1,801, 1/7/43, p. 22.)
363	13798	G.B. ...	... *How "Bristol" Power Units are Repaired.* (Flight, Vol. 44, No. 1,802, 8/7/43, pp. 42-45.)

General Problems.

364	13434	G.B. ...	... *Motor Cycle Engines.* (Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 209-210.)
365	13719	G.B. ...	... *Exhaust Gases.* (J. J. Mikita and others, Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 239-240.)
366	13993	G.B. ...	... *Exhaust Pipe Phenomena.* (G. F. Mucklow, J. Am. Soc. Nav. Engs., Vol. 55, No. 2, May, 1943, pp. 343-361.)
367	14068	G.B. ...	... *Progress in Engineering Knowledge during 1942.* (P. L. Algen and J. Stokley, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 161-166.)
368	14077	Germany	... *Recent Development of Two-Stroke Engines (Scavenging Problems).* (Z.V.D.I., Vol. 87, Nos. 1-2, Jan., 1943, pp. 7-14.) (J. Zeman, Engineer and Digest, Vol. 4, No. 6, June, 1943, pp. 181-184.)
369	14079	Germany	... *Engine Cooling Problems Arising in Motor Car Design.* (A.T.Z., Vol. 45, No. 9, May, 1942, Pt. 1, pp. 232-238.) (B. Eckert, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 185-188.)

FUELS AND LUBRICANTS.

Fuels—General Purpose.

370	13370	U.S.A.	... *Recent Refining Developments in the U.S.A.* (National Petroleum News, Vol. 35, No. 26, 30/6/43, pp. 5-6.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
371	13425	G.B. ...	...	*Universal Fuel.* (C. Ridley, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 187-190.)
372	13437	G.B. ...	...	*Low Octane Fuel for Commercial Vehicle Engines.* (Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 216.)
373	13445	G.B. ...	...	*Peace Time Values from a War Technology.* (G. Egloff, J. Inst. Pet., Vol. 29, No. 233, May, 1943, pp. 133-145.)
374	13446	G.B. ...	...	*Collection of Abstracts.* (J. Inst. Pet., Vol. 29, No. 233, May, 1943, pp. 150A-197A.)
375	13469	U.S.A.	...	*The Influence of Diesel Fuel Properties of Engine Deposits and Wear.* (G. H. Cloud and A. J. Blackwood, Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
376	13967	U.S.A.	...	*Paraffin Hydrocarbons — Correlation of Physical Properties.* (A. W. Francis, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 442-449.)
377	14001	G.B. ...	...	*The World's Fuel Resources.* (J. S. Bennett, Engineer, Vol. 176, No. 4,567, 23/7/43, pp. 68-69.)
378	14010	U.S.A.	...	*Colour Index for Light Coloured Petroleum Products.* (I. M. Diller and others, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, pp. 367-373.)
379	14052	U.S.A.	...	*War Development in the Petroleum Industry.* (E. V. Murphree, Ind. Eng. Chemistry (2nd Edition), Vol. 35, No. 6, June, 1943, pp. 623-631.)
380	14087	Japan	...	*Axis Fuel.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 256.)
381	14134	Germany	...	*German Motor Fuel and Lubricants Distribution.* (Petroleum Times, Vol. 47, No. 1,202, 21/8/43, pp. 437-438.)

High Octane and Aviation.

382	13442	G.B. ...	...	*The Dixane Process for Producing Aviation Fuel.* (Pet. Times, Vol. 47, No. 1,195, 15/5/43, p. 252.)
383	13470	U.S.A.	...	*Octanes or Centanes After World War II.* (C. M. Larson, Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
384	13708	G.B. ...	...	*The Performance of Different Fuels.* (J. Spiers, I.A.E. Automobile Research Committee, No. 1943/1.)
385	13740	U.S.A.	...	*The Value of High Octane Fuels.* (R. T. Goodwin, Air Tech., Vol. 3, No. 1, 15/7/43, pp. 40-42, 60.)
386	14051	U.S.A.	...	*Catalytic Hydrogenation Rates, Equipment and Control.* (N. K. Anderson and C. A. Rowe, Ind. Eng. Chemistry, Vol. 35, No. 5, May, 1943, pp. 554-562.)
387	14053	U.S.A.	...	*Cracking Cyclohexane. Thermal and Catalytic Decomposition at High Pressure.* (V. Haensel and V. N. Ipatieff, Ind. Eng. Chemistry (2nd Edition), Vol. 35, No. 6, June, 1943, pp. 632-638.)
388	14096	G.B. ...	...	*Leaded Aircraft Fuels.* (Flight, Vol. 44, No. 1,810, 2/9/43, pp. 262-264.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
389	14144	G.B. ...	... *On the Mechanism of Catalytic Hydrogenation.* (E. K. Rideal, Chemistry and Industry, Vol. 62, No. 36, 4/9/43, pp. 335-338.)
			Gaseous Fuels.
390	13422	G.B. ...	... *Producer Gas Developments in Continental Europe* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 184.)
391	13430	G.B. ...	... *Gas Conditioning. Cleaning and Cooling Equipment for Producer Gas.* (W. F. Enever, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 199-202.)
392	13441	G.B. ...	... *Producer Gas After the War.* (Pet. Times, Vol. 47, No. 1,195, 15/5/43, pp. 242-245.)
393	14022	G.B. ...	... *The Gas Industry in the National Economy.* (E. V. Evans, Engineering, Vol. 156, No. 4,044, 16/7/43, pp. 45-47.)
394	14049	U.S.A.	... *Thermodynamic Properties of Propane.* (W. V. Stearns and E. J. George, Ind. Eng. Chemistry, Vol. 35, No. 5, May, 1943, pp. 602-607.)
395	14050	U.S.A.	... *Prediction of Unimolecular Gas Phase Reaction Rates.* (F. Daniels, Ind. Eng. Chemistry, Vol. 35, No. 5, May, 1943, p. 504.)
396	14054	U.S.A.	... *Heat Capacities of Hydrocarbon Gases.* (D. R. Stull and F. D. Mayfield, Ind. Eng. Chemistry (2nd Edition), Vol. 35, No. 6, June, 1943, pp. 639-645.)
397	14075	Germany	... *The Use of Propane Gas for Heating Purposes in the Laboratory.* (Stahl und Eisen, Vol. 62, No. 45, Nov., 1942, pp. 948-949.) (Engineers' Digest, Vol. 4, No. 6, June, 1943.)
			Oil Testing.
398	13472	U.S.A.	... *The Pour Point and Pumpability Characteristics of U.S. Army Specification* 2-104 *A Oils.* (J. C. Geniesse, Paper Presented at S.A.E. Meeting, Jan. 11 and 15, 1943.)
399	13804	G.B. ...	... *Oil Pressure: Effect of Altitude.* (Flight, Vol. 43, No. 1,801, 1/7/43, p. 8.)
400	13829	G.B. ...	... *Oil Aeration and Frothing.* (C. A. Campbell, Flight, Vol. 44, No. 1,805, July, 1943, pp. 116-117.)
401	14047	U.S.A.	... *Catalysis in the Oxidation of Lubricating Oil.* (R. G. Larsen and F. A. Armfield, Ind. Eng. Chemistry, Vol. 35, No. 5, May, 1943, pp. 581-588.)
			Lubrication (General).
402	13372	U.S.A.	... *Transportation of Oil—New Wartime Developments.* (National Petroleum News, Vol. 35, No. 26, 30/6/43, pp. 18-19.)
403	13374	Canada	... *New Canadian Oil Wells.* (National Petroleum News, Vol. 35, No. 25, 23/6/43, p. 24.)
404	13394	G.B. ...	... *Lubrication, Jan.-March,* 1943. (Sci. Lit. Bibliog. Series, No. 593, 1943.)
405	13424	G.B. ...	... *Induction Oil for Heat Treatment.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 186.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
406	13477	U.S.A.	...	*Lubricants for Ordnance Combat and Motor Transport Vehicles.* (R. E. Jeffrey, Paper Presented at S.A.E. Meeting, June 2 and 3, 1943.)
407	13541	G.B. ...	...	*Lubrication at Low Rubbing Speeds.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, p. 607.)
408	13753	G.B. ...	...	*Influence of Machine Development on Lubrication (Formation. Actions and Limitations of Boundary Films and Full Fluid Films).* (W. G. G. Godron, Mechanical World, Vol. 114, No. 2,955, 20/8/43, pp. 218-222.)
409	13814	G.B. ...	...	*Recovery of Lubricating Oil on a Small Scale.* (Engineer, Vol. 176, No. 4,572, 27/8/43, p. 170.)
410	14135	G.B. ...	...	*New Additive for Lubricants (Soyabean Lecithen).* (Petroleum Times, Vol. 47, No. 1,202, 21/8/43, p. 446.)

THEORY OF ELASTICITY

(TESTS WITH PLATES, Etc.).

411	13164	U.S.A.	...	*Improving Fatigue Strength of Machine Parts.* (Mechanical Engg., Vol. 65, No. 8, Aug., 1943, pp. 553-563.)
412	13187	G.B. ...	...	*Testing Springs for Endurance.* (Mechanical World, Vol. 114, No. 2,953, 6/8/43, pp. 162-167.)
413	13236	U.S.A.	...	*Effect of Screw Threads on Fatigue.* (S. M. Arnold, Mechanical Engg., Vol. 65, No. 7, July, 1943, pp. 497-505.)
415	13332	U.S.A.	...	*Increasing the Fatigue Strength of Machine Parts.* (J. O. Almen, Machinery, Vol. 63, No. 1,609, 12/8/43, p. 176.)
416	13358	G.B. ...	...	*Bushed Steel Tubes—Some Causes of Cracking in Structural Members.* (E. J. Raybould and R. J. Pilot, Mechanical World, Vol. 114, No. 2,954, 13/8/43, p. 179.)
417	13364	G.B. ...	...	*Calculation of Stress and Deflection of Helical Springs of Rectangular Section.* (Mechanical World, Vol. 114, No. 2,954, 13/8/43, pp. 195-197.)
418	13390	G.B. ...	...	*Vibrations of Valves and Valve Springs.* (Sci. Lit. Bibliog. Series, No. 589, 1943.)
419	13481	G.B. ...	...	100,000 *Hour Creep Test.* (Mechanical World, Vol. 113, No. 2,942, 21/5/43, pp. 564-565.)
420	13504	G.B. ...	...	*Welding Contraction and "Locked-up Stresses."* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, pp. 648-649.)
421	13964	U.S.A.	...	*Stress-Strain Characteristics of Vinyl Elastomers.* (M. C. Reed, Ind. and Eng. Chem., Vol. 35, No. H, April, 1943, pp. 429-431.)
422	14038	Germany	...	*Propagation of Transverse (Bending) Warps in Rods.* (W. Flugge, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 312-318.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
423	14039	Germany ...	*Semi-Infinite Space with Hemispherical Load Distribution.* (C. Weber, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 318-341.)
424	14040	Germany ...	*Stress Peaks in Sheet Metal Provided with Punched Holes.* (A. Hutter, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 322-325.)
425	14155	U.S.A. ...	*Ring Method for Measuring Elastic Modulii of Wire Specimens.* (A. King, Review of Scientific Instruments, Vol. 14, No. 2, Feb., 1943, p. 33.)
426	14158	U.S.A. ...	*Electrodynamic Determination of the Magnetic Moment of Plates.* (E. T. Benedikt, Review of Scientific Instruments, Vol. 14, No. 2, Feb., 1943, pp. 43-45.)

MATERIALS.

A. Properties.

Al. and Mg. Alloys.

864	13347	Japan ...	*New Japanese Rust-Resisting Light Alloy.* (Flight, Vol. 44, No. 1,808, 19/8/43, p. 197.)
427	13440	G.B.	*Production of Magnesium.* (F. C. Thompson, Nature, Vol. 151, No. 3,842, 19/6/43, pp. 692-693.)
428	13502	G.B.	*Forging Aluminium Alloys.* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 646.)
429	13542	G.B.	*Treatment of Wrought Aluminium Alloys.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, p. 607.)
430	13597	G.B.	*Aluminium—To-morrow.* (Metal Industry, Vol. 63, No. 9, 27/8/43, p. 136.)
431	13600	Germany ...	*Macro Etching of Cast Al.-Cu.-Mg. Alloys in Caustic Soda Solution without Subsequently Removing the Copper Oxide Film.* (E. Kapernick, Metal Industry, Vol. 63, No. 9, 27/8/43, p. 138.)
432	13667	U.S.A. ...	*Drilling Mg. Alloys.* (G. Schlesinger, Mech. Engg., Vol. 65, No. 6, June, 1943, pp. 441-442.)
433	13698	U.S.A. ...	*Aluminium Finned Cylinder Barrel.* (Light Metals, Vol. 6, No. 66, July, 1943, p. 327.)
434	13701	Germany ...	*Light Alloy Gas Cylinders.* (Light Metals, Vol. 6, No. 66, July, 1943, p. 353.)
435	13702	France ...	*The Aluminium Industry in France.* (Light Metals, Vol. 6, No. 66, July, 1943, pp. 354, 358-362.)
436	13723	G.B.	*Magnesium. Its Properties and Characteristics.* (C. H. Desch, Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 251-253.)
437	13888	G.B.	*Progress in Research and Control (Review of Work on the Extrusion of Aluminium and Aluminium Alloys) (with Comprehensive Bibliography).* (Light Metals, Vol. 6, No. 67, August, 1943, pp. 407-412.)
438	13897	G.B.	*Plastic Working of Magnesium Alloy Sheet.* (Aero. Engg. Review, May, 1943, pp. 21-29.) (Metropolitan Vickers New Bulletin, No. 875, 16/7/43, p. 8.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
439	14000	G.B. ...	... *Aluminium in Post-War Reconstruction* (3). (R. Hammond, Engineer, Vol. 176, No. 4,567, 23/7/43, pp. 66-68.)
440	14153	U.S.A.	... *U.S. Post-War Control of Aluminium and Magnesium.* (Metal Industry, Vol. 63, No. 10, 3/9/43, p. 158.)

Iron and Steel.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
441	13185	G.B. ...	... *Grain in Steel.* (Mechanical World, Vol. 114, No. 2,953, 6/8/43, pp. 151-153.)
442	13192	G.B. ...	... *Cold-Rolled Stainless Steel.* (Mechanical World, Vol. 113, No. 2,943, 28/5/43, pp. 590-591.)
443	13479	G.B. ...	... *Experimental Evidence on the Effect of Composition. Heat Treatment and Other Variable Factors on the Behaviour of Alloy Steel.* (Mechanical World, Vol. 113, No. 2,942, 21/5/43, pp. 545-546.)
444	13687	G.B. ...	... *Substituting Steel for Brass in the Press Shop (Steel Cartridge Cases).* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1409-1413.)
445	13844	G.B. ...	... *Steel Economy in Reinforced Concrete Construction.* (Engineering, Vol. 156, No. 4,050, 27/8/43, p. 172.)
446	13997	U.S.A.	... *Columbium in High Temperature Steels.* (D. W. Rudorff, J. Am. Soc. Nav. Engs., Vol. 55, No. 1, May, 1943, pp. 380-381.)
447	14099	G.B. ...	... *The Strain Ageing of Killed New Carbon Steel, with Particular Reference to the Effect of Titanium.* (C. F. Gomstock, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1527-1534.)

Non-Ferrous Metals.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
448	13180	G.B. ...	... *Use of Bismuth in Fusible Alloys.* (Machinery, Vol. 63, No. 1,606, 22/7/43, p. 103.)
449	13415	G.B. ...	... *Beryllium Windows for X-Ray Diffraction Tube.* (Z. J. Atlee, General Electric Review, April, 1943, pp. 233-236.) (Abstracted in Met. Vick. Tech. Bull., No. 870, 11/6/43.)
450	13436	G.B. ...	... *Iridium Alloys.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 213.)
451	13609	G.B. ...	... *Zinc Production in Wartime.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 11.)
452	13610	G.B. ...	... *Titanium Valve in Industry.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 28.)
453	13642	G.B. ...	... *Grain Size in Tin Alloys.* (Sheet Metal Industries, Vol. 17, No. 194, June, 1943, p. 1009.)
454	13839	G.B. ...	... *The Problem of Copper and Galvanised Iron in the Same Water.* (L. Kenworthy, Engineering, Vol. 156, No. 4,050, 27/8/43, p. 164.)
455	13849	G.B. ...	... *Free Cutting Nickel Alloy Invar.* (Engineering, Vol. 156, No. 4,050, 27/8/43, p. 180.)
456	13919	G.B. ...	... *Copper-Antimony-Nickel Gear Alloy.* (Metal Industry, Vol. 63, No. 4, 23/7/43, pp. 50-52.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
457	13920	G.B. ...	... *The Effect of Certain Impurities on Copper and Copper Alloys (Contd.).* (S. L. Bailey, Metal Industry, Vol. 63, No. 4, 23/7/43, pp. 53-54.)
458	14112	G.B. ...	... *Tensile Tests of Arc-Welded Nickel and Monel Metal at Low Temperature.* (O. H. Henry and J. Martinez, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1611-1613.)
459	14113	G.B. ...	... *Nichrome Alloys and Their Development.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1613.)
460	14146	Germany	... *Zinc Aluminium Copper Casting Alloys.* (A. Burkhardt and others, Metal Industry, Vol. 63, No. 10, 3/9/43, pp. 146-149.)
461	14147	G.B. ...	... *The Effect of Certain Elements on the Properties of High Purity Copper.* (S. A. Smart and A. A. Smith, Metal Industry, Vol. 63, No. 10, 3/9/43, pp. 150-153.)
			Tools and Tool Steels.
462	13179	G.B. ...	... *Spindle Bearings for High Speed Machine Tools (I).* (C. Schlesinger, Machinery, Vol. 63, No. 1,606, 22/7/43, pp. 100-102.)
463	13413	G.B. ...	... *Distortion in Heat Treatment in Relation to Carbon and Alloy Tool Steels.* (Tech. Bull., May, 1943.) (T. H. Cole, J. Inst. Prod. Engs., Vol. 22, No. 5, May, 1943, pp. 10-18.)
464	13489	G.B. ...	... *Electric Tool Tipper Development.* (Machinery, Vol. 62, No. 1,597, 20/5/43, pp. 549-552.)
465	13910	G.B. ...	... *Tool Salvage by Welding.* (Weld. Eng., May, 1943, pp. 35-37.) (L. C. Corham, Metropolitan Vickers Tech. News Bulletin, No. 877, 30/7/43, p. 10.)
			Plastics and Resins.
466	13303	U.S.A.	... *Nylon in Tyres.* (Scientific American, Vol. 169, No. 2, August, 1943, p. 78.)
467	13357	G.B. ...	... *Covered Wire Properties of Nylon-Based Covering ("Bicolon").* (Mechanical World, Vol. 114, No. 2,954, 13/8/43, p. 178.)
468	13409	G.B. ...	... *Plastics and Their Application.* (E. Appleton, Endeavour, Vol. 1, No. 3, July, 1942, pp. 110-113.)
469	13420	G.B. ...	... *"Bubblfil"—New Shock-Absorbing Material (Air-Filled Cellophane Bubbles).* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 179.)
470	13483	G.B. ...	... *Machinery Laminated Phenolic Plastics.* (Machinery, Vol. 62, No. 1,597, 22/5/43, pp. 533-556.)
471	13620	G.B. ...	... *Sealing Porous Casting with Plastics (New Process).* (V. E. Yarsley, Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 44.)
472	13660	G.B. ...	... *Synthetic Adhesives—Review of Modern Materials and Procedure.* (D. W. Brown, Aircraft Production, Vol. 5, No. 58, Aug., 1942, pp. 395-399.)
473	13900	G.B. ...	... *Transfer Moulding of Thermosetting Plastics.* (Iron Age, 20/5/43, pp. 47-51.) (C. H. Norris, Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 10.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
474	13908	G.B. ...	... *Thermoplastics as Cable Insulation—I.* (El. Times, 15/7/43, pp. 64-67.) (J. Veit, Metropolitan Vickers Tech. News Bulletin, No. 877, 30/7/43, p. 4.)
475	13911	G.B. ...	... *Recent Developments in Organic Plastics for Electrical Insulation.* (El. Engg., May, 1943, pp. 191-197.) (T. Hazen, Metropolitan Vickers Tech. News Bulletin, No. 876, 23/7/43, p. 3.)
476	13969	U.S.A.	... *Effect of Acetylation on Water-Binding Properties of Cellulose.* (J. C. Bletzinger, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 474-480.)
477	13977	U.S.A.	... *New Synthetic Plastic—Polectron— to Replace Mica.* (Sci. Am., Vol. 169, No. 1, July, 1943, pp. 11-12.)
478	13981	U.S.A.	... *Molecular Attractions—The Essential Difference Between Fibres, Plastics and Elastomers.* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 17.)
479	13982	U.S.A.	... *Flexible Tubing Made of Plastics.* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 28.)
480	13995	U.S.A.	... *Cellophane Bubbles—" Bubblfil."* (J. Am. Soc. Nav. Engs., Vol. 55, No. 2, May, 1943, pp. 373-374.)
481	14078	Germany	... *Thermal Expansion of Laminated Plastics.* (Kunststoffe, Vol. 32, No. 10, Oct., 1942, pp. 295-297.) (R. Vieweg and W. Schneider, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 184-185.)
			Rubber (Nat. and Syn.).
482	13270	G.B. ...	... *Rubber Dies for Small Presses.* (A. Bernard, Aircraft Production, Vol. 5, No. 59, Sept., 1943, pp. 415-417.)
483	13300	U.S.A.	... *New Rubber-like Material—" Nitcogum." Bomb Casings Made Faster with Induction Heating.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 60.)
484	13371	Canada	... *Canadian Buna—S. Plant.* (National Petroleum News, Vol. 35, No. 26, 30/6/43, p. 16.)
485	13373	U.S.A.	... *Synthetic Rubber. Information Circular No. 7,242. (Issued by U.S. Bureau of Mines.)* (National Petroleum News, Vol. 35, No. 25, 23/6/43, p. 10.)
486	13432	G.B. ...	... *Synthetic Rubbers.* (S. S. Pickles, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 201-202.)
487	13447	G.B. ...	... *Natural and Synthetic High Polymers (Text-Book).* (K. H. Myer, Nature, Vol. 151, No. 3,842, 19/6/43, pp. 682-683.)
488	13482	G.B. ...	... *Synthetic and Reclaimed Rubber.* (Mechanical World, Vol. 113, No. 2,942, 21/5/43, pp. 566-567.)
489	13488	G.B. ...	... *Cutting Sponge Rubber and Other Resilient Materials.* (Machinery, Vol. 62, No. 1,597, 20/5/43, p. 548.)
490	13664	U.S.A.	... *Synthetic Rubber.* (L. F. Marek, Mech. Engg., Vol. 65, No. 6, June, 1943, pp. 412-416.)
491	13915	G.B. ...	... *The Physical States of Rubber in Relation to its Molecular Structure.* (L. R. G. Treloar, Chemistry and Industry, Vol. 62, No. 35, 28/8/43, pp. 326-328.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
492	13971	U.S.A. ...	*Brittle Temperature of Rubber Under Variable Stress.* (A. K. Kemps and others, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, p. 488.)
493	13978	U.S.A. ...	*New Synthetic Rubber-like Material "Paracon."* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 13.)
494	14133	G.B.	*Synthetic Rubber Used for Oil Storage Tanks.* (Petroleum Times, Vol. 47, No. 1,202, 21/8/43, p. 430.)

Wood and Plywood.

495	13231	G.B.	*Plywood and Plastic—III.* (W. Nichols, Flight, Vol. 44, No. 1,806, August 5, 1943, pp. 150-154.)
496	13238	U.S.A. ...	*Plastic Developments from Redwood.* (H. F. Lewis, Mechanical Engg., Vol. 65, No. 7, July, 1943, pp. 515-517.)
497	13378	G.B.	*Plywood and Plastics—IV.* (W. Nichols, Flight, Vol. 44, No. 1,807, 12/8/43, pp. 174-175.)
498	13396	G.B.	*Timbers of the New World.* (*Book, publ. by Yale University Press,* 1943.) (Nature, Vol. 152, No. 3,849, 7/8/43, pp. 144-145.)
499	13496	G.B.	*Plywood Containers.* (Nature, Vol. 151, No. 3,843, 26/6/43, pp. 731-732.)
500	13497	G.B.	*Some British Empire Timbers.* (Nature, Vol. 151, No. 3,843, 26/6/43, p. 732.)
501	13655	G.B.	*Ash Bark Beetle Damage.* (Aircraft Production, Vol. 5, No. 58, Aug., 1942, p. 375.)
502	13665	U.S.A. ...	*Flexible Pressure in Veneer and Plywood Work.* (T. D. Perry, Mech. Engg., Vol. 65, No. 6, June, 1943, pp. 417-421.)
503	13833	G.B.	*Plywood and Plastics—II.* (W. Nichols, Flight, Vol. 44, No. 1,805, July, 1943, pp. 119-122.)
504	13846	G.B.	*Hydraulic Jet Machine for Removing Bark from Timber.* (Engineering, Vol. 156, No. 4,050, 27/8/43, p. 175.)

Diamonds, Glass, Ceramics.

505	13171	U.S.A. ...	*New Type of Wrench Made of Plastic (Plexiglas).* (Mechanical Engg., Vol. 65, No. 8, August, 1943, p. 592.)
506	13178	G.B.	*Transparent Template Gauges.* (Machinery, Vol. 63, No. 1,606, 22/7/43, p. 97.)
507	13298	U.S.A. ...	*New Optical Glass Free of Sand.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 59.)
508	13397	G.B.	*Artificial Production of Diamonds.* (C. H. Desch, Nature, Vol. 152, No. 3,849, 7/8/43, pp. 148-149.)
509	13429	G.B.	*Glass-Covered Cores for Castings.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 198.)
510	13538	G.B.	*Standards for Diamond-Tipped Boring Tools (B.S.S. 1,120).* (Machinery, Vol. 63, No. 1,603, 1/7/43, p. 28.)
511	13611	G.B.	*Synthetic Sapphires.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 28.)
512	13666	U.S.A. ...	*Glass for Precision Gauging.* (H. B. Hambleton, Mech. Engg., Vol. 65, No. 6, June, 1943, pp. 435-437.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
513	13672	U.S.A.	...	*Asbestos Cement Conduit (Requires no Critical Materials).* (Mech. Engg., Vol. 65, No. 6, June, 1943, p. 21.)
514	13703	G.B. ...	...	*Synthetic Gems for Instrument Bearings.* (Light Metals, Vol. 6, No. 66, July, 1943, p. 354.)
515	13752	G.B. ...	...	*"Hysil" Glass for Workshop Gauges.* (Mechanical World, Vol. 114, No. 2,955, 20/8/43, p. 217.)
516	13820	G.B. ...	...	*Sandless Optical Glass.* (Engineer, Vol. 176, No. 4,572, 27/8/43, p. 177.)
517	14088	Germany	...	*German Use of Porcelain as a Substitute for Metal.* (Flight, Vol. 44, No. 1,810, 2/9/43, p. 256.)
518	14143	G.B. ...	...	*Ceramics—Recent Developments.* (Engineer, Vol. 176, No. 4,573, 3/9/43, p. 187.)
				Paints, Enamels, Pitches.
519	13403	G.B. ...	...	*Development and Use of Luminescent Substances.* (L. Levy and D. W. West, Endeavour, Vol. 2, No. 5, Jan., 1943, pp. 22-24.)
520	13866	U.S.A.	...	*Viscosity of Pitches and Coal Tar Residues.* (Ind. Engg. and Chemistry, Vol. 15, No. 4, 15/4/43, pp. 235-242.)
521	13965	U.S.A.	...	*Anti-Fouling Paints—Test Procedures and General Observations.* (G. H. Young and others, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 432-436.)
522	13966	U.S.A.	...	*Heavy Metal Compounds as Toxic Agents in Anti-Fouling Paints.* (G. H. Young and W. K. Schneider, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 436-438.)
523	13970	U.S.A.	...	*Asphalt-Polybutene Paints.* (H. C. Evans and others, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, p. 481.)
524	14048	U.S.A.	...	*Durability of Lustreless Enamels.* (S. E. Beck, Ind. and Eng. Chemistry, Vol. 35, No. 5, May, 1943, pp. 594-595.)
525	14160	U.S.A.	...	*New Metallographic Polishing Material ("Gamel").* (Review of Scientific Instruments, Vol. 14, No. 2, Feb., 1943, p. 55.)
				Corrosion.
526	13289	G.B. ...	...	*The Corrosion of Metals in Air.* (W. H. J. Vernon, Chemistry and Industry, Vol. 62, No. 34, 21/8/43, pp. 314-318.)
527	13697	Germany	...	*Stress Corrosion Phenomena in Aluminium Magnesium Alloys.* (Review of German Paper in Aluminium, 1942, Vol. 24, p. 129.) (G. Sietel and Vosskühler, Light Metals, Vol. 6, No. 66, July, 1943, pp. 323-326.)
528	14150	G.B. ...	...	*Corrosion of Cadium Coatings.* (G. Soderberg, Metal Industry, Vol. 63, No. 10, 3/9/43, pp 155-156.)
				B. Fabrication.
				Welding.
529	13297	U.S.A.	...	*New Glue "Welding" Process.* (Scientific American, Vol. 169, No. 2, Aug., 1943, pp. 58-59.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
530	13546	G.B. ...	*Sheet Metal Seam Welding.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, p. 619.)
531	13647	G.B. ...	*Control of Electrode Tip Diameter, a New Formula for Spot Welding.* (N. A. Tucker, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1043-1051, 1066.)
532	13648	G.B. ...	*Deep Penetration Butt Welding and Semi-Automatic Welder.* (Sheet Metal Industries, Vol. 17, No. 194, June, 1943, p. 1054.)
533	13690	G.B. ...	*Welding of Light Alloys.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1421-1425.)
534	13693	G.B. ...	*Weld Finishing.* (E. G. West, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1433-1436.)
535	13713	G.B. ...	*Welding.* (I.A.E. Automobile Research Committee, No. 1,943-1,948.)
536	13750	G.B. ...	*Care of Oxy-Acetylene Welding Equipment.* (Mechanical World, Vol. 114, No. 1,955, 20/8/43, p. 215.)
537	13901	G.B. ...	*Second Interim Report of the R. 52 Sub-Committee on the Spot Welding of Light Alloys.* (Inst. of Weld. Trans., April, 1943, pp. 49-68.) (Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 10.)
538	13909	G.B. ...	*Resistance Welding Below the Frost Line.* (Weld. J., May, 1943, pp. 339-342.) (A. L. Munson, Metropolitan Vickers News Bulletin, No. 877, 30/7/43, p. 9.)
539	13987	U.S.A.	*Refrigerator Welding—New Development.* (Sci. Am., Vol. 169, No. 1, July, 1943, pp. 38-39.)
540	14080	Switzerland ...	*Welding Sets of Instantaneous Reaction Type for D.C. Arc Welding.* (Brown Boveri Review, Vol. 29, No. 4, April, 1942, pp. 100-105.) (H. Kocher, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 188-190.)
541	14110	G.B. ...	*Annual Report of Institute of Welding.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1605-1608.)
542	14111	G.B. ...	*Some Definitions of Terms Used in Modern Welding Processes.* (A. J. T. Eyles, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1609-1610.)
543	14152	G.B. ...	*Fusion Welding of Wrought Aluminium Alloys (Published by Wrought Light Alloys Development Association).* (Metal Industry, Vol. 63, No. 10, 3/9/43, p. 158.)
			Soldering and Brazing.
544	13506	G.B. ...	*Sifbronzing, Welding or Brazing?* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 653.)
545	13545	G.B. ...	*Brazing Aluminium Alloys.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, pp. 618-619.)
546	13674	U.S.A. ...	*Brazing with Phos. Copper.* (Mech. Engg., Vol. 65, No. 6, June, 1943, pp. 35-36.)
547	13699	U.S.A. ...	*Furnace and Dip Brazing of Light Alloys as Developed in the U.S.A.* (Light Metals, Vol. 6, No. 66, July, 1943, pp. 336-349.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
548	13704	G.B. ...	... *Fluxes Used in Soft Soldering.* (Siemen's Mag. Eng. Supple., No. 206, Aug.-Sept., 1942.)
549	13898	G.B. ...	... *Soldering Aluminium Alloys.* (Iron Age, 27/5/43, pp. 52-57.) (Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 9.)
550	14104	G.B. ...	... *Soldering of Crystal Units in Radio Equipment by High Frequency Induction Heat.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1553.)
551	14115	G.B. ...	... *Brazing Technique with Relatively Low Melting Point Alloys.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1600.)
552	14137	G.B. ...	... *New Soldering Iron Design.* (Wireless World, Vol. 49, No. 8, Aug., 1943, p. 229.)
			Heat Treatment and Foundries.
553	12695	Germany	... *Low Beryllium-Platinum Foundries.* (Z.V.D.I., 1942, Vol. 86, p. 612.) (K. W. Fröhlich, Light Metals, Vol. 6, No. 66, July, 1943, p. 318.)
554	13197	G.B. ...	... *Heat Treating Light Alloys.* (J. F. Kayser, Light Metals, Vol. 6, No. 65, June, 1943, p. 273.)
555	13198	G.B. ...	... *Better Foundry Methods (Reprint of Papers Published in Iron Age).* (Light Metals, Vol. 6, No. 65, June, 1943, p. 296.)
556	13547	G.B. ...	... *A Furnace Insulation Analyser.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, pp. 620-622.)
557	13599	G.B. ...	... *Self-Cleaning Heat-Treat Nozzle (in Portable Quenching Cabinet).* (Metal Industry, Vol. 63, No. 9, 27/8/43, p. 138.)
558	13601	G.B. ...	... *Metallurgical Factors in the Founding of Aluminium Alloys (Concluded).* (S. A. E. Wells, Metal Industry, Vol. 63, No. 9, 27/8/43, pp. 139-140.)
559	13646	G.B. ...	... *Application of Radiant Heat to Metal Finishing.* (J. A. Nelson and H. Silman, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1039-1048.)
560	13661	G.B. ...	... *High Frequency Heating.* (Aircraft Production, Vol. 5, No. 58, August, 1942, pp. 402-404.)
561	13686	G.B. ...	... *Theory and Practice of the Application of Radiant Heat to Metal Finishing.* (J. H. Nelson and H. Silman, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1393-1402, 1417.)
562	13694	G.B. ...	... *Control in Aluminium Foundries.* (Light Metals, Vol. 6, No. 66, July, 1943, pp. 315-318.)
563	14108	G.B. ...	... *Application of Radiant Heat to Metal Finishing.* (J. H. Nelson and H. Silman, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1579-1582.)
564	14114	Germany	... *Advantages and Limits of the Processes Used in Finishing Heat Treatment of Welds.* (Die Wärme, Vol. 65, No. 21-22, 1942, pp. 196-200.) (W. Zimm, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1614-1620.)
			Surface Treatment.
565	13173	U.S.A.	... *Plating Extends Tool Life.* (Mechanical Engg., Vol. 65, No. 8, August, 1943, p. 28.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
566	13196	U.S.S.R. ...	*Electro-Deposition of Light Metals from Non-Aqueous Solutions.* (M. A. Klochko, Light Metals, Vol. 6, No. 65, June, 1943, pp. 269-272.)
567	13417	G.B.	*Recent Developments in Zinc Plating.* (M. B. Diggin, Met. Finishing, May, 1943, pp. 277-281.) (Abstracted in Met. Vick. Tech. Bull., No. 874, 9/7/43.)
568	13418	G.B.	*Surface Protection of Magnesium.* (S. H. Barmasel, Iron Age, 22/4/43, pp. 44A-44D.) (Abstracted in Met. Vick. Tech. Bull., No. 874, 9/7/43.)
569	13419	G.B.	*Plating on Aluminium (Krome-Alume Process).* (R. F. Yates, Metals and Alloys, Dec., 1942, pp. 1084-1088.) (Abstracted in Met. Vick. Tech. Bull., No. 874, 9/7/43.)
570	13428	G.B.	*Rustproof Coatings.* (H. Silman, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 195-198.)
571	13438	G.B.	*Liquid Nitriding.* (Iron Age, 15/4/43, pp. 41-45.) (Abstracted in Met. Vick. Tech. Bull., No. 871, 18/6/43.)
572	13468	U.S.A. ...	*Shot Blasting to Increase Fatigue Resistance.* (J. O. Almen, Paper Presented at S.A.E. Meeting, June 9-10, 1943.)
573	13532	G.B.	*Hard Chromium Plating for Prolonging Life of Cutting Tools and Dies.* (Machinery, Vol. 63, No. 1,603, 1/7/43, p. 7.)
574	13644	G.B.	*Phosphate Coatings as Aids in the Plastic Working of Metals.* (A. Durer and others (R.T.P.3 Translation No. 1,748), Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1025-1027.)
575	13700	G.B.	*R.A.E. Chromate Treatment.* (Light Metals, Vol. 6, No. 66, July, 1943, p. 353.)
576	13746	G.B.	*Preventing Joints from Sticking. Effect of Graphite Coatings.* (Mechanical World, Vol. 114, No. 2,955, 20/8/43, p. 209.)
577	13842	G.B.	*Protective Painting of Submerged Steel.* (Engineering, Vol. 156, No. 4,050, 27/8/43, pp. 167-168.)
578	13895	G.B.	*Automatic Plating.* (El. Rev., 2/7/43, pp. 3-8.) (Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 6.)
579	13923	G.B.	*Filtration of Plating Solutions.* (R. C. Green, Metal Industry, Vol. 63, No. 4, 23/7/43, pp. 58-59.)
580	13985	U.S.A. ...	*Potassium Cyanide Speeds up Plating of Silver Bearings.* (Sci. Am., Vol. 169, No. 1, July, 1943. p. 32.)
581	13986	U.S.A. ...	*Corrosion Proof Coatings for Ferrous Metal Surfaces ("Silco" and Armor-Vit).* (Sci. Am., Vol. 169, No. 1, July, 1943, pp. 37-38.)
582	14149	G.B.	*Determining Thickness of Metallic Coatings.* (W. B. Stoddard, Metal Industry, Vol. 63, No. 10, 3/9/43, pp. 154-155.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Casting.
583	13195	G.B. ...	... *Principles of Magnesium Alloy Founding (Casting Practices).* (Light Metals, Vol. 6, No. 65, June, 1943, pp. 262-268.)
584	13329	G.B. ...	... *Die Casting Supplement—Spines, Runners and Gates of Die Casting Dies.* (Machinery, Vol. 63, No. 1,607, 29/7/43, pp. 134-136.)
585	13361	G.B. ...	... *Composite Castings.* (Mechanical World, Vol. 114, No. 2,954, 13/8/43, p. 187.)
586	13369	G.B. ...	... *Continuous Production of Manganese Steel Castings from the Tropenas Converter.* (L. W. Bolton and J. Hill, Engineering, Vol. 156, No. 4,049, 20/8/43, pp. 158-160.)
587	13503	G.B. ...	... *Straightening Magnesium Castings.* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 647.)
588	13596	G.B. ...	... *Reclamation of Porous Castings.* (Metal Industry, Vol. 63, No. 9, 27/8/43, p. 136.)
589	13731	G.B. ...	... *Relieving Strains in Castings.* (Machinery, Vol. 63, No. 1,610, 19/8/43, p. 213.)
590	13745	G.B. ...	... *Centrifugal Casting of White Metal.* (Mechanical World, Vol. 114, No. 2,955, 20/8/43, pp. 208-209.)
591	13847	G.B. ...	... *Continuous Production of Manganese Steel Castings from Tropenas Converter.* (L. W. Bolton and J. Hill, Engineering, Vol. 156, No. 4,050, 27/8/43, pp. 177-178.)
592	13921	G.B. ...	... *Rapid Tempering of Castings.* (Metal Industry, Vol. 63, No. 4, 23/7/43, p. 54.)
593	14148	G.B. ...	... *Aluminium Casting Technique.* (Metal Industry, Vol. 63, No. 10, 3/9/43, p. 153.)
			Flame and Gas Cutting.
594	13435	G.B. ...	... *Flame Cutting.* (Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 211-213.)
595	13914	G.B. ...	... *The Gas-Cutting Process and its Effects on Steel—I.* (Metallurgia, June, 1943, pp. 73-76.) (T. J. Palmer, Metropolitan-Vickers Tech. News Bulletin, No. 876, 23/7/43, p. 9.)
			Drawing and Rolling.
596	13679	G.B. ...	... *Rolling, Processing and Testing of Tinplate.* (W. E. Hoare and E. S. Hedges, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1343-1347.)
597	13681	Germany	... *Cold and Hot Rolling of Metals.* (O. Emicke and K. H. Lucas, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1355-1360.)
598	13683	G.B. ...	... *Two-Stage Drawing of Cylindrical Cups.* (H. W. Swift, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1365-1379.)
599	13689	Germany	... *Power Requirements for Hot Rolling Clad Metals (Abstract of German Paper).* (A. Pomp and W. Lueg, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, p. 1418.)
600	13709	G.B. ...	... *Deep Drawing Research.* (J. C. Cooper and H. W. Swift, I.A.E. Automobile Research Committee, No. 1,943-2.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
601	13710	G.B. ...	... *Deep Drawing Research.* (E. Baildon, I.A.E. Automobile Research Committee, No. 1,943-3.)

Milling, Grinding, Machining.

602	13331	G.B. ...	... *Heavy Duty Milling Operations on High Tensile Hiduminium.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 173-175.)
603	13427	G.B. ...	... *Precision Grinding.* (Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 191-194.)
604	13487	G.B. ...	... *The Influence of Work Piece Height Position in Centreless Grinding.* (P. Grodzinsky, Machinery, Vol. 62, No. 1,597, 20/5/43, pp. 546-548.)
605	13598	G.B. ...	... *Machining Copper and its Alloys—III. (Thread Chasers, Milling Cutters, Lubricants and Coolants.)* (Metal Industry, Vol. 63, No. 9, 27/8/43, pp. 137-138.)
606	13716	G.B. ...	... *Precision Grinding.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 229-234.)

Powder Metallurgy.

607	13234	U.S.A.	... *Powder Metallurgy. Physical Properties of the Parts Made from Iron Powder.* (F. V. Lenel, Mechanical Engg., Vol. 65, No. 7, July, 1943, pp. 489-492.)
608	13595	G.B. ...	... *Formation of Aluminium and Aluminium Alloys by Powder Metallurgy.* (G. D. Cremer and J. J. Cordiano, Metal Industry, Vol. 63, No. 9, 27/8/43, pp. 132-135.)
609	13983	U.S.A.	... *Powder Metallurgy.* (Sci. Am., Vol. 169, No. 1, July, 1943, pp. 29-30.)

C. Inspection.

X-Ray, Spectrographic Examination.

610	13190	G.B. ...	... *Metal Surfaces Under the Scanning Electron Microscope.* (Mechanical World, Vol. 113, No. 2,943, 28/5/43, pp. 576-580.)
611	13408	G.B. ...	... *Textile Fibres Under the X-Ray.* (W. Y. Astbury, Endeavour, Vol. 1, No. 2, April, 1942, pp. 70-73.)
612	13416	G.B. ...	... *Radiography of Spot Welds.* (R. C. Woods and others, Metals and Alloys, Sept., 1942, pp. 443-447.) (Abstracted in Met. Vick. Tech. Bull., No. 874, 9/7/43.)
613	13508	G.B. ...	... *Gamma Ray Examination of Materials.* (C. Croxon, Met. Vick. Tech. News Bull., No. 866, 14/5/43, p. 2.)
614	13540	G.B. ...	... *Flaws in Casting: Detection by Gamma Rays.* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, p. 606.)
615	13722	G.B. ...	... *Electro-Magnetic Crack Detection.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 247-248.)
616	13992	U.S.A.	... *A Review of Spectrographic Analysis of Some Metals and Alloys.* (J. Sherman and J. W. Jenkins, J. Am. Soc. Nav. Engs., Vol. 55, No. 2, May, 1943, pp. 189-312.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
617	14003	G.B. ...	... *The Spectrographic Analysis of Cast Iron.* (F. B. Ling and others, Engineer, Vol. 176, No. 4,567, 23/7/43, pp. 76-78.)
			Mechanical Testing.
618	13189	G.B. ...	... *The End Quench Test.* (J. Winning, Mechanical World, Vol. 113, No. 2,943, 28/5/43, pp. 573-575.)
619	13407	G.B. ...	... *The Significance of Metal Single Crystals.* (E. N. da C. Andrade, Endeavour, Vol. 1, No. 2, April, 1942, pp. 64-66.)
620	13688	G.B. ...	... *Identifying "Mixed" White Metals.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, p. 1414.)
621	14011	U.S.A.	... *Determination of Small Amounts of Tellurium in High Lead and Tin-Base Alloys.* (R. A. Schaefer, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, p. 379.)
622	14012	U.S.A.	... *Determination of Iron in the Presence of Chromium and Titanium with the Jones Reductor.* (F. S. Grimaldi and others, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, pp. 387-388.)
			Quality Control.
623	13181	G.B. ...	... *Quality Control in True Perspective.* (Machinery, Vol. 63, No. 1,606, 22/7/43, pp. 103-104.)
624	13442	G.B. ...	... *Quality Control in Operation.* (Prod. and Eng. Bull., Vol. 2, No. 8, June-July, 1943, p. 374.)
625	13749	G.B. ...	... *Problem of Inspection.* (Mechanical World, Vol. 114, No. 2,955, 20/8/43, p. 214.)
			INSTRUMENTS.
			Aircraft.
626	13739	U.S.A.	... *The Gyropilot—Operating Principles.* (D. P. Kelley, Air Tech., Vol. 3, No. 1, 15/7/43, pp. 34-38.)
			Electrical, Magnetic.
627	13266	U.S.A.	... *Electrical Method for Studying Oil Film Thickness.* (Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 44, 80.)
628	13305	U.S.A.	... *Electric Motor Control Regulator. Speed Through Use of Electronic Tubes.* (Scientific American, Vol. 169, No. 2, August, 1943, pp. 82-83.)
629	13406	G.B. ...	... *The Cyclotron (Electro-Magnet).* (F. Fairbrother, Endeavour, Vol. 1, No. 1, Jan., 1943, pp. 40-41.)
630	13603	G.B. ...	... *A Photo-Electric Polarimeter.* (E. J. B. Willey, J. of Scientific Instruments, Vol. 20, No. 5, May, 1943, pp. 74-75.)
631	13634	G.B. ...	... *Electric Shell-Exploding Device (Patent).* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 63.)
632	13707	G.B. ...	... *The Magnetization of Permanent Magnets for Polarized Apparatus.* (Siemen's Mag. Eng. Supple., No. 209, Feb.-Mar., 1943.)
633	13816	G.B. ...	... *Electric Cable Fault Locator and Vulcaniser.* (Engineer, Vol. 176, No. 4,572, 27/8/43, pp. 173-174.)
634	13922	G.B. ...	... *An Electrical Contact Testing Machine.* (Metal Industry, Vol. 63, No. 4, 23/7/43, pp. 55-57.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Spectrographic, Electronic, etc.
635	13306	U.S.A. ...	*Continuous Flow Colorimeter.* (Scientific American, Vol. 169, No. 2, August, 1943, pp. 85-86.)
636	13492	G.B.	*Electron Microscopic Examination.* (Nature, Vol. 151, No. 3,843, 26/6/43, pp. 725-726.)
637	13867	U.S.A. ...	*Modification of Ceneo Spectrophotometer (Permitting Measurements of Reflection and Fluorescence Spectra).* (H. J. Dutton and G. F. Bailey, Ind. and Eng. Chemistry, Vol. 15, 15/4/43, pp. 275-277.)
638	13968	U.S.A. ...	*Electron Microscopy in Chemistry.* (V. K. Zwarzkin, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 450-458.)
639	14154	U.S.A. ...	*Voltage Stabilizer for Electron Diffraction Power Supply.* (S. H. Bauer, Review of Scientific Instruments, Vol. 14, No. 2, Feb., 1943, pp. 30-32.)
640	14156	U.S.A. ...	*Note on a Method for Measuring Small Electric Charges (Apparatus Designed to Measure Ionization Produced in Air by Roentgenographic Apparatus).* (R. M. Showers, Review of Scientific Instruments, Vol. 14, No. 2, Feb., 1943, pp. 35-37.)
641	14157	U.S.A.	*The Measurement of Anomalous Dispersion in Opaque Dielectrics (Index of Refraction of Opaque Materials Determined as a Function of Wave Length).* (A. W. Lawson, Review of Scientific Instruments, Vol. 14, No. 2, Feb., 1943, pp. 38-42.)
			Stress-Strain Gauges.
643	13404	G.B.	*Surface Tension and its Measurement.* (A. Ferguson, Endeavour, Vol. 2, No. 5, Jan., 1943, pp. 34-38.)
644	13894	G.B.	*A Tension-Compression Device for Quantitative X-Ray Diffraction Evaluation of Strain in Metals and a Calibrated Series of Aluminium Alloys.* (J. App. Phys., June, 1943, pp. 284-290.) (G. L. Clark, Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 1.)
			Automatic, Mechanical.
645	13399	G.B.	*Testing and Rating Air Filters.* (Nature, Vol. 152, No. 3,849, 7/8/43, p. 167.)
646	13605	G.B.	*A Simple Construction of Accurate Division Plates (for Gear Cutting, Scale Dividing, etc.).* (D. C. Gall, J. of Scientific Instruments, Vol. 20, No. 5, May, 1943, p. 77.)
647	13788	Germany ...	*German Mechanical Instruments of Precision.* (C. Neumann, Germany and You, Vol. 13, No. 6, June 15, 1943, pp. 167-169.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
648	13869	U.S.A. ...	*Automatic Apparatus for Determination of Small Concentrations of Sulphur Dioxide in Air.* (M. D. Thomas and others, Ind. and Eng. Chemistry, Vol. 15, No. 4, 15/4/43, pp. 287-290.)
649	14014	U.S.A. ...	*Reproducibility of Weighings Made on Micro-chemical Balances.* (C. J. Bodden, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, pp. 415-416.)
			Recorders and Gauges.
650	12922	G.B.	*Method of Measuring Waste Steam.* (Engineer, Vol. 176, No. 4,571, 20/8/43, pp. 153-154.)
651	13177	G.B.	*Gauge Design and Dimensioning.* (Machinery, Vol. 63, No. 1,606, 22/7/43, pp. 92-97.)
652	13193	G.B.	*The Measurement of Thickness.* (Mechanical World, Vol. 113, No. 2,943, 28/5/43, pp. 592-593.)
653	13357	G.B.	*The Measurement of Waste Steam.* (Engineering, Vol. 156, No. 4,049, 20/8/43, p. 155.)
654	13607	G.B.	*Ambient Temperature Recorder.* (J. of Scientific Instruments, Vol. 20, No. 5, May, 1943, pp. 81-82.)
655	13878	U.S.A. ...	*Accurate Low-Pressure Gauge.* (F. E. E. Germann and K. A. Gagos, Ind. and Eng. Chemistry, Vol. 15, No. 4, 15/4/43, pp. 285-286.)
656	14159	U.S.A. ..	*A Method of Increasing the Sensitivity of Bourdon Gauges.* (S. Barnartt and J. B. Ferguson, Review of Scientific Instruments, Vol. 14, No. 2, February, 1943, pp. 46-47.)

PRODUCTION.

Organisation and Control.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
657	13257	G.B.	*Some Post-War Industrial Problems.* (A. P. M. Fleming, J. of the Inst. of Production Eng., Vol. 22, No. 7, July, 1943, pp. 231-249.)
658	13312	G.B.	*Balanced Aircraft Production (10th Report of Select Committee on National Expenditure).* (Flight, Vol. 44, No. 1,809, 26/8/43, pp. 223-225.)
659	13337	G.B.	*Organising a Production Suggestions Scheme.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 186-187.)
660	13411	G.B.	*Production Control.* (R. Appleby, J. Inst. Prod. Engs., Vol. 22, No. 5, May, 1943, pp. 179-210.)
661	13444	G.B.	*The Fundamentals of Efficient Production Control.* (Prod. and Eng. Times, Vol. 2, No. 8, June-July, 1942, pp. 367-370.)
662	13515	G.B.	*A Verdict on Aircraft Production (Report of Selection Committee).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, pp. 232-233.)
663	13534	G.B.	*Recent Developments in Quantity Control.* (Machinery, Vol. 63, No. 1,603, 1/7/43, pp. 10-16.)
664	13567	U.S.A. ...	*Manufacturers Offer Plan for Surplus War Aircraft.* (C. Guest, American Aviation, Vol. 7, No. 3, 1/7/43, pp. 68, 70.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
665	13622	G.B. ...	... *Statistical Control at Bristols.* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 30.)
666	13645	G.B. ...	... *Production Control.* (A. J. Milne, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1030-1032.)
667	13652	G.B. ...	... *Quantity Control Application to Small Quantity Output in the Aircraft Industry.* (K. Hayward, Aircraft Production, Vol. 5, No. 58, August, 1942, pp. 359-363.)
668	13721	U.S.A.	... *Wartime Detroit.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 244-245.)
669	13950	G.B. ...	... *Quantity Control.* (Times, Trade and Engineering, Vol. 53, No. 954, August, 1943, pp. 31-32.)
670	14116	G.B. ...	... *Quantity Control Charts.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, pp. 385-390.)
671	14117	G.B. ...	... *British Standard Memorandum on Quantity Control (B.S. 600 R and B.S. 1,008).* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, p. 390.)
672	14122	G.B. ...	... *Personnel Management.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, pp. 415, 421.)
			Research and Training.
673	13191	G.B. ...	... *Vocational Guidance and Selection for Post-War Training System. I.E.E. Education Scheme, II.* (Mechanical World, Vol. 113, No. 2,943, 28/5/43, pp. 580-581, 594-597.)
674	13240	U.S.A.	... *Education for Management.* (H. V. Coes, Mechanical Engineering, Vol. 65, No. 7, July, 1943, pp. 486-488.)
675	13315	G.B. ...	... *Aeronautical Technical Training.* (Flight, Vol. 44, No. 1,809, 26/8/43, p. 231.)
676	13325	U.S.A.	... *What Can be Done to Train Women for Engineering Jobs.* (R. H. Baker and Mrs. O. S. Reimold, A.S.M.E. Preprints, October 12-14, 1942.)
677	13395	G.B. ...	... *Research and Planning.* (Nature, Vol. 152, No. 3,849, 7/8/43, pp. 143-144.)
678	13405	G.B. ...	... *Science in the U.S.S.R.* (J. G. Crowther, Endeavour, Vol. 1, No. 1, Jan., 1942, pp. 21-25.)
679	13449	G.B. ...	... *Research in the United States.* (Nature, Vol. 151, No. 3,842, 19/6/43, p. 693.)
680	13513	G.B. ...	... *Education of Aeronautical Engineers (Royal Aeronautical Society Resolutions).* (Aeroplane, Vol. 65, No. 1,683, 27/8/43, p. 231.)
681	13548	G.B. ...	... *Selection and Training of Personnel (The I.E.E. Education Scheme—III).* (Mechanical World, Vol. 113, No. 2,944, 4/6/43, pp. 623-624.)
682	13670	U.S.A.	... *Relationship Between the Unions and Engineers.* (W. Gomberg, Mech. Engineering. Vol. 65, No. 6, June, 1943, pp. 425-430.)
683	13685	G.B. ...	... *Training of Sheet Metal Engineers.* (A. Dickason, Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1391-1392.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
684	13717	G.B. ...	... *Post-War Education.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 235-237.)
685	13748	G.B. ...	... *Research and National Policy.* (Mechanical World, Vol. 114, No. 2,955, 20/8/43, p. 211.)
686	13769	U.S.A.	... *U.S. Production and Technique.* (Sir Roy Fedden, Aeronautics, Vol. 8, No. 5, June, 1943, p. 52.)
687	13834	G.B. ...	... *Technical Training — Post-Graduate Research.* (Flight, Vol. 44, No. 1,805, July, 1943, p. 123.)
688	13845	G.B. ...	... *International Organisation of Research.* (Engineering, Vol. 156, No. 4,050, 27/8/43, pp. 171-172.)
689	13854	G.B. ...	... *Future of British Engineering.* (Sir Roy Fedden, Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 119.)
690	13881	G.B. ...	... *Rôle of Humanities in Education.* (H. C. B. Phillips, Light Metals, Vol. 6, No. 67, August, 1943, pp. 371-377.)
691	13882	G.B. ...	... *Industry and Education.* (G. L. Harbach and J. R. Horton, Light Metals, Vol. 6, No. 67, August, 1943, pp. 377-380.)
692	13946	G.B. ...	... *Education in Industry—I. Metropolitan Vickers.* (A. P. M. Fleming, Times, Trade and Engineering, Vol. 53, No. 954, August, 1943, p. 22.)
693	14142	G.B. ...	... *Education of Engineers (Memorandum Issued by the Institute of Mechanical Engineers).* (Engineer, Vol. 176, No. 4,573, 3/9/43, pp. 185-187.)

Aircraft Production Methods.

694	13215	U.S.A.	... *The Automatic Body Engineer in Aviation.* (J. C. Widman, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 61, 87, 94.)
695	13216	U.S.A.	... *Selecting the Aerofoil Section.* (R. J. Hoffman, Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 66, 143-145.)
696	13219	U.S.A.	... *Production Technique at Douglas.* (Flying and Industrial Aviation, Vol. 32, No. 1, Jan., 1943, pp. 89-90, 138.)
697	13220	U.S.A.	... *Substitution of Phosphoric and Chromic Acid for Hydrofluoric Acid for Cleaning Sheet Metal to be Spot Welded.* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 90.)
698	13221	U.S.A.	... *Speeding Propeller Production.* (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 92.)
699	13235	U.S.A.	... *Aircraft Engines on the Production Line.* (H. E. Linsley, Mechanical Engineering, Vol. 65, No. 7, July, 1943, pp. 493-496.)
700	13237	U.S.A.	... *Finishes for Plywood in the Aircraft Industry.* (R. B. Anderson, Mechanical Engineering, Vol. 65, No. 7, July, 1943, pp. 506-510.)
701	13259	U.S.A.	... *Preparing American Aircraft for Operational Work (Modification Centres).* (Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 17-20; 82.)
702	13263	U.S.A.	... *Impression Cast Jaws for Aircraft Fittings.* (H. F. Lenz, Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 34-36.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
703	13268	G.B. ...	... *Furnace Brazing—A New Process for the Manufacture of Thin-Wall Landing Gear Components.* (D. H. Smith, Aircraft Production, Vol. 5, No. 59, September, 1943, pp. 411-414.)
704	13271	G.B. ...	... *The Cheetah X, Pt. II. Machining the Cylinder Unit, Introduction Casing Rear Cover and the Crankcase.* (Aircraft Production, Vol. 5, No. 59, September, 1943, pp. 418-428.)
705	13273	G.B. ...	... *Metal Cementing Process.* (Aircraft Production, Vol. 5, No. 59, September, 1943, p. 430.)
706	13274	U.S.A.	... *Conveyor Line Assembly—Continuously Moving Track System for Lockheed Lightning Fighter.* (Aircraft Production, Vol. 5, No. 59, September, 1943, pp. 431-433.)
707	13275	Canada	... *Canadian Production of Aircraft.* (Aircraft Production, Vol. 5, No. 59, September, 1943, p. 433.)
708	13276	G.B. ...	... *Gravity Die Casting, Pt. I. Organisation and Casting Methods at a Rolls Royce Foundry.* (Aircraft Production, Vol. 5, No. 59, September, 1943, pp. 434-442.)
709	13277	U.S.A.	... *Metal Spraying (Survey of American Practice).* (Aircraft Production, Vol. 5, No. 59, September, 1943, pp. 445-447.)
710	13278	G.B. ...	... *Rivet Salvage (Blackburn Sorting Scheme).* (Aircraft Production, Vol. 5, No. 59, September, 1943, pp. 453-454.)
711	13279	G.B. ...	... *Aircraft Electrical Wiring (The Oddie System of Cable Harness Attachment).* (Aircraft Production, Vol. 5, No. 59, September, 1943, p. 454.)
712	13324	U.S.A.	... *Modification Centres.* (E. H. Forbes, U.S. Air Services, Vol. 28, No. 6, June, 1943, pp. 30-32.)
713	13327	U.S.A.	... *Production of Aircraft Propeller Blades from Steel Tube.* (Machinery, Vol. 63, No. 1,607, 29/7/43, pp. 122-128.)
714	13391	G.B. ...	... *Riveting (Especially for Aircraft, 1936 to Date).* (Sci. Lib. Bibliog. Series, No. 590, 1943.)
715	13463	U.S.A.	... *The Automotive Industry in Naval Aircraft Production.* (R. E. Davison, Paper Presented at S.A.E. Meeting, June 9-10, 1943.)
716	13485	G.B. ...	... *Machining Aircraft and Tank Turret Gear Rings.* (Machinery, Vol. 62, No. 1,597, 20/5/43, pp. 540-542.)
717	13560	U.S.A.	... *Saving Weight in Air Shipment by Scientific Packaging.* (B. C. McNamee, American Aviation, Vol. 7, No. 3, 1/7/43, pp. 22-24.)
718	13582	U.S.A.	... *Atomic-Hydrogen Arc Welding Aids Production.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 103-104, 115.)
719	13583	U.S.A.	... *Buick Builds Welded Steel Manifolds.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 106, 115.)
720	13584	U.S.A.	... *Mass Producton of Curtiss Propellers (Photograph).* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 108.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
721	13659	U.S.A.	...	*Boston Line Assembly.* (Aircraft Production, Vol. 5, No. 58, August, 1942, pp. 385-392.)
722	13742	U.S.A.	...	*Hi Shear Rivets Save Weight.* (Air Tech., Vol. 3, No. 1, 15/7/43, p. 50.)
723	13764	U.S.A.	...	*Portable Aeroplane Hoist.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 74.)
724	13896	U.S.A	...	*Thin Case Hardening with Radio Frequency Energy.* (V. W. Sherman, Aero. Engg. Review, May, 1943, pp. 7-16.) (Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 8.)
725	14070	U.S.A.	...	*Moulded Plastic Bonded Veneers and Wood in Aircraft Production.* (R. J. Nebesar, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 168-171.)
726	14107	G.B. ...	...	*Development of Aircraft Detail Fittings (Precision Sheet Metal Work)—Pt. I.* (W. Cookson, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1575-1578.)
727	14151	G.B. ...	...	*Forming Aircraft Extrusions.* (Metal Industry, Vol. 63, No. 10, 3/9/43, p. 156.)
728	14584	Germany	...	*German Aircraft Production and New Development.* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, pp. 153-154.)

Plant Equipment and Tools.

729	13170	G.B. ...	...	5,500-*Ton Capacity Southwark Hydraulic Press (Photograph).* (Mechanical Engineering, Vol. 65, No. 8, August, 1943, p. 593.)
730	13333	G.B. ...	...	*Production Gauge Design and Dimensioning.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 178-181.)
731	13336	U.S.A.	...	*Chucking Fixture for Die Castings.* (Machinery, Vol. 63, No. 1,609, 18/8/43, p. 185.)
732	13451	G.B. ...	...	*Wire Ropers for Industrial Use.* (Mech. World, Vol. 113, No. 2,946, 18/6/43, pp. 665-667.)
733	13536	G.B. ...	...	*Craven 27-inch Centre Lathe for Crankshaft Turning.* (Machinery, Vol. 63, No. 1,603, 1/7/43, pp. 21-22.)
734	13537	G.B. ...	...	*Avery Dynamic Testing Machine.* (Machinery, Vol. 63, No. 1,603, 1/7/43, pp. 22-23.)
735	13566	U.S.A.	...	*New Angle Gauge for Checking Aircraft Components.* (American Aviation, Vol. 7, No. 3, 1/7/43, p. 65.)
736	13587	U.S.A.	...	*New Hydraulic Test Bench.* (Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, p. 112.)
737	13649	G.B. ...	...	*Jigs and Fixtures for Simple Assemblies.* (Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1055-1060.)
738	13662	U.S.A.	...	*New American Automatic and Portable X-Ray Equipment.* (Aircraft Production, Vol. 5, No. 58, August, 1943, p. 404.)
739	13673	U.S.A.	...	*New Vertical Honing Machine.* (Mech. Engg., Vol. 65, No. 6, June, 1943, p. 21.)
740	13691	G.B. ...	...	*The Equipment and Organisation of a Welding Laboratory.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1426-1428, 1432.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
741	13720	G.B. ...	... *New Plant and Tools.* (Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 241-244.)
742	13763	U.S.A.	... *Rivet Holding Device.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 72.)
743	14002	G.B. ...	... *Hand Feed Surface Grinding Machine.* (Engineer, Vol. 176, No. 4,567, 23/7/43, p. 75.)
			Scrap Salvage.
744	13443	G.B. ...	... *Building Up Rejected Components with Deposits of Nickel or Chromium.* (Prod. and Eng. Bull., Vol. 2, No. 8, June-July, 1943, pp. 375-382.)
745	14119	G.B. ...	... *Practical Methods of Segregating Steel Swarf.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, pp. 397-402.)
746	13618	G.B. ...	... *Rotol Airscrews System of Metal Salvage.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 36.)
747	14118	G.B. ...	... *Scrap Campaign in the Factory.* (Production Engineering Bulletin, Vol. 2, No. 9, Aug., 1943, pp. 393-395.)
			Welfare of Workers.
748	13501	G.B. ...	... *Wage Systems and Incentives.* (T. E. A. K. Jackson, Mechanical World, Vol. 113, No. 2,945, 11/6/43, pp. 638-641, 650-654.)
749	13455	G.B. ...	... *Accident Prevention in Industry.* (Mech. World, Vol. 113, No. 2,946, 18/6/43, p. 662.)
750	13452	G.B. ...	... *Medical Supervision in the Factory.* (G. Lowe, Mech. World, Vol. 113, No. 2,946, 18/6/43, pp. 668-669.)
751	13539	G.B. ...	... *Heating and Ventilating in the New Factory.* (J. V. Brittain, Mechanical World, Vol. 113, No. 2,944, 4/6/43, pp. 603-606.)
752	13433	G.B. ...	... *Production and Colours.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 208.)
753	13658	G.B. ...	... *Motion Study — Increasing Production by the Elimination of Unnecessary Effort.* (J. W. Hendry, Aircraft Production, Vol. 5, No. 58, August, 1942, pp. 381-384.)
754	13543	G.B. ...	... *Protecting the Skin of Industrial Workers.* (A. J. T. Eyles, Mechanical World, Vol. 113, No. 2,944, 4/6/43, pp. 608-610.)
			TRANSPORT (TANKS, "DUCKS," TRACTORS).
755	13186	G.B. ...	... *A Gas Turbine Locomotive.* (P. R. Sidler, Mechanical World, Vol. 114, No. 2,953, 6/8/43, pp. 160-161.)
756	13368	G.B. ...	... *Protection of Motor Vehicles and Engines in Storage.* (P. V. Lamarque, Engineering, Vol. 156, No. 4,049, 20/8/43, pp. 156-157.)
757	13462	U.S.A.	... *Engines for Tanks.* (R. J. Icks, Paper Presented at S.A.E. Meeting, June 9-10, 1943.)
758	13466	U.S.A.	... *Dust Problems in Military Vehicle Operations.* (L. F. Overholt, Paper Presented at S.A.E. Meeting, June 9-10, 1943.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
759	13467	U.S.A. ...	*Lessons Learned from World War II about Designing for Accessibility.* (E. S. Van Deusen, Paper Presented at S.A.E. Meeting, June 9-10, 1943.)
760	13474	U.S.A. ...	*Field Modification of Ordnance Vehicles.* (H. O. Matthews, Paper Presented at S.A.E. Meeting, May 5-6, 1943.)
761	13499	G.B.	*The Redesign of a Small Towing Tractor for Arc Welded Contruction.* (Mech. World, Vol. 113, No. 2,945, 11/6/43, pp. 631-634.)
762	13711	G.B.	*Vehicle Suspensions.* (I.A.E. Automobile Research Committee, No. 1,943-1,944.)
763	13724	G.B.	*Method of Graphical Analysis of Car Performances.* (H. Cousins, Automobile Engineer, Vol. 33, No. 437, June, 1943, pp. 249-250.)
764	13873	U.S.A. ..	*Enemy Weapons—Collection and Analysis of Captured Material (including Photographs of Enemy Artillery, Tanks, etc.).* (S. B. Ritchie, Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 96-99, 105-112.)
765	13893	G.B.	*I.A.E. Automobile Research Committee Abstract, May,* 1943. (Index of I.A.E. Abstracts for May, 1943.)
766	13933	U.S.A. ..	*U.S. Army Amphibian Vehicles.* (Engineering, Vol. 156, No. 4,045, 23/7/43, p. 75.)
767	14018	G.B.	*Locomotive Machine Friction.* (L. H. Fry, Engineering, Vol. 156, No. 1,044, 16/7/43, pp. 3-5.)

WIRELESS AND ELECTRICITY.

Aircraft Radio.

768	13168	U.S.A. ...	*Development of Radar.* (Mechanical Tng., Vol. 65, No. 8, Aug., 1943, pp. 590-592.)
769	13304	U.S.A. ...	*Developments in Detecting and Ranging by Radio ("Radar").* (Scientific American, Vol. 169, No. 2, Aug., 1943, pp. 78-80.)
770	13323	U.S.A. ...	*Radar—Aerial Watchdog.* (Bradley Jones, U.S. Air Services, Vol. 28, No. 6, June, 1943, pp. 19, 45.)
771	13835	G.B.	*Emergency S.O.S. Transmitters for Air-Sea Rescue Work.* (Flight, Vol. 44, No. 1,805, July, 1943, p. 125.)
772	13875	U.S.A. ...	*The Development of "Radar" (Radio Detecting and Ranging).* (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 136-137.)
773	14027	G.B.	*General Report on Radio Equipment, Type F.U.G.* 7. (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-6.)
774	14033	G.B.	*Radio Equipment of Heinkel 111H.* (Enemy Aircraft Reports (Issued by M.A.P.), 1943, pp. 1-37.)
775	14139	G.B.	*Sensitive Relays—Light Current Devices for Radio and Allied Uses.* (J. H. Jupe, Wireless World, Vol. 47, No. 8, August, 1943, pp. 234-237.)

General Wireless and Telephone.

776	13706	G.B.	*Cross Talk in Telephone Cables.* (Siemen's Mag. Eng. Suppl., No. 208, Dec.-Jan., 1943.)

https://doi.org/10.1017/S0368393100141112 Published online by Cambridge University Press

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
777	13783	U.S.A. ...	*Radio Engineering in War Time.* (L. Fry, Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 303-304.)
778	13784	U.S.A.	*A Waterproofing Material for Radio Ceramic Forms ("Dri-Film").* (Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 30-32.)
779	13785	U.S.A. ..	*Improved Selenium Rectifier.* (Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 40-41.)
780	13918	Australia ...	*Australian Radio Technical Services and Patents Company Bulletin.* (Nos. 77-89, 92-110, 128.)
781	14140	Japan ...	*Japanese Morse.* (Wireless World, Vol. 49, No. 8, Aug., 1943, p. 242.)
782	14141	G.B.	*F.M. Loudspeaker Distortion.* (Wireless World, Vol. 49, No. 8, Aug., 1943, pp. 248-249.)
			Ultra-Short Waves.
783	13907	G.B.	*Ultra-Short Electro-Magnetic Waves—IV. Guided Propagation.* (El. Engg., June, 1943, pp. 235-246.) (S. A. Schelkunoff, Metropolitan Vickers Tech. News Bulletin, No. 877, 30/7/43, p. 1.)
784	13913	G.B.	*Ultra-Short Electro-Magnetic Waves—III. Generation.* (El. Engg., May, 1943, pp. 206-215.) (I. E. Mouronitseff, Metropolitan Vickers Tech. News Bulletin, No. 876, 23/7/43, p. 8.)
			General Electricity.
785	12691	Germany ...	*The Construction and Protection of Modern Grids.* (From Elektrotechnischer Anzeiger, Vol. 59, No. 13, June 24, 1942, pp. 225-232.) (Engineers' Digest, Vol. 4, No. 3, March, 1943, pp. 89-90.)
786	12969	Germany ...	*Vibration of Overhead Transmission Lines—Results of Recent German Work.* (Light Metals, Vol. 6, No. 60, Jan., 1943, pp. 35-37.)
787	13359	G.B.	*Fluxes for Electrical Work (Alchotre).* (Mechanical World, Vol. 114, No. 2,954, 13/8/43, p. 183.)
788	13602	G.B.	*Applications of the Cathode Ray Oscillograph to Electric Power Systems.* (J. S. Forrest, J. of Scientific Instruments, Vol. 20, No. 5, May, 1943, pp. 69-74.)
789	13678	U.S.A. ...	*New Outdoor Photo-Electric Relay (Gen. Electric Co.).* (Mech. Engg., Vol. 65, No. 6, June, 1943, p. 30.)
790	13778	U.S.A. ...	*260 to 350 Megacycle Converter Unit for General Electric Frequency—Modulation Station Monitor.* (H. R. Sommerhayes, Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 249-253.)
791	13779	U.S.A. ...	*A Method of Measuring the Effectiveness of Electrostatic Loop Shielding.* (D. E. Foster and C. W. Finnigan, Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 253-255.)
792	13780	U.S.A. ...	*Variable-Frequency Bridge Type Frequency Stabilized Oscillators (for Amplitude Control).* (W. G. Shepherd and R. O. Wise, Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 256-268.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
793	13781	U.S.A. ...	*Open Wire Radio Frequency Transmission Lines.* (E. A. Laport, Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 271-280.)
794	13782	U.S.A. ...	*Network Theory. Filters and Equalizers, Pt. III.* (F. E. Terman, Procs. of the I.R.E., Vol. 31, Pt. 1, No. 6, June, 1943, pp. 288-302.)
795	13879	U.S.A. ...	*Use of Radio Frequency Energy to Detonate Explosive Rivets.* (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 141-142.)
796	13912	G.B.	*Generation of Electric Charges by Moving Rubber Tyred Vehicles.* (El. Engg., May, 1943, pp. 207-210.) (S. S. MacKeown and V. Wouk, Metropolitan Vickers Tech. News Bulletin, No. 876, 23/7/43, p. 5.)
797	13980	U.S.A. ...	*Oxide-Coated Cathode for High Voltage Tubes.* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 17.)
798	14058	U.S.A. ...	*Dielectric Properties of Animal Fibres.* (J. Errera and H. S. Sack, Ind. and Eng. Chemistry (Ind. Edition), Vol. 35, No. 6, June, 1943, pp. 712-716.)
799	14065	G.B.	*Temperature Control with Photo-Electric Cells.* (Metal Industry, Vol. 63, No. 5, 30/7/43, p. 72.)
800	14138	G.B.	*D.C./A.C. Converter—A Sensitive Method of Measuring Small D.C. Voltages.* (T. A. Ledward, Wireless World, Vol. 49, No. 8, Aug., 1943, pp. 230-233.)

HEAT, LIGHT AND SOUND.

Infra-Red Heating, Heat Flow, etc.

801	13239	U.S.A. ...	*Analyzing Heat-Flow in Cyclic Furnace Operation.* (Mechanical Engg., Vol. 65, No. 7, July, 1943, pp. 527-530.)
802	13241	U.S.A. ...	*Direct Fired Air Heaters.* (R. M. Rush and B. B. Reilly, Mechanical Engg., Vol. 65, No. 7, July, 1943, pp. 511-514.)
803	13355	G.B.	*Gas-Fired Infra-Red Heating.* (L. W. Andrew and E. A. C. Chamberlain, Mechanical World, Vol. 114, No. 2,954, 13/8/43, pp. 171-174, 191-194.)
804	13484	G.B.	*Infra-Red Lamp Heating.* (Machinery, Vol. 62, No. 1,597, 20/5/43, p. 536.)
805	13940	G.B.	*A Steady State Problem in Heat Conduction.* (A. N. Lowan, Phil. Mag., Vol. 34, No. 234, July, 1943, pp. 502-504.)
806	13961	U.S.A. ...	*Design of a Solid Fluid Heat Exchanger.* (C. L. Lavell, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 391-397.)
807	13962	U.S.A. ...	*Thermodynamics of the Liquid State.* (K. M. Watson, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 398-406.)
808	13402	G.B.	*The Evolution of the Electric Lamp.* (J. H. Aldington, Endeavour, Vol. 2, No. 6, April, 1943, pp. 62-67.)
809	13608	G.B.	*The Future of Fluorescent Lighting.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, p. 10.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
810	13663	G.B. ...	... *Infra-Red Radiation.* (Aircraft Production, Vol. 5, No. 58, Aug., 1942, pp. 405-406.)
811	13979	U.S.A.	... *Ultra-Violet Radiation and its Applications.* (Sci. Am., Vol. 169, No. 1, July, 1943, pp. 15-17.)

Black-Out, Fluorescent Lighting, etc.

812	13994	U.S.A.	... *Black-Out Lighting (with Bibliography).* (Z. C. Porter, J. Am. Soc. Nav. Engs., Vol. 55, No. 2, May, 1943, pp. 361-373.)

" Music " from Flight.

813	13772	G.B. ...	... *Music from Flight.* (F. Howes, Aeronautics, Vol. 8, No. 5, June, 1943, pp. 56-57.)

PHOTOGRAPHY (AERIAL, SCIENTIFIC, INDUSTRIAL).

814	13302	U.S.A.	... *Electronic Diffraction Camera for Studying Corrosion.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 78.)
815	13400	G.B. ...	... *The Photographic Plate in Nuclear Physics.* (G. F. Powell, Endeavour, Vol. 1, No. 4, Oct., 1942, pp. 151-156.)
816	13491	G.B. ...	... *Photography as a Scientific Instrument.* (Nature, Vol. 151, No. 3,843, 26/6/43, pp. 718-720.)
817	13544	G.B. ...	... *Photographic Templates.* (E. C. Jewett and C. D. Tate, Mechanical World, Vol. 113, No. 2,944, 4/6/43, pp. 611-613, 624-626.)
818	13563	U.S.A.	... *Air Photos Used to Study Airport Soils.* (American Aviation, Vol. 7, No. 3, 1/7/43, p. 28.)
819	13604	G.B. ...	... *The Photography of High Speed Transient Phenomena with the Sealed Off Glass Tube Cathode Ray Oscillograph.* (W. Nethercot, J. of Scientific Instruments, Vol. 20, No. 5, May, 1943, pp. 75-76.)
820	13606	G.B. ...	... *Document-Copying Camera.* (J. of Scientific Instruments, Vol. 20, No. 5, May, 1943, pp. 78-79.)
821	13636	U.S.A.	... *New Kodak Lens.* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 66.)
822	13673	U.S.A.	... *Aerial Photography for Determining Acreage of Food Productions, etc.* (S. R. Winters, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 46-47, 164-165.)
823	13696	G.B. ...	... *Scientific Photography and the Light Metal Industry.* (H. W. Greenwood, Light Metals, Vol. 6, No. 66, July, 1943, pp. 319-322.)

METEOROLOGY (SUN'S RADIATION).

824	13998	U.S.A.	... *Solar Radiation as a Power Source.* (C. S. Abbot, J. Am. Soc. Nav. Engs., Vol. 55, No. 2, May, 1943, pp. 381-388.)

PHYSIOLOGY AND AVIATION MEDICINE.

825	13225	Germany	... *Aerial Bacteriology: German Paratroops Employed for Testing Water Supplies in Advanced Zones of Russian Front (Photo).* (Flight, Vol. 44, No. 1,806, August 5, 1943, p. 143.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
826	13295	U.S.A. ...	*The Nature of Histamine (Substance in Body Cells Causing Fatal Shock when Released into the Blood Stream).* (L. W. Giellerup, Scientific American, Vol. 169, No. 2, Aug., 1943, pp. 68-69.)
827	13398	G.B.	*Physiology of the Lung.* (O. A. Trowell, Nature, Vol. 152, No. 3,849, 7/8/43, pp. 153-154.)
828	13493	G.B.	*Spectral Sensitivity of the Retinal Receptors.* (W. D. Wright, Nature, Vol. 151, No. 3,843, 26/6/43, pp. 726-727.)
829	13494	G.B.	*Physiology of Colour Vision.* (K. J. W. Craik, Nature, Vol. 151, No. 3,843, 26/6/43, pp. 727-728.)
830	13495	G.B.	*Liver Vacuoles and Anoxæmia.* (O. A. Trowell, Nature, Vol. 151, No. 3,843, 26/6/43, p. 730.)
831	13498	G.B.	*X-Ray Analysis of Hæmoglobin.* (J. B. Watson and M. F. Perutz, Nature, Vol. 151, No. 3,843, 26/6/43, pp. 714-716.)
832	13550	G.B.	*Some Problems of Measurement and Interpretation in the Study of Dark Adaptation.* (B. Semeonoff, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, p. 349.)
833	13551	Germany ...	*So-called "War Night Blindness."* (E. Heinsius, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, pp. 349-350.)
834	13552	Germany ...	*The Effect of Centrifugal Acceleration Flight on the Circulation of Man in the Sitting Position.* (Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, p. 350.)
835	13553	Germany ...	*Comparative Measurements of Stereoscopic Vision Using Koch's Depth Perception Apparatus and the Zeiss Stereoscope with Pulfrich Test Plates.* (E. Weissig, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, pp. 350-351.)
836	13554	Germany ...	*Stereoscopic Vision During Decompression.* (E. Heinke, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, p. 351.)
837	13555	U.S.A. ...	*Otolaryngologic. Problems Occurring in Fliers.* (L. D. Carson, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, pp. 351-352.)
838	13556	U.S.A. ...	*The Problems Inherent in the Protection of Flying Personnel Against the Temperature Extremes Encountered in Flight.* (E. A. Pinson and O. O. Benson, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, p. 352.)
839	13557	U.S.A. ...	*Physiologic Studies Pertaining to Deep Sea Diving and Aviation, Especially in Relation to the Fat Content and Composition of the Body.* (A. R. Behnke, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, pp. 348-349.)
840	13558	G.B.	*Discussion on Trinitrotoluene Poisoning.* (Various Authors, Bull. of War Medicine, Vol. 3, No. 6, Feb., 1943, pp. 352-353.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
841	13592	U.S.A. ...	*Medical Factors for Grounding Pilots.* (J. Peck, Flying and Industrial Aviation, Vol. 32, No. 6, June, 1943, pp. 68-70, 154.)
842	13612	G.B.	*Aviation Medicine.* (Trade and Engineering Times, Vol. 53, No. 951, May, 1943, pp. 31-32.)
843	13797	G.B.	*The Medical Aspects of High Flying.* (Flight, Vol. 44, No. 1,802, 8/7/43, p. 40.)
844	13862	Germany ...	*Ju. 87 Equipped with X-Ray Apparatus for Studying the Physiological Effects of Dive Bombing.* (Aeroplane, Vol. 65, No. 1,679, 30/7/43, p. 133.)
845	14004	U.S.A. ...	*Postural Changes in Standing Blood Pressure Affecting the Aviation Circulatory Efficiency Rating.* (C. F. Gell, U.S. Naval Med. Bull., 1943, Jan., Vol. 41, No. 1, pp. 48-52.) (Bull. of War Medicine, Vol. 3, No. 11, July, 1943, p. 641.)
846	14005	U.S.A. ...	*Nutrition in Aviation Medicine.* (War Medicine, Chicago, 1943, Jan., Vol. 3, No. 1, pp. 1-19.) (H. R. Bierman, Bull. of War Medicine, Vol. 3, No. 11, July, 1943, p. 642.)
847	14006	U.S.A. ...	*Effects of Centrifugal Acceleration on Living Organisms.* (War Medicine, Chicago, 1943, Jan., Vol. 3, No. 1, pp. 30-56.) (Bull. of War Medicine, Vol. 3, No. 11, July, 1943, p. 642.)
848	14007	U.S.A. ...	*Chronic Exhaustion State in Test Pilots.* (War Medicine, Chicago, 1942, Nov., Vol. 2, No. 6, pp. 917-922.) (J. H. Tillische and M. N. Walsh, Bull. of War Medicine, Vol. 3, No. 11, July, 1943, p. 642.)
849	14008	U.S.A. ...	*The Aeroplane, a Possible Means of Transmission of Diseases.* (W. P. Jackson, Virginia Med. Monthly, 1942, Jan., Vol. 69, p. 29.) (Bull. of War Medicine, Vol. 3, No. 11, July, 1943, pp. 629-630.)

MATHEMATICS, PHYSICS, CHEMISTRY.

850	13153	U.S.S.R. ...	*Radioactivity and the Completion of the Periodic System.* (L. Ponisovsky, Nature, Vol. 152, No. 3,850, 14/8/43, pp. 187-188.)
851	13734	G.B.	*The Standardization of Drawing Paper. The Influence of $\sqrt{2}$.* (Machinery, Vol. 63, No. 1,610, 19/8/43, pp. 216-217.)
852	13937	G.B.	*Three Types of Energy of Viscosity.* (A. E. Dunstan and A. H. Nissan, Phil. Mag., Vol. 34, No. 234, July, 1943, pp. 479-486.)
853	13938	G.B.	*Temperature, Pressure and Specific Volume Charges of a Gas Under Dissociation and Reassociation Conditions.* (W. J. Walker, Phil. Mag., Vol. 34, No. 234, July, 1943, pp. 486-488.)
854	13939	G.B.	*The Representation of Intensity, Hue, Saturation, and Magnitude of the Resultant Vector on the Trichromatic Theory.* (W. Peddie, Phil. Mag., Vol. 34, No. 234, July, 1943, pp. 488-495.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
855	14009	U.S.A. ...	*Determination of the Precision of Analytical Control Methods.* (R. F. Moran, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, pp. 361-364.)
856	14013	U.S.A. ...	*Mustard Gas in Air-Sensitivity of Qualitative Tests and a Rough Quantitative Determination.* (W. Rieman, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, pp. 411-412.)
857	14041	Germany ...	*The General Laws of Motion of Rigid Bodies Referred to Moving Axes.* (K. Magnus, A.Z.M.M., Vol. 22, No. 6, Dec., 1942, pp. 336-356.)
858	14042	Germany ...	*The Estimation of Errors in the Solution of Linear System of Equation by the Iteration Process.* (L. Collatz, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 357-361.)
859	14043	Germany ...	*Interpolation Applied to Families of Curves (with Special Application to Bomb Ballistics).* (H. Knoblock, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 364-366.)
860	14044	Germany ...	*The Convergence of the Newtonian Method of Approximation.* (F. Rehbock, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 301-362.)
861	14045	Germany ...	*Practical Interpolation.* (H. Egger, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 362-364.)
862	14799	G.B.	*The P.H. Value of Boiler Feed Water.* (R. Ll. Rees and J. Jackson, Engineer, Vol. 176, No. 4,576, 24/9/43, pp. 247-249.)