

2/6

WIRELESS ENGINEER

The Journal of Radio Research & Progress.

INDEX TO ABSTRACTS AND REFERENCES

from the world's technical
radio literature published
monthly in VOLUME XIX of
"Wireless Engineer" during
the year

1942

GECCALLOY

N.F. ALLOY POWDER

is now used for practically all radio cores being manufactured in this country. It is an all-British Product, the result of extensive research and development work carried out during the last 15 years.

The use of a finely divided alloy of high magnetic quality represents a further advance in the science of Magnetic Powder metallurgy in comparison with all the various grades of iron powder, most of which previously have been imported.

PROGRESS IN MAGNETIC POWDER METALLURGY

MAIN ADVANTAGES

- ① Higher permeability.
- ② Higher particle specific resistance.
- ③ Lower eddy current loss.
- ④ Non-rusting.

SALFORD ELECTRICAL INSTRUMENTS LTD.

PEEL WORKS, SALFORD, 3. Telephones : BLAckfriars 6688 (6 lines). Telegrams and Cables : "Sparkless, Manchester"
PROPRIETORS: THE GENERAL ELECTRIC Co. Ltd., OF ENGLAND



With the VARIAC . . . the *right* voltage every time

Thousands of enthusiastic users testify to the general usefulness of the VARIAC* continuously adjustable auto-transformer for use in hundreds of different applications where the voltage on any a.c. operated device must be set exactly right.

The VARIAC is the original continuously-adjustable, manually-operated voltage control with the following exclusive features, which are found in no *resistive* control.

- **EXCELLENT REGULATION**—Output voltages are independent of load, up to the full load rating of the VARIAC.
- **HIGH OUTPUT VOLTAGES**—VARIACS supply output voltages 15% higher than the line voltage.
- **SMOOTH CONTROL**—The VARIAC may be set to supply any predetermined output voltage, with absolutely smooth and stepless variation.
- **HIGH EFFICIENCY**—Exceptionally low losses at both no load and at full power.
- **SMALL SIZE**—VARIACS are much smaller than any other voltage control of equal power rating.
- **LINEAR OUTPUT VOLTAGE**—Output voltages are continuously adjustable from zero by means of a 320 degree rotation of the control knob.
- **CALIBRATED DIALS**—VARIACS are supplied with reversible dials which read directly in output voltage from zero to line voltage or from zero to 15% above line.
- **SMALL TEMPERATURE RISE**—Less than 50 degrees C. for continuous duty.
- **ADVANCED MECHANICAL DESIGN**—Rugged construction—no delicate parts or wires.

VARIACS are stocked in fifteen models with power ratings from 170 watts to 7 kw; prices range between 70/- and £32 : 10 : 0. Instant deliveries can be arranged on 1A Priority.

* Trade name VARIAC is registered No. 580,454 at The Patent Office. VARIACS are patented under British Patent 439,567 issued to General Radio Company.

Write for Bulletin 424-B & 742 for Complete Data.

Claude Lyons LTD
ELECTRICAL AND RADIO LABORATORY APPARATUS ETC.

★ Absolutely spot delivery of any reasonable quantity of all types (against 1A Priorities only, of course).

Reasonably early deliveries against lower priorities.

180, Tottenham Court Road, London, W.1, and 76, Oldhall Street, Liverpool, 3, Lancs



HETERODYNE OSCILLATOR

with exclusive B.S.R. features

Never has a commercial Oscillator been produced with such a performance irrespective of price. Built to retain its superlative performance indefinitely.

8 Watts with under 1% total Harmonic distortion.

2.5½" dia. Nickel Dials with slow motion.

4 Output Impedances selected by switch.

Multi-range Rectifier Output meter.

All stages checked by milliammeter.

Hum Content less than 0.16%.

Alternative R.C. Output down to 5 c.p.s.

Output within ± 0.5 db. 20 to 15,000 c.p.s.

110/200/250 volts, 50 cycles.



£67-10-0.

Model LO800.

BIRMINGHAM SOUND REPRODUCERS LTD.,
CLAREMONT WORKS, OLD HILL, STAFFS.

'Phone : Cradley Heath 6212/3. 'Grams : Electronic, Old Hill.

HIVAC
THE SCIENTIFIC
VALVE
BRITISH MADE

Specialists in
**MIDGET
VALVES**

HIVAC LIMITED
Greenhill Crescent,
Harrow on the Hill, Middx.

Telephone: Harrow 0895.

Electronic Engineering Services, Ltd.

24 STANLEY ROAD HEATON MOOR
STOCKPORT
TELEPHONE HEATONMOOR 3107

FOR
AMERICAN EQUIPMENT

WE WELCOME ENQUIRIES FOR ANY OF THE FOLLOWING. REASONABLY QUICK DELIVERY AGAINST GOOD PRIORITY.

STATIONARY TRANSMITTERS : A WIDE RANGE IS AVAILABLE, BOTH A.M. & F.M., ALSO CAR & AIRBORNE TRANSMITTER-RECEIVERS.

INSTRUMENTS : TRANSIENT ANALYSERS, DIRECT-INKING OSCILLOGRAPHS.

COMPONENTS : GANGED R.F. SWITCHES, SPECIFICATION TRANSFORMERS, SENSITIVE TYPE RELAYS, MIDGET VALVES & PARTS.

GENERAL : THROUGH OUR AMERICAN ORGANISATION WE CAN HELP IN LOCATING SOURCES OF SUPPLY FOR SPECIAL REQUIREMENTS UNOBTAINABLE IN THIS COUNTRY.

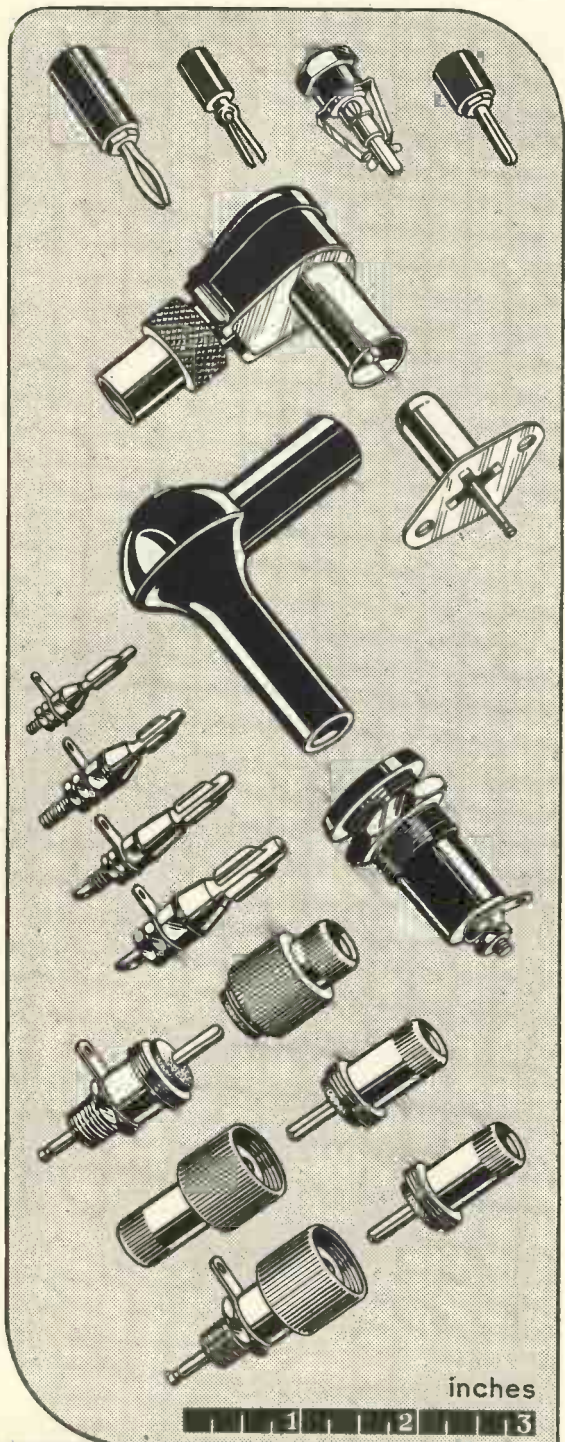


From the fiery
FURNACES . . .

. . . of Britain's factories, from her shipyards and laboratories and mines has come many an invention, many a discovery that has changed the course of history. We search for and hold fast to whatever good we can. We know full well that by perseverance only shall we blot out hatred and destruction, misery and hardship and emerge with a fierce determination to make the world a better, safer place. It is our wish always to be associated with that spirit of true comradeship which shall be continued on through happier days.

DUBILIER
CONDENSER CO. (1925) LTD.

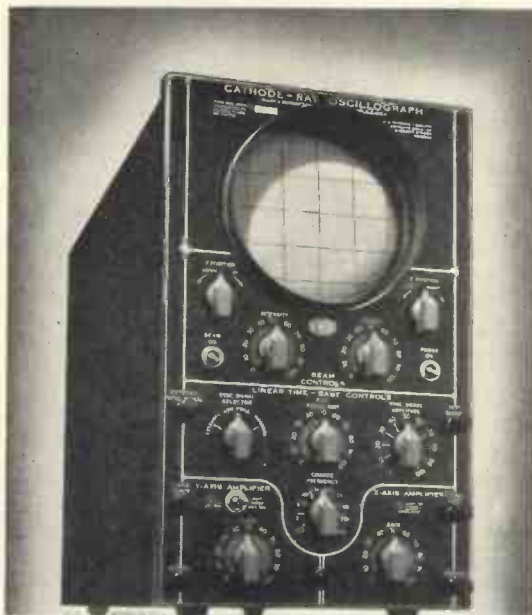




inches



BELLING & LEE LTD
CAMBRIDGE ARTERIAL ROAD, ENFIELD, MIDD



DuMONT
NEW/TYPE 208 OSCILLOGRAPH

We have represented the Allen B. DuMont Company for well over 10 years. This company was the first to introduce a versatile commercial high quality Cathode-Ray Oscilloscope Assembly and has always maintained a leading position in this branch of the electronics field. Their range is now absolutely comprehensive—one item, illustrated here, is the latest type 208 Oscilloscope. This is an instrument of outstanding performance and versatility, fitted with a 5in. tube of unique construction—an accelerator-pattern “Teletron.” Remembering our newly found reticence we will say no more—except to remind you that full details are given in Bulletin 4540, free on request.

★Those interested in Oscilloscopes and Accessories should request a copy of our 68-page Art Catalogue “B.” We also distribute a quarterly journal gratis, devoted to Cathode-Ray Oscilloscopy. If this interests you send complete details of your activities and full name and address in block letters; mark your communication “DuMont Oscilloscoper.”

Claude Lyons LTD
ELECTRICAL AND RADIO LABORATORY APPARATUS ETC.

180 TOTTENHAM COURT RD., LONDON, W.1
and 76 Oldhall Street, Liverpool, 3, Lancs.



MEASURING INSTRUMENTS, TUBES & VALVES

MULLARD

CATHODE RAY TUBE FOR OSCILLOGRAPHIC USE
3-Inch Screen

Heater	Vf = 4.0	V
	If = 1.0	A

Capacities
Modulator (G) to all other electrodes = 20 pF
Either X plate to either Y plate = 3 pF

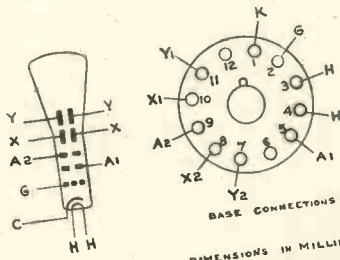
Fluorescent Colour - Green
Deflection - Electrostatic for symmetrical operation.

Operating Conditions	1,000	V
Va2	120-150	V
Va1	0-15	V
Vg1	200	max/V
Deflection sensitivity X and Y plates	EAE	

The grid voltage should be adjusted to give the required light intensity. The voltage should never become positive or damage to the tube will result.

ECR30

CR60



DIMENSIONS IN MILLIMETRES



MULLARD

A Valve for every Purpose.

MOULDED TODAY ARE THE DESTINIES OF TOMORROW . . .

Upon the shape of events to-day, and every day, depend the fortunes of the future. Through to-day's endeavour in research and industry already are discerned new and greater benefits for the coming era.

The name Marconi, since the earliest days of Radio, stands foremost in the field of communication; and Marconi Instruments Ltd., in the specialised work of instrument production, maintain this pride of place.

Over the horizon we see a golden age for scientist and technician. As always to the fore—but in who knows what new guise?—will be the name Marconi;—accuracy and reliability, then as now, the standard by which we judge ourselves.

Meanwhile, we concentrate on the business of to-day and endeavour to meet fully all requirements.

COMMUNICATION TESTING EQUIPMENT • INDUSTRIAL, MEDICAL AND LABORATORY APPARATUS

MARCONI INSTRUMENTS LIMITED

ST. ALBANS · HERTS · Phone 4323

A 'POINT' TO CONSIDER

"VISKRINGS"

TUBULAR CABLE MARKERS
ARE SELF-FIXING BY SHRINKAGE
NO TOOLS REQUIRED



No rubber used · Supplied ready for use in all sizes and colours, indelibly printed in black · Imperishable · Impervious to oils and petroleum · Do not increase diameter of cable.

VISKRINGS CABLE MARKERS

VISCOSE DEVELOPMENT CO. LTD., Woldham Rd., Bromley, Kent

Telephone: Ravensbourne 2641

TECHNICAL BOOKS

supplied from stock or obtained promptly to order.
Particulars of books on Radio and Electrical Engineering post free on application.

Foreign books obtained under licence.

LEWIS'S POSTAL SERVICE

Books despatched by return post.
Orders for £2 or over sent carriage free in the British Isles.

H. K. LEWIS & Co. Ltd.
136 Gower Street, London, W.C.1

Telephone: EUSon 4282 (5 lines)

MELTON METALLURGICAL LABORATORIES

LIQUID SILVER — for metallising

CERAMIC, MICA, QUARTZ, BAKELITE or WOOD

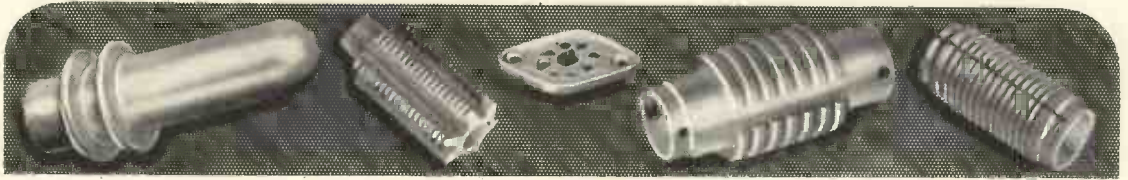
Low Melting-point SOLDER from 70°C. SOLDERS in PASTE or LIQUID form.

Non-corrosive liquid FLUX for all electrical purposes.

Agents for Australia: A. F. HARRISON & CO. PTY. LTD.
85, CLARENCE STREET, SYDNEY

IPSWICH RD., TRADING ESTATE, SLOUGH, BUCKS

Phone: SLOUGH 20992



Clear as a Crystal

**AND HERE IS
THE REASON..**

• • • the answer has been found in Bullers Low Loss Ceramics to the problem of Dielectric Loss in High Frequency circuits.

Years of laboratory research and development have brought these materials to a high degree of efficiency. To-day they are in constant use for transmission and reception, and play a vital part in maintaining communications under all conditions.

Made in Three Principal Materials

FREQUELEX—An Insulating material of Low Dielectric Loss, for Coil Formers, Aerial Insulators, Valve Holders, etc.

PERMALEX—A High Permittivity Material. For the construction of Condensers of the smallest possible dimensions.

TEMPLEX—A Condenser material of medium permittivity. For the construction of Condensers having a constant capacity at all temperatures.

Bullers

LOW LOSS CERAMICS

BULLERS, LTD., THE HALL, OATLANDS DRIVE, WEYBRIDGE, SURREY
Telephone : Walton-on-Thames 2451. Manchester Office : 196, Deansgate, Manchester.



Electrical Standards for Research and Industry

Testing and Measuring Apparatus
for Communication Engineering

ALL
TYPES

ALL
FREQUENCIES

ALL
ACCURACIES

WAVEMETERS

OSCILLATORS

CONDENSERS

INDUCTANCES

RESISTANCES

BRIDGES Capacitance
Inductance
Resistance

H. W. SULLIVAN
- LIMITED -

London, S.E.15

Tel.: New Cross 3225 (Private Branch Exchange)

WIRELESS ENGINEER

INDEX TO ABSTRACTS AND REFERENCES

Published Month by Month in "Wireless Engineer" during 1942

THE Index is compiled on the same plan as in 1941. In the Author Index, a name followed by "and" is that of the first author of a jointly written paper, while the word "with" indicates that the name indexed is that of the second author.

AUTHOR INDEX

- Abbot, C. G., and others, Smithsonian Astrophysical Observatory, 3191
- Abbott, R. B., and G. H. Purcell, wood for violins, 758
- Abbott, F. R., vapour diffusion pumps, 2474
- Abel, A. E., and others, radio in air transport, 1077
- Aceves, J. G., aerials for f.m. reception, 98
- Acheson, E. G., Ltd., graphite coatings, 1530
- Acheson, M. A., h.f. tube phenomena, 1059
- Ackerman, P., total security, 1568
- Ackerman, I., with G. Mollenstedt, electron optics, 518
- Ackland, E. E., infra-red heating, 3100
- Adam, H., contact potential, 1367; ionic converter, 822
- Adam, M., applications of cm. e.m. waves: survey, 2935; broadcast receiving valves in France: survey, 3265
- Adams, H. A., television for aircraft pilots, 3307
- Adams, J. J., design data on portable receivers, 3252
- Adel, A., infra-red solar spectrum, 3190
- Adkins, B., amplidyne generator, 2928
- Aerovox Corporation, electrolytic condensers, 1520; h.v. oil capacitors, 3105; plug-in capacitors, 2114; temperature-compensating capacitors, 1173; transmitting capacitors, 2113
- Agapov, I. F., monitoring, 492
- Ahearn, A. J., with J. A. Becker, electron microscopes, 344
- Akahira, T., and M. Kamazawa, insulation resistance, 1130
- Akatnova, E., with M. Revutzkaja, X-ray tube, 1841
- Akerman, B., broadcast antenna measurements, 1055
- Akulov, N. S., and L. W. Kirensky, magneto-caloric effect, 867
- Albano, V. J., corrosion, 1528
- Aldous, D. W., sound recording crystal cutting head, 2690
- Alekseev, N. F., and D. E. Malyarov, magnetron for powerful oscillations, 2639
- Alexander, E. H., photoelectric width gauge, 3455; power-unit maintenance, 3831; width measurements, 1578
- Alexander, R. S., with C. Butt, low intensity flashes of light, 2891
- Alexanderson, E. F. W., altitude of airplanes, 123
- Alford, A., u.h.f. antennas, 1043
- and A. G. Kandoian, two-course radio range, 1698
- A. G. Kandoian and R. A. Hampshire, u.h.f. loop antennas, 1042
- Alfvén, H., e.m. hydrodynamic waves, 3501; solar corona, 3504
- Alger, P. L., progress in engineering, 2182
- Aliverti, G., condensation nuclei in atmosphere, 1624, 2294
- Alleman, R. S., sound emission, 770
- Allen, E. S., mathematical six-place tables, 1833
- Allen, J. S., photon efficiency of electron multiplier, 452
- Allgemeine Elektrizitäts-Gesellschaft, tin-less soldering, 2108
- Allibone, T. E., physics of lightning, 1908
- Al'pert, Ya. L., propagation of e.m. waves in tubes, 3181
- V. V. Migulin and P. A. Ryazin, e.m. field, 622, 1885
- Alvensleben, K., biological action, 1231
- American Institute of Electrical Engineers, protection of power transformers against lightning surges, 3518
- American Institute of Physics, war policy committee, 3158
- American Standards Association, acoustical terminology, 3620; noise measurement, 3620
- Amos, S. W., aerial coupling, 426; distortion in radio receivers, 2655; portable receivers, 701; r.f. instability of amplifiers, 2979
- Amrein, W., negative resistances, 2976
- Amy, Aceves and King, Inc., multicoupler antenna system, 1968
- Anderson, E. I., with S. W. Seeley, spectrophotometer, 319
- Anderson, H. L., and others, eliminator, 819
- Anderson, M. H., Mackay Co. communication system, 283
- Anderson, W. A., with F. N. Rhines, substitute solders, 2841
- André, H., silver-zinc accumulator, 2097
- Andrews, D. H., W. F. Brucksch, Jr., and others, superconductors for measuring infra-red radiation, 3682
- Andrias, J., with J. G. Trump, flash-over of solid insulators, 1164, 3718
- Andriushin, N. I., with M. V. Dekhtjar, initial susceptibility, 871
- Angelini, A. M., operational calculus, 2625
- Ansari, I. A., and B. D. & G. R. Toshniwal, soil constants, 374
- Apanasenko, A. D., transposed telephone lines, 582
- Aquilina, C., subsoil prospecting, 2243
- Archenhold, G. H. A., sunspots and faculae, 1894
- Arctowski, H., heat of sun, 635; solar radiation, 1289; stratosphere, 942
- von Ardenne, M., c.r. micro-oscillograph, 1475; electron lenses and microscopes, 515, 1250, 1774, 1775, 2059; neutron generator, 2067
- and others, diffraction in electron microscope, 3693
- Arends, E., mercury-vapour rectifiers, 2479
- Ariyama, K., theory of superconductivity, 3843
- Arkharov, V. I., X-rays in production of quartz crystals, 3058
- and V. S. Averkiev, X-rays in cutting quartz crystals, 3059
- Arlick, A. B., atmospheric spectrum intensities, 1902
- Armour, A. M., mobile battery supply unit, 218
- Armstrong, E. H., frequency-modulation, 272
- Arnaud, P. J., transmitting and modulator valves, 1069
- Arndt, G., air-arm signal-corps, 2188
- Arnold, A. H. M., proximity effect, 391
- Arnott, E. G. F., ignitor characteristics, 1494
- Arsen'eva-Geyl, A. N., photoconductivity, 1741
- Artus, W., regulating systems, 401
- Artzt, M., and D. E. Foster, duplex transmission, 490
- Arvidsson, A., dry rectifier units, 250
- Asai, C., photoconductivity of semiconducting layers, 1111
- Asai, S., electronic oscillations, 1642
- Asao, S., composite photocathode, 1110
- Aschermann, G., and others, superconducting compounds, 906
- Ashbel, N. I., retarding field oscillator, 2840
- Ashby, R. M., and A. O. Hanson, grid controlled corona, 2085
- Association of Scientific Workers, central board, 3794; science and scientific workers, 1219
- Astbury, N. F., and L. H. Ford, mutual inductance and resistance, 2763
- A.S.T.M. Committee, electrical insulating material standards, 3373
- Asundi, R. K., and N. L. Singh, excitation of spectra, 2950
- Atwood, H., with others, velocity of radio waves, 2271
- Auluck, F. C., Fermi-Dirac functions, 1561
- Ausschuss für Einheiten und Formelgrößen, units and dimensions, 792
- Austen, A. E. W., and S. Whitehead, dielectric strength, 2487
- Automatic Electric Co., relay using current only, 2791
- Autrum, H., sound reception, 1426
- Averkiev, V. S., with V. I. Arkharov, X-rays in cutting quartz crystals, 3059
- Avery, W. H., infra-red spectrometer, 605
- Avrami, M., and J. B. Little, diffusion of heat, 1977, 2386
- and V. Paschkis, heat flow, 1977
- Awbery, J. H., progress in physics, 558
- Ayzenberg, G. Z., directive aerials, 441
- d'Azambuja, L., solar prominences, 1290
- Aziz, A., luminous phenomenon in earthquake, 2576

WIRELESS ENGINEER

- Baaqui, M. A., with R. M. Chaudhuri, current density in glow discharge, 3119
- Babat, G., heating of hollow cylinders, 2200 ; induction heating systems, 2199
- Babcock, H. W., and J. J. Johnson, night sky, 1284
- Bachelier, L., oscillation probabilities, 1563
- Bacon, W., decibel, 1473 ; r. c. oscillator, 2769 ; expander, 2654 ; thermal-delay relays, 2676
- Bader, W., four-terminal networks, 3226
- Bagenal, H., noise, 2724
- Bahls, W. E., and C. H. Thomas, gas control tubes, 112
- Bailey, J. E., with others, velocity of radio waves, 2271
- Baird, J. L., television development, 774
- Bajpai, R. R., and V. I. Vaidhianathan, quartz ultrasonic oscillators, 1723
- Baker, A. K., photoelectric effects on neon tubes, 2901
- Baker, H. H., and R. H. Müller, amplifier for electrometric titrations, 3835
- Baker, J. R., freedom in science, 300 ; literature for war prisoners, 3801
- Baker, R. F., E. G. Ramberg and J. Hillier, photographic action of electrons, 3080
- with J. Hillier, electron-microscope images, 3076
- Baker, T. Thorne, photographic emulsion technique, 2235
- Baker, W. O., crystallinity in cellulose esters, 1797
- and others, plastic materials, 1507
- with W. A. Yager, dielectric properties of polymers, 836
- Baker, W. R., with F. M. Leyden, impedance comparator, 1749
- Balbi, C. M. R., deaf aids, 1376, 3021, 3625
- Ball, L. M., air-raid siren field tests, 3609
- Ballard, J. C., temperature at high altitudes, 27
- Balls, E. G., with H. R. Nettleton, resistance, absolute measurement, 1131
- Baltzer, J., sound films, 1708
- Balygin, I. E., c. r. oscillography, 2062, 2782
- Bancroft, D., thyatron thermostats, 2253
- Bandow, F., phosphorescence centres, 2068
- Banerjee, S. S., and A. S. Rao, i.f. amplifiers with negative resistance, 2313
- Banet, L., magnetic current in liquids, 3408
- Banner, E. H. W., condenser smoothing, 3221 ; lightning protection of buildings, 2962 ; progress in voltmeter design, 3338 ; repulsion moving-iron instrument, 2454
- Barber, A. W., C. J. Franks and A. G. Richardson, signal generator, 179
- Barbier, D., and D. Chalonge, absorption spectrum of ozone, 1886 ; formation of NO₂, 2288
- D. Chalonge and M. Masiera, decomposition of ozone, 17
- Barbier, O., supersonic and optical images, 2729
- Barbulesco, C. D., control of aircraft, 124
- Barclay, W. J., and K. Spangenberg, cable impedance, 2617
- Barco, A. A., with others, i.m. waves, 2329
- Barkan, D., soil vibrations, 1297, 1854
- Barnes, J. C., equations of curves, 296
- Barnes, R. B., and C. J. Burton, electron microscope and uses : survey, 3348
- Barone, A., optical telephony with supersonic waves, 2729 ; standard-frequency generation, 2730
- Barrer, R. M., diffusion in solids, 2385
- Barrow, W. L., and H. Schaevitz, hollow pipes, 96
- Bartelink, E. H. B., square-wave generator, 2 c/s. to 200 kc/s., 3650
- Barthel, A., with K. W. Fröhlich, Th in heater-element alloys, 3377
- Barthel, C. E., Jr., photographic film, 209
- Barthel, K., and E. Eisele, wire broadcasting, 1548
- Bartholomew, S. W. T., musical fidelity, 1343
- Bartholomeyczuk, W., and others, penetration of inert gases, 812
- Bartlett, G., electrical developments of 1941, 3163
- Basak, R. G., electronic medium, 1688
- Basch, D., metal castings, 594 ; production of metal parts, 1224
- Baskin, M. L., electrostatic voltage transformer, 1488
- Bäszel, K., Foucault current theory, 538 ; vibration of tuning fork, 3335
- Batsel, M. C., and others, "Fantasia," 1399
- Batley, E. L., morse sending, 415
- Bauer, B. B., directional microphones, 133, 2696
- Bauer, H., with M. Gosewinkle, condenser microphones, 1704
- Bayley, D. S., capillary-tube leak, 3699 ; hydraulic relay, 3701
- Bayley, F. H., electrical contacts for instruments, 3131
- Beavis, E. A., thermal breakdown in cables, 3102
- Bechert, K., plane waves in ideal gases, 20
- Bechmann, R., quartz oscillators and resonators, 3332 ; vibrations of quartz plates, 1757
- Beck, E., magnetic voltage stabilisers, 1776
- Beck, F. J., Jr., and J. G. Clarke, hysteresis torque, 2520
- Becker, A., effect of a rays on selenium photoelement, 3042
- Becker, H. E. R., vibration-free suspension, 2128
- Becker, J. A., and A. J. Ahearn, electron microscopes, 344
- Becker, K., with G. Kroker, cellulose triacetate, 838
- von Beckerath, H., quartz in communication technique, 2973
- Beckman, A. O., with H. H. Cary, spectrophotometer, 1865
- Beckmann, B., W. Menzel, and F. Vilbig, scattering in wave propagation, 1279
- Bedford, A. V., with others, television apparatus, 1104
- Beers, Y., counter resolving times, 2221
- Beerwald, P., and H. Keller, piezo-electric microphone, 2393
- Beese, N. C., and J. W. Marden, fatigue in luminescent materials, 3085
- Begun, S. J., and T. E. Lynch, lateral recording, 1398, 2691
- Bell, D., cleaning fine copper wire, 2100
- Bell, D. A., frequency-modulation or homodyne, 3238 ; noise in receiving aerials, 2362
- Bell Telephone Laboratories, directive air raid signal, 2397
- Bellaschi, P. L., driven grounds, 25, 3516 ; lightning strokes, 3515
- Belleville, L. M., with H. K. Lawson, mobile receiver 30-40 Mc/s., 2648
- Belov, A., reaction of soundboard, 2004 ; scale of brass instruments, 2719
- Bender, H., effect of atmospherics on reception, 3246
- Bender, R. S., with B. R. Curtis, elkonite for ion sources, 3088
- Benecke, H., microphone pick-up, 135
- Benedetto, F. A., and others, mesotron studies, 1887
- with V. F. Hess, mesotron variation, 642
- Benedikt, E. T., ferromagnetic powder particles, 1535 ; induction coils, 1537, 2137
- Benham, W. E., nature of temperature, 2540 ; research in industry, 3436
- Benjamin, M., and R. O. Jenkins, autoelectronic emission, 2383
- Benkova, N. P., 27-day period of magnetic storms, 2944
- and O. Y. Kosuhia, magnetic disturbance, 9
- Bennett, W. H., negative corona, 1955
- Bennington, T. W., s.w. communications, 630
- Benson, G. L., with others, car radio performance, 697
- Benson, J. E., history of crystal filters, 47
- with G. Builder, quartz-crystal filters, 46
- Benson, S. W., sealing quartz to pyrex, 3094
- Bent, A., 225-Mc/s. converter design, 2646
- Benz, F., selectivity of receiving apparatus, 2343
- Beranek, L. L., acoustic impedance, 1410
- Bereskin, A. B., power-factor meter, 1466
- Berg, W. F., voltage regulator, 3092
- Berg, K., with others, lightning arresters, 1617
- Bergtold, F., communication between aircraft, 3136
- Bernard, P., atmospheres of earth and Mars, 2284 ; Rayleigh waves, 331
- Bernardini, G., and others, mesotron spectrum, 646 ; cosmic radiation, 2280
- Berndt, W., with others, aerial problems, 1050
- Bernhard, R. K., static and dynamic constants, 905, 1839 ; traffic noise, 350
- Berrang, B., with R. Gauger, push-pull oscillator, 2025
- Berry, E. B., with V. F. Hess, cosmic rays, 643
- Berry, H. W., and others, ionisation of gases, 1552
- Berry, T. M., with J. T. M. Malpica, spark generator, 608
- Berstein (Bershteyn), I. L., auto-oscillating systems, 1649 ; square-law detection, 1658
- Berthelot, A., weak radioactivity, 1857
- Bertoli, G., ionising effect of flame, 2878
- Bewley, L. V., and others, natural frequencies in coils and windings, 3658
- Bhatnagar, S. S., and S. Parthasarathy, Indian research, 3164
- and S. D. Sunawala, vinyl resins, 2490
- Bhattacharya, G. N., graphite on glass resistances, 1790
- Bibikov, N. S., electrical prospecting, 2577
- Bickley, W. G., and J. C. P. Miller, numerical differentiation, 1197
- Bierl, R., gramophone records, 729
- Bikerman, J. J., electrical double layer, 3144
- Bingley, F. J., application of f.m. to television pulses, 2420
- Birus, K., crystal phosphors, 1482
- and H. Zierold, phosphorescence, 1483
- Bisang, L., ignition-delay measurement, 2265
- Bishop, H., technical developments in broadcasting, 3756
- Bitter, F., and others, copper-iron alloys, 878
- Björkdal, E., troposphere, 636
- Björnstahl, Y., double refraction in flowing liquids, 3463 ; measurement of dielectric constant, 2021 ; precision photometry, 3450
- Black, E., operating half-wave doublet at second harmonic, 3582
- Black, K. C., coaxial cable system, 1438
- Black, L. J., with H. J. Scott, f.m. sideband limitations, 1017
- Black, W. L., and N. C. Norman, programme-operated amplifier 1189
- Blackwelder, E., research as usual in total war, 3429
- Blanchard, J., resonance, 981
- Blankmeyer, W. H., public utility system 2726 kc/s., 3753 ; telephone amplifier for power company circuits, 3622
- Bleckwenn, H., photocell compensator, 1133
- Bleicher, E., push-pull power amplifier, 1384
- Blewett, J. P., and S. Ramo, wave propagation, 676
- Blicht, J. D., cutting bias supply, 685
- Bloom, L. R., with J. T. Tykociner, spectral sensitivity, 778
- Bloom, P. H., variable frequency oscillator, 2645
- Bloomer, H., with C. Moore, electro-kymograph, 3706
- Blow, T. C., solenoid inductance calculations, 3536

- Boardman, E. M., with R. L. Hanson, sound integration, 152
 Bobkovski, S. A., electrostatic generators, 3354
 Boersch, H., electron microscopes: image, 3075; resolving power, 3947; universal, 1773
 Bogdanov, A. V., with V. T. Renne, copper-oxide rectifiers, 421
 Bohme, H., and E. Koch, output resistance of amplifiers, 668
 Boldry, Yu. D., and K. L. Greben, cathode discharge in mercury, 2477
 Bollman, J. H., regulator for the K-1 carrier system, 3779
 Bolt, R. H., and others, sound perturbation in irregular rooms, 3906
 — with R. L. Brown, flow resistance, 2725
 Bonch-Bruевич, A. M., and others, electrical strength of gases, 853
 Boner, C. P., broadcast studios, 1409
 — with W. J. Kennedy, microphone calibration, 3607
 — with A. W. Nolle, organ pipes, 1422
 Bonhoeffer, K. F., and W. Renneberg, activation waves, 2207
 Boning, P., breakdown in cables and bushes, 2813
 Booker, H. G., electron-density in ionosphere, 2938
 Bookwalter, L. S., visible frequency indicator, 183
 Booth, C. F., and G. Gregory, generation of synchronising signal, 2449
 — and F. J. M. Laver, temperature control of oscillators, 3652
 Borgnis, F., cylindrical cavity resonators, 2306; dielectric constant measurement by cavity resonators, 3644; valve noise, 694; waves in dielectric media, 357
 von Borries, B., deflecting plates in c.r. tubes, 3683; intensity relations in electron microscope, 3079
 van den Bosch, F. J. G., electron multiplier, 1973
 Bose, D. M., cosmic-ray investigations, 1254
 — and B. Choudhuri, mass of mesotron, 1602
 Bothe, W., diffusion problems and expressions, 2292
 Bottke, E., French receivers, 1964
 Boucke, H., amplification control patent, 2996
 Boughtwood, J. E., with F. B. Bramhall, f.m. carrier telegraph system, 3752
 Boutaric, A., glass as colloid, 3726
 Bouton, G. M., lead-calcium test castings, 3378
 Boutry, G. A., and J. Gillod, recording spectrophotometer, 606
 Bouwers, A., and F. H. Heijn, electron-counting, 1260
 — with F. A. Heijn, nuclei research, 810
 Bowdler, G. W., impulse voltages, 2048
 — and W. G. Standing, porcelain insulators, 424, 529
 Bowen, E. J., chemical aspects of light, 2923
 Bowtell, J. N., and E. E. Miles, phosphorescence, 332
 Boyland, H. J., and others, valve equivalent circuit, 3594
 Boys, C. V., square ruled paper projection, 2197, 3440
 Bozorth, R. M., and D. M. Chapin, demagnetising factors of rods, 3390
 — and H. J. Williams, torque on silicon-iron crystal, 870
 Brabazon, Lord, of Tara, musical notation, 2407
 Bradford, C. I., detecting passage of a bullet, 1268
 Bradley, W. E., superhet. for general use, 3577
 Bragg, W. L., physicists after the war, 1849; X-ray microscope, 2213
 Brailsford, F., and J. W. Snelson, routine coil testing, 3659
 — with J. W. Snelson, coil-turns measuring equipment, 2102
 Brainerd, J. G., stability of oscillations, 1646
 Bramhall, F. B., and J. E. Boughtwood, f.m. carrier telegraph system, 3752
 Brandenburger, E., with W. Nagel, permeability to water of insulating materials, 1801
 Brandt, T. F., and H. L. Rorden, h.v. bushings, 85, 3572
 Brannin, J. W., experimental 112 Mc/s. receiver, 689, 2843
 Braun, K., telephone apparatus, 1987
 Braune, F., u.h.f. meter, 2431
 von Braunmühl, H. J., and O. Schubert, tuning-note generator, 755
 Bray, C. W., and W. R. Thurlow, deafness of birds, 1717
 — with E. G. Wever, stapedius muscle, 1427
 Breitenbach, J. W., thermal polymerisation of styrol, 835
 Bremzen, A. S., and I. S. Faynberg, relaxation oscillators, 1453
 Brenner, W. C., with H. H. Skilling, electric strength of air, 234, 3719; electric strength of nitrogen and freon, 3720
 Bressi, A., frequency measurements, 1450
 Breuer, K., grid bias by cathode resistance, 1962
 Breuninger, H. W., Adcock d.f. with *n* masts, 3010
 Bricard, J., light diffusion by mist, 379, 1899
 Brickwedde, L. H., and G. W. Vinal, standard cells, 1462
 Bridgewater, E. R., synthetic rubber, 2126
 Brierly, J., moving-coil pick-up, 3020
 Brierly, R. H., A.R.P. in electrical industry, 1844
 Briggs, L. J., standards of measurement, 2036
 Briggs, P. O., with C. F. Mahoney, A.R.P. communication, mobile radio, 2527
 Brillouin, L., magnetron, 107, 1354, 1631
 British Association, conference on mineral resources, 3375; science and world order, 2560
 British Standards Institution, earthing devices, 348
 British Unicorn Ltd., beryllium windows for X-ray tubes, 2912
 Brobst, D. R., cellulose acetate yarn, 1523
 Brockelsby, C. F., visual null indicators, 194
 Brod, S., landing aircraft in darkness, 2866
 Brode, W. R., and C. H. Jones, recording spectrophotometer, 1866
 Broly, A. H., technical features of television, 1099
 Bronwell, A. B., with W. G. Dow, d.c. space-charge flow, 1062
 Brooks, C. F., with H. T. Stetson, auroras at Blue Hill Observatory, 1885-1940, 2282
 Brown, A. G., with A. McD. Richardson, radio-telephone, 277
 Brown, F. C., auroral display of 18th September, 1941; 950
 Brown, G. Burniston, dimensions of physical quantities, 2541
 Brown, G. H., impedance determinations of eccentric lines, 2617
 — and J. W. Conklin, water-cooled resistors, 222
 — and J. Epstein, turnstile antenna, 1041
 — and others, direct-reading wattmeters, 1744
 Brown, H., and others, mass spectrometer, 213
 Brown, R. H., electronic phase bridge, 3679
 Brown, R. L., and R. H. Bolt, flow resistance, 2725
 Brown, S. C., and others, detection of radon, 2584
 Brown, S. L., graphical solution of equations, 2173
 — with L. L. Wheeler, transcendental functions, 2173
 Brown, W. F., Jr., magnetisation, 265
 Brown, W. N., Jr., conical sound radiators, 130
 Browning, H. M., Helmholtz resonators, 3029
 Broxon, J. W., magnetic disturbances and cosmic rays, 1888; solar influence on cosmic rays, 2606
 Bruce, C. E. R., and R. H. Golde, lightning discharge, 966
 Brüche, E., electron microscopes, 200
 — and A. Recknagel, X-ray tubes, 800
 Brückensteinkuhl, K., frequency division by c.r. tube, 3037; synchronising signals, 1734
 Brückmann, H., with others, aerial problems, 1050
 Brucksch, W. F., Jr., with others, superconductors for measuring infra-red radiation, 3682
 Brun, E., with M. Pauthenier, mist droplet diameter, 1576
 Brunn, G., band width in telegraphy, 2331
 Brush Development Co., electronic surface analyser, 3819; sound recording crystal cutting head, 2690
 Bryant, J. M., and M. Newman, high-speed oscillography, 3685
 Bubb, F. W., parabolic mirror, 3255
 Bubb, H., with B. Goodman, frequency-halving oscillators, 68; 56 Mc/s. transmitter, 405
 Bubert, J., ballistic galvanometer calibration, 3069; measurement of small a.c. powers, 1132, 2744
 Buchhold, Th., d.c. polarised a.c. choking coils, 3547
 Buchmann, E., filtering action in a.m. carriers, 1028
 Büchner, A., with H. Zauscher, condenser technique, 1806
 Buchwald, E., spectral sensitivity of eye, 1239
 Buckley, O. E., transatlantic telephony, 1995
 Buckthal, E. P., with P. C. Sandretto, direction finding, 1701
 Budelman, F., f.m. for communication, 1181
 Budenbom, H. T., azimuth indicator, 721
 Buder, H., over-modulation monitor, 1546
 Buhl, W. T., ball-bearings, 353
 Bulder, G., additive frequency scales, 88
 — and J. E. Benson, quartz-crystal filters, 46
 Bukowiec, A., mixing amplifier using AH1 hexode, 2401
 Bukreev, N. B., heat treatment of copper-oxide rectifiers, 2504
 Buners, R., harmonic oscillation recording, 499
 Bunimovich, V. I., e.m. waves along parallel conducting planes, 3182; rectangular resonators, 65, 176
 Burch, C. R., and J. P. P. Stock, phase-contrast microscopy, 2066
 Bureau, R., ionospheric disturbances, 631
 Burges, J. H., stratosphere chamber, 196
 Burgess, R. E., noise in aerial systems, 438
 Burington, R. S., with M. D. Cooper, *n*-mesh linear networks, 40
 Burke, C. L., dielectric absorption, 1508
 Bürkle, H., aircraft instruments, 574
 Burmeister, H., insulating varnish, 845
 Burns, A. E., spurious signals, 1029
 Burns, A. F., circuit-continuity tests, 2751
 Burns, W., pedal operated switch, 2057
 — with E. N. Rowland, a.f. amplifier for weak signals, 2686
 Buros, O. K., statistical methods, 2171
 Burrill, C. M., transient behaviour of radio noise meters, 2406
 Burris-Meyer, H., control of acoustical conditions, 128
 Burrows, C. R., and M. C. Gray, ground-wave propagation, 1598
 Burstyn, W., silver contacts, 1785
 Burton, C. J., with R. B. Barnes, electron microscope and uses survey, 3348
 Buschbeck, W., modulation of h.f. oscillation, 2991
 Bush, V., science and national defence, 908
 Busignard, H., control of night error, 1079
 Bussard, E. J. H., and T. J. Michel, u.h.f. sweep generator, 3648
 Blüssing, W., working life of machines, 3739
 Butt, C., and R. S. Alexander, recording low intensity light flashes, 2891
 Butt, E. P., post-war broadcasting, 281
 Cadwell, S. M., N. E. Handel and G. L. Benson, car radio performance, 697
 Cagniard, L., discontinuities in atmosphere, 638; tropopause, 1612
 Caldwell, P. G., developments in f.m. receiver design, 2339

WIRELESS ENGINEER

- Caldwell, W. C., evaporation of molten metals, 856
 Calfas, P., electrical prospecting of subsoil, 3473
 Campbell, N., dimensions, 2541
 Campbell, N. R., and V. J. Francis, shot effect, 714
 Campbell, R. L., and others, mobile television equipment, 1728
 Campbell, W. W., and others, imaginary in mathematics, 895
 Candler, J. L., point-discharge recorder, 1914 ; surge recording, 385
 zur Capellen, W. Meyer, mathematics for engineers, 3423
 Capen, W. H., frequency modulation, 63
 Carbenay, F., statistical recording, 1336
 Carhart, R., model larynx function, 3629
 Carlisle, S. F., Jr., and A. B. Mundel, frequency-response curve tracer, 136
 Carne, G. G., with P. L. Copeland, excitation of anode effect, 1368, 2671
 Carpenter, T. J., with D. D. MacCarthy, protection of solid insulation, 3735
 Carrara, N., amplitude-stability of auto-oscillators, 3235
 Carslaw, H. S., and J. C. Jaeger, applied mathematics, 1559
 Carson, B. R., automatic gramophone record changer, 2400
 Carson, V., complex impedance at 3,000 Mc/s., 2427
 Carter, G. K., with C. Concordia, negative damping, 355
 Carter, R. O., and D. L. Richards, design of smoothing chokes, 2514
 Cary, H. H., and A. O. Beckman, spectrophotometer, 1865
 Case, J., science and education, 478
 Casselman, E. J., automatic voltage regulator, 1490
 Castellani, A., pulse generator, 478
 Catt, L. H., alkaline type cells, 215
 Cattanes, E., with H. Moss, c.r. tube traces, effect of screen curvature, 2773
 Cattermole, J., relativity theory of electromagnetism, 1556, 3764
 Cauer, W., a.c. circuits, 392
 Cavassilas, D., photoelectric cells, 1737
 Cazaly, W. H., condenser testing equipment, 3670 ; portable receiver, 431
 Chakravarti, S. P., and N. L. Dutt, interference, 1665
 Chalmers, B., and A. G. Quarrell, examination of metals, 578
 Chalmers, J. A., contact potentials, 2848 ; electricity of cloud and rain, 2302
 Chalonge, D., with D. Barbier, absorption spectrum of ozone, 1886 ; formation of NO₂, 2288
 — with others, decomposition of ozone, 17
 Chamberlain, A. B., CBS international broadcast facilities, 280, 2528
 Chamberlain, W. E., X-ray diagnosis, 1244
 Chambers, L., and W. Henle, electron microscopy, 1252
 Chambers, L. A., and others, sound waves for wound treatment, 3035
 Chambers, V., induction transmission for short distances, 2571 ; u.s.w. "pack-set" 112 Mc/s., 2525 ; compact receivers, 690 ; mobile transmitter, 682 ; modulator for 56 Mc/s. transmitter, 67
 Chance, B., photoelectric colorimeter for rapid reactions, 2895
 Chapin, D. M., with R. M. Bozorth, demagnetising factors of rods, 3390
 Chapin, E. W., and K. A. Norton, field-intensity survey, 1597
 Chapman, C., plastics, 2122
 Chapman, R. A., with F. X. Schumacher, statistical methods, 3425
 Chapman, S., frequency-statistics of geomagnetic disturbances, 957 ; geomagnetism, 366 ; sun and ionosphere, 370
 — and T. G. Cowling, diffusion in gas, 289
 — and A. Majid Mian, ion-production rate in atmosphere, 2273
 — with A. Majid Mian, definite integrals, 1282
 Charlton, E. E., and W. F. Westendorp, X-ray outfit, 1242
 Charnley, F., bivariate distribution, 894
 Charron, F., integrating altimeter, 1872
 Chaston, J. C., contacts for instruments, 2133
 Chatterjee, L. M., frequency bridge, 752
 Chaudhuri (Chaudhuri), R. M., cathode rays, 795
 Chaudhuri, R. M., and M. A. Baaqui, current density in glow discharge, 3119
 Chernets, A. N., split anode magnetron oscillator, 2370
 Chernyaev, L. K., with M. S. Kosman, potential distribution in glass, 3724
 Cherry, E. C., communication networks, 475, 3636
 — and R. S. Rivlin, non-linear distortion, 31, 1917
 Chester, A. E., with Willis Jackson, electron emission, 522
 Chevallier, L. H., sponsored broadcasting, 2846
 Chinn, H. A., electrical transcriptions, 138
 Chistyakov, N. I., automatic frequency control, 1035
 Chorlton, F. O. L., education and the war effort, 3428
 Choudhuri, B., with D. M. Bose, mass of mesotron, 1602
 Choudhuri, C., with S. R. Khastgir, antenna resistance and reactance, 2366 ; ionised gases, 1599
 Chowdri, A. G., transparency of ground glass, 2296
 Chromow, S. P., weather analysis, 388
 Chu, L. J., and J. A. Stratton, wave functions, 1594
 Churcher, B. G., and A. J. King, transformer noise, 1419
 Civil Aeronautics Administration, direction finders, 1076
 Clack, G. T., receiver measurements, 1471
 Clapp, C. W., and F. A. Firestone, acoustic wattmeter, 150
 Clark, F. M., cellulose insulation, 1172
 Clark, H. L., high-speed photoelectric recorder, 3456
 Clark, J. C., and L. N. Fritz, thickness of films, 609
 Clarke, C. A., selenium rectifiers, 825
 Clarke, E. F. S., with R. F. J. Jarvis, beat-frequency oscillator, 3638
 Clarke, E. T., and S. A. Korff, radiosonde, 29
 Clarke, J. G., with F. J. Beck, Jr., hysteresis torque, 2520
 Clarostat Manufacturing Co., armoured power rheostat, 1522 ; line voltage regulator, 1911
 Clayton, H. H., geomagnetic index and solar changes, 2278
 Cleaves, H. E., and J. M. Hiegel, properties of high purity iron, 3134
 Clemmer, W. L., blind landing, 1372
 Clifford, G. D., engineers' qualifications, 305
 Clough Brengle Co., checking motor speed, 2880
 Cobine, J. D., gaseous conductors, 2064
 Coblentz, W. W., temperature of Mars, 2435
 — F. R. Gracely and R. Stair, solar and sky-radiation in high latitudes, 2605
 Cocci, G., diode detectors, 1321 ; frequency doubling, 1335
 Cocconi, G., primary cosmic rays, 645
 — and V. Tongiorgi, cosmic radiation at 2 km., 2607, 2608
 Cockcroft, J. D., and others, electronics in industry, 1569, 2183
 Cocking, W. T., voltage-multiplying rectifiers, 1322
 Coile, R. C., and others, ionosphere at Huancaayo, 947
 de Cola, R., superheterodyne tracking, 2653
 Colby, W. F., with W. G. Keck, earth conductivity and surface potential, 2242
 Cole, K. S., nerve fibre impedance, 2208
 Coleman Electric Co., electronic photofluorometer, 2894
 von Collas, E., and L. Pungs, anode modulation of u.s.w., 3554
 Colwell, R. C., H. Atwood, J. E. Bailey, and C. O. Marsh, velocity of radio waves, 2271
 — and L. H. Gibson, sound velocity in gases, 768
 Compound Electro Metals, Ltd., electrical contact problems, 3381
 Comrie, L. J., twin Marchant calculating machine, 2556
 Conant, J. B., Anglo-American research, 907
 Concordia, C., and G. K. Carter, negative damping, 355
 Condit, H. R., with L. A. Jones, brightness scale, 775
 Condon, E. A., magnetrons, 1680
 Conklin, J. W., with G. H. Brown, water-cooled resistors, 222
 Connolly, A., library vs laboratory research, 308
 Conrad, F., h.f. interference, 1659 ; h.t. lines' interference, 3573
 Conradt, H. W., and K. Sixtus, magnetic anisotropy in alloys, 2515
 Cook, E. G., flexible equalising amplifier, 3621
 — and A. H. Petersen, equipment-failure alarm, 1550
 Cook, R. K., microphone calibration, 462
 Cooper, C. E., peak voltmeter, 2044
 Cooper, M. D., and R. S. Burington, n -mesh linear networks, 40
 Copeland, P. L., and G. G. Carne, excitation of anode effect, 1368, 2671
 — and W. R. Kennedy, emission from molybdenum plates, 3269
 Corbaz, G., wave length allocation, 1820
 "O.M. Corbino" National Electroacoustical Institute, absorbing chamber, 3028 ; supersonic waves, 2729
 Cords, O., mechanics of coaxial cables, 3257
 Cork, J. M., and W. G. Wadey, β ray spectroscopy, 3663
 Cornelsen, F., carrier-frequency telephony, 2248
 Cornock, E. E., packaging machinery, 326
 della Corte, M., with T. Franzini, pulse demultiplier, 2587
 Coulson, C. A., wave motion, 653
 Coulthard, W. B., operational methods, 1919 ; transients in electric circuits, 1201
 Coursey, P. R., ageing and tropical humidity tests of components, 2446 ; research in industry, 3798
 Court, A., tropopause, 943
 Couzens, E. G., and W. G. Wearmouth, plastics in radio industry, 1506, 2817
 Coven, A. W., circuit for Geiger-Muller counter, 2588
 Cowie, D. B., and G. K. Green, high-vacuum valves, 807
 Cowling, T. G., with S. Chapman, diffusion in gas, 289
 Cox, J. H., with H. C. Myers, ignitron rectifiers, 1496
 Cox, R. J., e.m. induction micrometers, 3812
 Craggs, J. D., apparatus for atomic disintegration, 3356 ; canal-ray positive-ion sources, 2797 ; mica condensers, 2112 ; sensitivity of Geiger counters, 592 ; stability of liquid high resistances, 2497
 Crane, R. E., L1 carrier system, 1212
 Crawford, W. G., with E. C. Davies, voltage control, 2078
 Creutz, E. C., with L. A. Delsasso, quick-acting vacuum lock, 207
 Cricks, R. H., sound-on-film, 2687
 Crisp, L. R., with R. H. Lee, speed control for sector discs, 1544
 Cristescu, G., and R. Grigorovici, optical temperature determinations, 236
 Cromwell, P. C., evaluating operational expressions, 295
 Crooks, J. S., and others, insulators, 425
 Crooks, R. K., amplifier response to square waves, 1005
 Crosby, R. P., phase reversal amplifier, 1332
 Crossley, A., interference-reducing aerial systems, 2658

- Crout, P. D., circuit theory, solution of equations, 3543
— with F. B. Hildebrand, integral equations, 1830
- Crowley, H. L., & Co., iron cores, 1175
- Császár, E., black-body radiation, 2537
- Cudell, G., amplitude- and frequency-modulation, 2989
- Cullen, A. B., with W. L. Kennon, Anderson bridge for detection of temperature-change, 3327
- Cullen, A. B., Jr., electronic inductorium, 341
- Culver, C. A., musical acoustics, 763
- Currie, B. W., and C. K. Jones, characteristics of aurorae, 11
- Curry, R., mechanism of human voice, 3284
- Curtin, J. J., formex wire, 3101
- Curtis, B. R., and R. S. Bender, ekonite for ion sources, 3088
- Curtis, L. B., u.h.f. receiving tubes, 1060
- Curtis, N. L., with W. C. Michels, pentode lock-in amplifier, 43
- Curtis, R. W., and others, absolute determination of ampere, 1762
- Curtis, T. E., power-system governor, 354
- Curtiss, L. F., protection against radium, 1585
- Cynk, B., geomagnetic storms, 957
- Daevcs, K., developments in statistical research, 3775
- Dale, H., science and government, 569
- Dällenbach, W., reciprocity theorem of e.m. field, 3260
- Dalton, W. M., training of wireless engineers, 912, 1570
- Dalziel, C. F., and J. B. Lagen, muscular paralysis, 343
- Daniel, J. H., field emission from tungsten crystals, 2680
- Darrow, K. K., forces and atoms, 290
- Darwin, C. G., statistical control of production, 1835, 2552
- Das, A. K., solar envelope, 371
— and A. G. Narayan, solar prominences, 1611
- Das, S. R., with K. Das Gupta, X-ray study of liquid and colloidal selenium, 2425
- Das Gupta, see Gupta
- Dätwyler, G., light/dark control of c.r.o., 3684
- Dauvillier, A., u.v. radiation from sky, 1283
- David, L., beryllium oxide, 2115
- Davidenko, V., and I. Shmushkevich, galvano-magnetic effects in dielectrics, 3109
- Davidson, N., conductivity of hydrocarbons, 3107
- Davidson, W. F., geomagnetic storms, 953
- Davie, O. H., circuit alignment, 1470
- Davies, E. C., and W. G. Crawford, voltage control, 2078
- Davies, E. R., photography, 2234
- Davis, R., and J. E. M. Johnston, surge characteristics, 384
- Davydov, B., and I. Shmushkevich, semiconductors, 828
- Dawson, G. D., electronic switching in medical research, 2888
- Deal, H. B., "alert" receiver, 2352; counter circuits, 983
— with A. F. Van Dyck, civil defence radio alarm, 1213
- Dean, C. E., band-width factors, 53
- Dean, P., amateur licenses, 913
- Dean, W. W. H., with J. E. M. Lagasse, life of valves in aircraft, 2381
- Debeau, D. E., active nitrogen, 2610
- Dehmelt, F. W., with R. Suhrmann, emission constants of cathodes, 3040
- Dehors, R., pulse generator, 497
- Déjardin, G., atmospheric ozone, 640; night sky, 1609
- Deketh, J., valve technique, 3264
- Dekhtjar, M. V., and N. I. Andriushin, initial susceptibility, 871
- Delmonte, J., plastic materials, 1509
- Delssaso, L. A., and E. C. Creutz, quick-acting vacuum lock, 207
- Denarest, B., vitamin-A photometer, 603
- DeMent, J., first law of fluorescence, 3351
- Denbigh, K. G., scientific research in industry, 3435
- Denco Company, mains voltage stabilisers, 214
- DeRyder, H., with O. Schade, video-signal generator, 2418
- Desai, V. D., with N. R. Tawde, point-o-lite lamp, 2290
- DeSoto, C. B., induction transmission for communication, 2572; radio-controlled models, 314; vacuum-tube voltmeter, 782
- Deutsch, K., Laue photographs of Rochelle salt, 1990
- Deutschbein, O., and others, spectra of chromium phosphors, 2473
- DeWalt, K. C., u.h.f. triodes, 1061
- De Wolf, F. T., spark-over in freon, 1165
- Dharap, P. W., City and Guilds examination questions, 1852
- Diamond, H., applications of radio to meteorology, 28
- Dickerson, L. W., with P. M. Honnell, 100 c/s. frequency standard, 3334
- Dickson, F. H., with F. A. Everest, dynamic-shift, 69
- Dieck, W., two-circuit straight receivers, 1963
- Diefenbach, W. W., receiver and amplifier circuits, 432; s.v. receiver circuits, 1948
- Diénerf, F., subsoil prospecting, 2241
- Diesselhorst, H., magnetic moment, 261
- van Dijke, S. E. A., with H. W. Dodson, solar phenomena preceding ionospheric storm, 7
- Dillon, J. H., and J. N. Street, extraction of polonium, 2098
- Dilloway, A. J., solution of great circle problems, 965
- DiMarzo, A., loudspeakers, 1380
- Dinger, J. E., with others, flaw detectors, 3487
- Dingle, H., dimensions of physical magnitudes, 2541, 3765
- Dirac, P. A. M., quantum mechanics, 1822
- Diti, A., voltage measurement, 493
- Dixit, K. R., rectifiers, 1152
- Dixon, M. F., broadcast news presentation, 570
- Djatschenko (Djyschenko), M. N., photon counters, 610
- Dober, E., with R. Nitsche, insulating plastic temperatures, 3730
- Doble, F. C., field investigation of insulation, 785, 3667
- Dobretsov, L. N., evaporation heat of electrons, 3009
- Dodson, H. W., and S. E. A. van Dijke, solar phenomena preceding ionospheric storm, 7
- Döhler, O., and G. Lüders, multi-slit magnetrons, 675; whole-anode magnetron, 409
- Dold, A., h.f. wire broadcasting transmitter, 3556
- Donal, J. S., Jr., sealing mica to glass or metal, 3093
- Doolittle, H. D., with H. A. Perkins, residual magnetism in iron bar, 2521
- Dorfman, J. G., and L. A. Sergejev, location of oil wells, 916
- Doria, O. P., stranded conductors, 1135
- Döring, E., platinum-nickel, 2132
- Dosse, J., electron lenses, 516, 2059; electron radiators, 1771
— and H. von Schelling, intensity distribution in electron beam, 2463
- Douglas, A. E., and G. Herzberg, CH⁺ molecule, 2612
- Doust, J. F., and H. J. Josephs, statistics in telecommunication engineering, 2551
- Dow, O. E., inductive-output tube, 482
- Dow, W. G., and A. B. Bronwell, d.c. space-charge flow, 1062
- Downie, E. G., cathode-ray oscillograph, 1141
- Downing, H. L., portable modulated oscillator, 180
- Downing, R. E., with F. D. Webster, 30 kw. s.w. transmitter, 2334
- Downs, F. L., and others, rubber as shield in insulating oils, 3743
- Drabkin, A. L., radiation resistance of transmission line, 440, 2367
- Drake, R. L., and R. R. Schmidt, dial-calibration system, 3245
- Drehlow, W., radium determination by counter-tube, 2220
- Dressler, G., h.f. communications, 579
- Dressnandt, H., electron theory of crystallines, 1782
- Drewell, P., apparatus for stroboscopy, 3178
- Drigo, A. & G. A., replacement of oil insulation, 1166
- Drotschmann, G., and P. J. Moll, batteries and accumulators, 2831
- DuBois, E. F., scientific papers, 2196, 2564
- Dudding, B. P., and W. J. Jennett, repetition work, 2550
- Dudley, L. P., copper and aluminium, 2505; fusing currents, 1533
- Dueño, B., f.m. carrier-current telephony, 3751
- Dufay, J., night sky, 1608; solar spectrum, 373
— and T. Mao-Lin, forbidden doublet of nitrogen, 1890
- Duffendack, O. S., and W. E. Morris, Geiger-Müller counters, 1856
- Duffield, A. W., with A. L. Williams, crystal elements, 351
- Dufton, A. F., comma in music, 1423; map projections, 900
- Duke, V. J., television scanning linearity, 2417
- Düll, B., weather and health, 3467
- DuMont Laboratories, black-out panel oscillograph, 1140; giant demonstration oscillograph, 2051; recording transients, 1476; time-base generator, 2055
- Dunaev, Yu. A., copper-oxide rectifiers, 3122
- Duncan, W. J., natural frequencies of systems, 585
- Dunn, H. K., with D. W. Farnsworth, radiation pattern of voice, 3283
- Duntley, S. Q., absorption in turbid media, 936
- Duperier, A., cosmic rays and magnetic storms, 2279
- Dutt, N. L., with S. P. Chakravarti, interference, 1665
- Dutt, S. K., with M. M. Sen Gupta, random scattering theory, 2272
- Du Val, H., Jr., modulation frequency: police-service tests, 3309
- Dwight, H. B., Bessel function $I_0(x)$, 21; magnetic field strength near cylindrical coil, 3661; mathematical tables, 898
- D'yachenko, M. N., and V. Ya. Selegenev, u.v. phosphorescence, 3087
- Djyschenko, see Djatschenko
- Dyatlovitskaya, B. I., with N. D. Morgulis, antimony-caesium cathodes, 171
- Eager, G. S., Jr., with J. B. Whitehead, d.c.-a.c. correlation in dielectrics, 2814
- Eaglesfield, C. C., eddy current tuning, 2348
- Eagleson, H. V., sound transmission, 129
- Earle, M. D., titanium dioxide, 1518
- Ebel, A. J., spurious radiations, 1661
- Eberhardt, R., G. Nüsslein and H.-Rupp, stability of d.c. amplification, 1633, 2633
- Ebert, W., sag in overhead lines, 3588
- Eckart, F., and A. Schmidt, selenium barrier-layer cells, 2012
— and B. Gudden, barrier-layer photoeffect, 173
— and K. Raithel, lead selenide, 246
- Eckel, —, broadcast transmission over lines, 3400
- Eckersley, P. P., power behind microphone, 882; post-war broadcasting, 861; wire broadcasting, 545, 2146; wire *versus* wireless, 1547
- Eckersley, T. L., holes in ionosphere, 3500
- Eddy, W. C., television broadcasting, 1099
- Eder, F., Kerr-effect oscillograph, 1136
- Edgar, V. C., 3.5 Mc/s. fishing-rod aerial, 105
- Edgerton, H. E., with P. M. Murphy, flash lamps, 1256
- Edlén, B., $3p^2D$ term in O III, 2291
- Edson, J. O., 10 Mc/s. oscilloscope, 1138

- Efros, A. M., eddy currents, 259; new type of electrical analogy, 2970
- Eggers, H. R., two loads on single current source, 3681
- Ehrenhaft, F., magnetic current, 18; magnetic current in gases, 3408; microcoulomb experiment, 888; photophoresis, 1889
- Ehrke, L. F., and C. M. Slack, radiography, 1243
- Einhorn, H. D., and B. L. Goodlet, lightning over-voltages, 383
- Einstein, A., P. S. Epstein and others, applied mechanics, 559
- Eisele, E., cathode-ray oscillograph, 1187
— with K. Barthel, wire broadcasting, 1548
- Eisele, L. J., with A. H. Weber, photoelectric threshold, 485
- Eisenhart, L. P., tensor calculus, 2545
- Eisenstein, A., X-ray diffraction tube, 2915
— and N. S. Gingrich, detecting weak X-rays, 1246
- Eislen, J. D., phase-shift meter, 1467
- Eider, F. R., with A. W. Hull, h.v. surges in rectifier circuits, 3362; phase of arc-back, 2082
- Electrical Musical Industries, electrostatic screening, 2104
- Electro-Medical Laboratory, direct-writing oscillograph, 2261
- Ellinger, F., radiation therapy, 1238
- Elliott, D. S., and L. B. Scott, city noises in New Orleans, 3295
- Ellis, W. C., and E. S. Greiner, Fe-Co system, 877
- Ellison, M. A., movements of hydrogen focculi, 2287, 2946
- Elmore, W. C., ferromagnetic suspensions, 489
- Elmquist, T., aircraft direction finder, 456; radiolocation, 719
- Elsasser, W. M., earth's internal magnetic field, 958; heat-radiation telescope, 333
- Elsner, R., h.t. voltage-divider for c.r.o., 3689
- Eltgroth, G. V., checking auto breaker-points, 3818
- El'tsin, I. A., with E. M. Fradkina, Slatis effect, 3052
- van Embden, H. J. M., with B. Jonas, magnet steels, 2138
- Emerson, H. J., production of precision equipment, 2354
- Emms, S. A. G., with W. J. Mason, electricity in paper mills, 611
- Emslie, A. G., gas layer on silver, 174
- Endell, K., and J. Hellbrugge, silicate melts, 3728
- Endo, M., with T. Hayashi, noise generation, 1094
— with M. Kobayashi, analyser for i.f. vibrations, 1267
- Engbert, W., generation of u.s.w., 1012
- von Engel, A., glow discharge, 1499
- Engelberg, A. J., relay operation, 1542
- Enns, J. H., and F. A. Firestone, sound power density fields, 3613
- Ephraim, B., electronic typewriting speedometer, 2683; vibrato control for amplifiers, 2712
- Epstein, J., with G. H. Brown, turnstile antenna, 1041
- Epstein, P. S., with others, applied mechanics, 559
- Erdélyi, A., mathematical functions, 896, 1200
- Eri, H. A., acoustical patents, 473
- Erfing, H. D., electrical resistance of chromium, 3379
- Ertel, H., hydrodynamic conservation law, 3490
- Esclançon, E., infra-sonic waves, 744
- Espy, D., calculating resistance networks, 2320; technique for empirical equations, 3241
- Essex, G. O., with W. L. Webb, automatic radio compass, 1984
- Evans, A. S., scale distortion, 737, 1382
- Evans, Foster, electric and magnetic effects of cosmic rays, 962, 1888, 2606, 2941
- Evans, R. C., and H. S. Peiser, machine for computation of structure factors, 3424
- Evans, U. R., probability applications, 1565
- Everest, F. A., phase shifting up to 360°, 2439
— and F. H. Dickson, dynamic-shift, 69
— and W. A. Pritchett, polar-pattern calculator, 1054
- Everitt, W. L., and E. C. Jordan, acoustic aeriels, 437
- Evytanov, S. I., leaky-grid auto-oscillators, 412
- Ewald, P., photoelectric cooling control, 2893
- Ewald, W. F., and E. Franke, adjacent-channel interference, 2345
- Well, A. W., ozone and ultra-violet, 2952
- Fahlenbrach, H., with H. Meyer, magnetic materials, 1809
- Fahnoe, H., transformer sound levels, 466, 3617
- Fairweather, A., and J. Ingham, subsidence transients, 399, 534
- Falkenhagen, H., ions in electrolytic solutions, 3108
- Fan, H. Y., electrical contact between solids, 2501
- Farkas, F. S., filters, 1310
- Farmer, F. T., low capacity electrometer, 3337
- Farnsworth, D. W., and H. K. Dunn, radiation pattern of voice, 3283
- Fataliev, Kh., electrons in plasma, 3117
- Faulhaber, F., glow discharge, 814
- Fausten, H. J., design of directive aeriels, 3584
- Fawcett, E., and others, earthing, 1057
- Faynberg, I. S., with A. S. Bremzen, relaxation oscillators, 1453
- Federal Communications Commission, diathermy machines, 2998; lifeboat transmitters, 3561; war emergency radio service, 3789
- Fehr, R. O., quartz-crystal accelerometer-3477
- Felch, E. P., measurement of crosstalk, 741
- Feld, Ya. N., losses in feeders, 97
- Feldtkeller, R., characteristic impedance, 1935
— and H. Wilde, warble frequencies, 3530
- Fenske, B., wooden masts, 1679
- Ferrari-Toniolo, A., communication, 1541
- Ferree, H. M., negative glow lamps, 3707
- Ferrel, C. B., shell "sees" target, 315
- Ferris, W. R., and H. M. Wagner, orbital-beam multiplier, 446
— with H. M. Wagner, orbital-beam multiplier, 1064
- Fett, G. H., negative-glow lamps, 220
- Fetz, H., Schottky diffusion column, 1976
- Field, L. M., with K. Spangenberg, electron lenses, 1142, 2464
- Field, R. F., impedance measurements, 1114; insulation testing, 1171, 3667; polarisation in solid dielectrics, 3371
- Filipowsky, R., and R. Theile, multivibrator as pulse generator, 2423
- Finch, J. M., insulating paper, 848
- Finch Telecommunications Laboratories, air reconnaissance, 170
- Finch, V., phototubes in meteorology, 2295
- Fink, D. G., television images, 162
- Fink, K., and H. Lange, magnetic properties, 263
- Firestone, F. A., with C. W. Clapp, acoustic wattmeter, 150
— with J. H. Enns, sound power density fields, 3613
- Firgau, U., ferromagnetism and antiferromagnetism, 3393
- Fischer, F., anti-aircraft calculating instrument, 1588, 2555
— and H. Thiemann, large-screen television, 1736; television projection theory, 2410, 3308
- Fischer, F. W., broadcast transmitter, 1651
- Fischer, G., d.f. with special aerial arrangement, 3014
- Fischer, J., magnetic units, 3146; skin effect, 621, 1315, 2299; thermal measuring devices, 2018, 2746; thermal power-meters: survey, 2745
- Fisher, R. A., statistical methods, 2169
- Fiske, M. D., thermionic properties of tantalum, 2682
- Fitzsimmons, K. E., positive corona phenomena, 1909
- Fleming, A. P. M., training for engineers, 1848
— and others, training for engineers, 2181
- Fleming, J. A., American Geophysical Union, 959; Carnegie Institution, 2274
- Fleming, L., feedback voltmeter, 3674; pick-ups for lateral-cut records, 733
- Fleming-Williams, B. C., frequency spectrum terminology, 2293
- Fletcher, H., stereophonic sound film, 722
- Fletcher, L. E., and C. L. Kennedy, control room for commercial radio transmitter, 2531
- Fleury, P., control of luminous flux, 1861
- Flint, H. T., electric charge and quantum theory, 3410
— and G. Williams, measurement of impedance, 780
- Flowers, J. W., measurement of lightning current, 972
- Fock, V. A., and V. A. Kolpinsky, diffraction, 554
- Folkerts, H. F., and P. A. Richards, photography of c.r. tube traces, 2458
- Fonda Corporation, continuous-tape recorder, 2688
- Fonda, G. R., and H. Huthsteiner, fluorescence of phosphors, 2069
- Forbush, S. E., with I. Lange, cosmic-rays and magnetic storms, 2942
- Ford, A., dynamic auditory localisation, 2700
- Ford, L. H., with N. F. Astbury, mutual inductance and resistance, 2763
- Forder, H. G., calculus of extension, 2162
- Forejt, H., with V. Fritsch, radio prospecting, 3167
- Forrest, J. S., h.v. porcelain insulators, 423; wired wireless, 1211
- Forsterling, K., wave propagation in magnetised medium, 1884
- Fortescue, C. L., post-war engineering, 3802
- Foster, D., rhombic antennas, 1048
- Foster, D. E., and G. Mountjoy, receiver circuits, 1036
— and J. A. Rankin, f.m. receivers, 1022
— with M. Artzt, duplex transmission, 490
- Foust, C. M., and others, lightning warning instrument, 659
- Fowler, E. P., hearing speech, 1375, 2704
- Fox, F. E., and G. D. Rock, variable resonator, 1756
- Fradkina, E. M., and I. A. El'tsin, Slatis effect, 3052
- Francescon, A., with F. Wachholtz, dielectric measurements on suspensions, 3372
- Francini, G., negative resistances, 2637
- Francis, V. J., with N. R. Campbell, shot effect, 714
- Francis, —, and —, Jenkins, electric-discharge lamps, 2089
- Franke, E., and A. Rothe, modulation of light sources, 2870
— with W. F. Ewald, adjacent-channel interference, 2345
- Frankel, S., reactance networks, 995
- Franks, C. J., f.m. signal generator design, 2432; Q-meter, 1116
— with others, signal generator, 179
- Fränz, K., sensitivity of s.w. receivers, 3240, 3564; sensitivity in visual reception, 1030; superheterodyne tracking, 3575
— with others, aerial problems, 1050
- Franzini, T., and M. della Corte, pulse demultiplier, 2587
- Frater, F. J., i.f. transformers, 1032
- Fraunberger, F., leakage in transformers, 2638
- Fredendall, B. F., sound recording and reproduction, 1392
- Freed, S., and S. I. Weissman, wide-angle interference, 19
- Freeman, G. F., straight-line laws, 563, 1198; superposition theorem, 3544
- Freeman, H. G., technical dictionary, 575

- Freeman, R. L., pentode-heptode, 1357
 de Fremery, F., and J. W. G. Wenke, studio acoustics, 2722
 French, B. V. K., inductive tuning, 75
 French, H. F., portable h. t. batteries, 702
 Frey, F., preparation-carriers for electron microscope, 3081
 Friedheim, J., and J. G. Weiss, secondary-emission, 1065
 Friend, A. W., tropospheric reflections, 941, 2936
 Friesz, V., Mayerl process, 1678
 Frigon, A., broadcasting in Canada, 1188
 Frings, W., with J. Malsch, u.s.w. current and voltage meter, 2430
 Fritsch, V., lightning conductor earths, 2965, 2966, 3517; radio geological investigations, 347
 — and H. Forejt, radio prospecting, 3167
 Fritz, D. K., u.s.w. receivers, 1026
 Fritz, K., modulation circuit for magnetrons, 2988
 Fritz, L. N., with J. C. Clark, thickness of films, 609
 Fröhlich, H., dielectric loss in paraffin-wax, 3370; dielectric strength of crystals, 232, 2487
 Fröhlich, K. W., and A. Barthel, Th in heater-element alloys, 3377
 Frolow, V., harmonic analysis, 363
 Frommer, J. C., vacuum-tube rectifiers, 1151
 Frongia, G., refractive index of water, 2202
 Früh, L., air-arm signalling, 2188
 Frumin, M. I., with Yu. M. Kushnir, secondary-electron emission, 1693
 Fuchs, J., see Jordan, P.
 Fuchs, W. H. J., and R. Kompfner, space-charge effects, 1643
 Fugassi, P., and D. S. McKinney, silver chloride films, 3846
 Fujioka, R., with M. Suzuki, breakdown of liquid dielectrics, 1502
 Fujitaka, S., and others, high-speed transient phenomena, 1139
 Fuller, F. L., magnetic inspection, 2259
 Fuller, F. M., wired radio controls for black-out, 3785
 Funk, F., knock rating, 2262
 Fuoss, R. M., dielectric loss, 836
 Furnas, C. C., future sources of power, 1230
 Furrer, W., acoustics of radio studios, 3026, 3286
 Furst, U. R., graphical analysis of saw-tooth waves, 3529
 Fürth, R., microphotometer, 2896
 Gadiev, Yu. M., with G. A. Levin, frequency modulation, 1940
 Galambos, R., bats and supersonic sounds, 3631
 Gall, D. C., d.c. amplifiers, 1586
 Ganswindt, H., cathode-ray oscillograph, 503
 — and H. Pieplow, decimeter-wave oscillography, 197
 Gapanov, V. I., with M. Grekhova, magnetron generator, 1970
 — with others, magnetron, 1326
 Gardner, J. H., u.h.f. aircraft equipment, 1814
 Garfitt, D. E. M., impulse voltages, 2049
 Garten, W., studying ultrasonic fields, 2731
 Gauger, R., and B. Berrang, push-pull oscillator, 2025
 Gauzit, J., solar corona and Stark effect in helium, 2286; upper atmosphere, 1891
 Gaydon, A. G., and W. G. Penney, energy of dissociation of CO, 3493
 Gebhardt, H. R., feeding coaxial dipole with open-wire line, 2659
 Gee, F. J., protection of telecommunication equipment, 973
 Geffcken, W., reflection of e.m. waves, 5
 Gehrts, A., protection in sealing electrode leads, 2384
 Geiger, M., electron transit times, 109
 Geller, R. F., resistor furnace, 1518
 Gemant, A., field of electrets, 1303; frictional phenomena, 1503, 3103
 Gemelli, A., localisation of sounds, 1993
 General Electric Co. (U.S.A.), h.f. tuning inductance, 1317; television pictures, 1440; tone control, 1342; unit for industrial radiography, 2908
 General Radio Co., output power meter, 3054; power supply for sound-level meters, 2405; u.h.f. oscillator, 1113; vacuum-type voltmeter, 3673; valve-driven tuning-fork oscillator, 2000
 Gensel, J., transient processes, 1442
 Geohagan, W. A., flexible sweep circuit, 2466
 Gepshsteyn (Gepstein), E. L., and others, electrolytic coatings, 1842
 Gerhard, E., heterodyne reception for u.s.w., 76; production of sharp u.s.w. beams, 2359; super-regenerative receiver, 2993; two-way working with u.s.w., 3748
 Germaine, L. W., geomagnetic storms, 953
 German Research Establishment, initial spin of a projectile, 1590
 Gerwig, H., and W. Pützer, measuring phase angles with c.r.o., 3326
 Geyer, F., hot-cathode rectifier, 823
 Geyer, K. H., secondary electron emission, 1974
 Geyher, W., magnetic amplifiers, 1134
 Ghosh, M., dynamics of pianoforte string, 2005
 Giaccolletto, L. J., filter design, 51
 — with L. N. Holland, f.m. transmitters, 1329
 Giacomini, A., absorbing chamber, 3028; supersonic waves, 1434
 Giannone, A., and others, silicas for refractories, 3114
 Gibbons, J., oscillation in broadcast receivers, 1034
 Gibbons, R., automatic direction finding, 457
 Gibson, A. J., lac, 2125
 Gibson, L. H., with R. C. Colwell, sound velocity in gases, 768
 Gieringer, C. K., s.w. diathermy apparatus, 3567
 Gilliam, J. P., interference, 1954
 Gillod, J., with G. A. Boutry, recording spectrophotometer, 606
 Gilson, W., anomalous heterodyning regions, 3524
 Gilson, W. E., blood-pressure recorder, 3836; oscilloscope, 2460; photoelectric membrane manometer, 2890
 Gingrich, N. S., with A. Eisenstein, detecting weak X-rays, 1246
 Ginsburg, V. L., radiation of an electron, 555
 Ginzton, E. L., electronic phase-angle meter, 3678
 Girard, E. J., radio unit for cargo vessels, 1816
 Given, I. A., radio-communication in coalmine, 2882
 Gladenbeck, F., electrical communications, 2861
 Glaser, A., glow discharge tubes, 2803
 Glaser, W., coil turns in electron-optics, 2058
 — and E. Lammell, image-formation equation, 202
 Gleason, R. J., interruptions to radio communication, 94.
 Gleichmann, T. F., grounding of amplifiers, 1925
 Glover, A. M., with R. B. Janes, phototubes, 483
 Gushko, M. T., and A. M. Strashkevich, electron-optical systems, 1478; polarisation of cylinder in uniform field, 3697
 Gobrecht, R., aperture error of electrostatic lenses, 2775
 Goeder, F. P., with L. R. Weber, velocity of sound, 1430
 Gohlke, W., and U. Neubert, vibrating voltmeter, 2758
 Gokhberg (Hochberg), B. M., and Ya. A. Oksman, breakdown of gases, 1501
 Goldberg, H., bioelectric research apparatus, 2205; synchronised voltage, 340; twin-triode circuit, 204
 Golde, R. H., with C. E. R. Bruce, lightning discharge, 966
 Goldie, E. A. G., oxygen saturation of blood, 1278
 Goldman, S., f.m. and interference, 78
 Goldschmidt, H., atmospheric-electrical potential drop, 1620
 Goldsmith, A. N., depth of field, 2739
 Goldsmith, F. H., phonograph reproducer, 1397
 Goldstein, M. K., duo-pentode, 114
 Golenpaul, C., electronic gadgeteering, 3823
 Goltzman, H., amplifier design, 396
 Goncharov, V. P., with others, energy distribution of photoelectrons, 3039
 Goncharski, L., inclination vector, 1772; radiant energy indicator, 2747
 Gonser, B., with H. Peters, improved solder fluxes, 256
 Good, A. J., three-phase bridge, 3680
 Goodlet, B. L., with H. D. Einhorn, lightning over-voltages, 383
 Goodman, B., aerials for 112 Mc/s. mobile work, 1967; emergency receivers, 1025; u.h.f. receivers, 688; vibrator power supplies, 816; wired wireless, 2571
 — and H. Bubb, frequency-halving oscillators, 68; 56 Mc/s. transmitter, 405
 Goodman, C., geological application of nuclear physics, 2930
 Goodrich, B. F. Co., rivet as anchor, 3388
 Goodwin, C. W., square-wave generator, 182
 Goos, F., photoelectric oscillatory circuits, 779
 Gorelik, B. V., and A. A. Ravdel, cathode phenomena in vacuum, 2424
 Gorelik, G., phase selectivity, 627
 Gori, V., s.w. aerial systems, 2663
 Görlich, F., electron emission in antimony, 2679
 Gorzhankin, B. N., and Yu. A. Manteyfel, symmetrical circuits, 984
 Gorzhunov, V. N., coaxial cables, 992
 Gorter, C. J., gyromagnetic effects, 2519
 Gorton, W. S., small relative motions in switches, 2597
 Gosewinkel, M., and H. Bauer, condenser microphones, 1704
 Gossel, E., u.s.w. two-note beacon, 2387
 Gothe, A., with W. Runge, night effect, 3604
 Gotthardt, E., measurements with electron microscope, 3082
 Götz, F. W. P., aurora, 369
 Götz, W., receiving valves, 1983
 Goubau, G., surges along lines, 3073
 Goudet, G., stationary supersonic waves, 487
 — P. Herreng and G. Nief, excitation of rarefied gases by u.s.w., 2985
 Gould, E. F. H., electro-medical apparatus interference, 3566
 Gould, J., and C. Morgan, hearing in rats, 1098
 Gracely, F. R., with others, solar and sky-radiation in high latitudes, 2605
 Graff, H., temperature characteristics in i.c. engines, 607, 3482
 Graffi, D., relaxation oscillations, 1931
 Graham, M. L., with J. E. Volkmann, air-raid alarms, 3609
 Grammer, G., amateur activities, 2571; civilian defence equipment, 2142; converter, 110; emergency transmitter, 681, 883, 1014; panoramic radio spectroscope, 3574; vibrator power packs, 1159
 Granovsky, B., electric discharge plasma, 488
 Gray Manufacturing Co., autograph, 2689
 Gray, M. C., with C. R. Burrows, ground-wave propagation, 1598
 Gray, R. L., with A. H. Vickerson, automatic air-raid monitor, 3783
 Greben, K. L., with Yu. D. Boldyr, cathode discharge in mercury, 2477
 Green, A. L., superheterodyne tracking charts, 87
 — with R. Payne-Scott, superheterodyne tracking charts, 1669

- Green, D. B., loudspeaker output, 152
 Green, E., polar diagrams of aerial arrays, 2364
 Green, G. K., with D. B. Cowie, high-vacuum valves, 807
 Green, W. H., engineers and f.m. selling, 3398
 Greenidge, R. M. C., loading coils, 1536
 Gregory, G., with C. F. Booth, carrier telephone generation, 2449
 Gregory, R., science and politics, 1567
 Greibach, E. H., d.c. microampere-hour meter, 536; generating voltmeter, 498
 Greiner, E. S., with W. C. Ellis, Fe-Co system, 877
 Grekhova, M. T., and V. I. Gaponov, magnetron generator, 1970
 — V. I. Gaponov and R. P. Vasil'ev, magnetron, 1328
 — and P. P. Vasil'ev, electron-beam valves, 1972
 Grew, K. E., thermal diffusion factor, 3192
 Griese, H. J., iterative networks, 1936; valve characteristic recording, 3267
 Griffith, P. E., with D. Lewis, measuring audio-frequencies, 148
 Griffiths, W. H. F., air-cored inductances, 1457; temperature compensation of condensers, 2486
 Grigorovici, R., with G. Cristescu, optical temperature determinations, 236
 Grinberg, see Grünberg
 Grivet, P., tuning forks, 465
 Gross, B., residual phenomena in dielectrics, 850
 — with H. Silva, principle of superposition, 1170
 Gross, F. J., with F. B. Silsbee, volt boxes, 191
 Grosskopf, J., propagation of surface waves, 964; Zenneck rotating field, 2954
 — W. Pützer and K. Vogt, conductivity meter, 2956
 — and K. Vogt, angle of arrival of u.s.w., 1280; earth conductivity, 376, 2955; phase velocity, 1281; rotating field near transmitter, 3001
 Gruber, Fr., frequency relation for photon, 2151
 Gruenberg, E. L., with J. Kritz, insertion loss in filters, 52
 Grünberg, G. A., electrostatic field, 378; electricity on conducting surfaces, 2957
 Grünwald, E., Laplace transformation, 670
 de Gruyter, E., degenerate oscillatory circuits, 1629; matched voltage divider, 2319; oscillatory circuits, 1629, 1630; physiology of human ear, 1718; two loudspeakers at amplifier output, 2705
 Gsell, G., absorption measurements on biological liquids, 2014
 Guarnieri, G. Monti, short transmitting aerials, 2664
 Gudden, B., with F. Eckart, barrier-layer photoeffect, 173
 Guggenheim, E. A., electrical units and dimensions, 791, 3070
 Guillien, R., dielectric constant, 849
 — with P. Jacquinet, acoustical phenomena, 1091
 Guizonnier, R., earth's electric field, 389
 Gulyaev (Guljaev), V. P., klystron, 674; thyatron generator, 479
 Gumbel, E. J., Poisson's distribution, 1198
 Gunn, Ross, with others, flaw detectors, 3487
 Güntherschulze, A., cathode sputtering, 3360
 Gupta, J. Das, microanalytical method for iron, 2495; spotted mica, 2495
 Gupta, K. D., and B. B. Ray, allotropes of selenium, 1740
 Gupta, K. Das, and S. R. Das, X-ray study of liquid and colloidal selenium, 2425
 Gurevich, A. M., quantum output of photocells, 2011
 Gurtovoy, M. E., electron emission from ThW, 3008
 Guth, E., and C. J. Mullin, electron-emission, 1975; Schottky line, 453
 Güttinger, H., sound recording, 2692
 Guttwein, G., gramophone records, 731
 Guy, R. F., broadcasting, 549
 Guyenot, E., effect of land in d.f., 3603
 Gwinn, H. G., u.s.w. transceiver, 2½ m., 2526
 Haantjes, J., fidelity of amplifiers, 3212
 Haase, K. H., wave filters, 1307
 Haber, F., atmosphere at great heights, 3491
 Hackett, W., and A. M. Thomas, mica, 527
 Hadamard, J., Dirichlet problem, 3150
 Hadcock, C. F., portable emergency transmitter, 74
 Hagoedorn, P. J., and M. F. Reynst, electrical indicators, 1874
 Hagenruth, J. H., impulse spark-over, 969
 Hagenhaus, K., radio interference, 2346
 Hahnemann, W., aircraft navigation, 1700
 Hahnemann, W. M., and others, modulation economical in energy, 3234
 Hall, E. L., frequency meter, 177
 Hall, E. P., mercury-vapour rectifiers, 241
 Hallborg, H. E., s.w. transmission, 365
 Haller, C. E., u.h.f. transmitting valves, 1060, 1682
 Hallett, W. N., engineer's war, 3159
 d'Halluin, M., actinometry and sun's heat, 3469
 Halpern, O., and T. Holstein, depolarisation of neutron beams, 2538
 — and others, passage of neutrons, 267
 Hamelster, E., atomic theory and four-terminal networks, 3542
 Hamilton, B. P., carrier telegraphy, 581
 Hamlin, E. W., response of networks, 1918
 Hamly, D. M., and J. H. L. Watson, electron microscope supplemented by optical, 3694
 Hammond, L., artificial reverberation, 1421
 Hampshire, R. A., with others, u.h.f. loop antennas, 1042
 Hancock, J. E., and B. R. Shepard, transient peak voltmeter, 3064
 Hand, A. R., tool-pressure gauge, 1272
 Handel, N. E., with others, car radio performance, 697
 Hänlein, W., quartz glass, 840
 Hanney, E. A., cathode follower, 2980
 Hanson, A. O., with R. M. Ashby, grid controlled corona, 2085
 Hanson, R. L., and E. M. Boardman, sound integration, 152
 Harang, L., earth-current voltages, 1604; polarisation of echoes, 8
 Harbich, H., radio interference, 2346
 Hardy, H. C., and others, velocity of sound, 1432
 Harker, D., with V. J. Schaefer, surface replicas for electron microscope, 3350
 Harris, J. H. O., beam tetrodes, 2669
 Harris, W. A., with others, space-charge limited currents, 397
 Harrison, V. G. W., colour and music, 3297
 Hartley, R. V. L., Fourier analysis and transmission problems, 2408
 Haskins, C. P., with G. W. Scott, proton accelerator, 808
 Hässler, G., periodic phase-manipulation, 679
 Hatfield, H. S., e.m. mental picture, 2539; motional and transformer induction, 293
 Hatt, R. T., air raid alarm, 2189
 Haugh, R. R., facsimile design chart, 169
 Haurwitz, E., sound propagation, 1711
 Hawkins, L. A., wartime electrical research, 3161
 Haworth, L. J., sweep circuit, 508
 — with others, ion accelerating tubes, 2798; velocity distribution of slow neutrons, 2798
 Hay, G. A., improving diode detector, 3244; tuning indicators, 1484
 Hayashi, T., and M. Endo, noise generation, 1094
 Hayden, O. M., synthetic rubber, 1795
 Hayes, A. E., Jr., and T. R. Thomas, acoustic aircraft-detection, 3608
 Haynes, H., infra-red lamps, 1789
 Haynes, J. R., force/displacement characteristics, 1401
 Hays, R. F., glow-switch, 221
 Hazen, W. E., Wilson cloud chamber, 3172
 Healey, R. H., and C. B. Kirkpatrick, electrons in oxygen, 15
 — and J. W. Reed, slow electrons in gases, 16, 629
 Hecht, H., circuit diagram, 587; electroacoustics, 736
 Hecht, S., eyes as light recorders, 3459
 Hechtel, R., light of night sky, 944
 Heck, K., stratified Fe-Ni sheets, 540
 Hector, L. H., and others, controlled capacity, 3220
 Hedeman, W. R., Jr., interreflection problems, 1831
 Hedvall, J. A., and O. Jönsson, supersonic waves, 771
 Heierle, J., automatic selection in multiple telephony, 3747
 Heijboer, J. P., discharge phenomenon in valves, 3266
 Heijn, F. A., and A. Bouwers, nuclei research, 810
 Heiland, C. A., geophysics in war, 3800
 Heinicke, E., coupling of amplifier valves, 2994
 Heijn, F. H., with A. Bouwers, electron-counting, 1260
 Heinrich, K., harmonic analysis of multi-wave a.c., 3215
 Helis, H., u.s.w. generation, 3261
 Hellbrügge, J., with K. Endell, silicate melts, 3728
 Henderson, J. E., and S. M. Rubens, anode spots in oxygen, 242
 Hendus, H., explosive antimony and glassy selenium, 3642
 Henkler, O., modulators, 687
 Henle, W., with L. Chambers, electron microscopy, 1252
 Henney, K., radio engineering handbook, 2194
 Henning, A., welding of plastics, 3733
 Hentz, H. K., adjusting rotary-antenna elements, 106
 Hepburn, J. R. L., electron-deposition of silver surfaces, 230
 Hercules Powder Co., rosin, 2120
 Herman, R. L., phosphorescence of nitrogen, 641
 Herold, E. W., pentode amplifier tubes, 1365; signal-noise ratio of u.h.f. receivers, 1655, 2336; stable admittance neutralisation, 2632; superheterodyne reception, 1690
 Herrng, P., with others, excitation of rarefied gases by u.s.w., 2985
 Herrmann, J., railway-train telephony, 1185
 Herzberg, G., with A. E. Douglas, CH⁺ molecule, 2612
 Herzfeld, K. F., supersonic waves, 767
 Herzog, W., oscillating crystals, 2031, 2974
 Hess, H. A., ranges of wireless waves, 952
 Hess, V. F., ionisation-balance of atmosphere, 977
 — and F. A. Benedetto, mesotron variation, 642
 — and E. B. Berry, cosmic rays, 643
 Hessenbruch, W., resistance materials, 2135
 Hewlett-Packard Co., vacuum tube voltmeter, 3065
 Hickling, A., accumulators, 2096; regeneration of sulphated cells, 830
 Hiegel, J. M., with H. E. Cleaves, properties of high purity iron, 3134
 Higgins, T. J., inductance of tubular conductors; 1135, 3657; circuit constants with different permeabilities, 3209

- Higgs, A. J., ionosphere eclipse measurements, 2602
Hildebrand, F. B., and P. D. Crout, integral equations, 1830
Hill, A. V., science in the Empire, 2561
Hilliard, J. K., distortion tests, 1709
Hillier, J., electron microscope, 797
— and R. F. Baker, electron-microscope images, 3078
— V. K. Zworykin and others, electron microscope, 3348
— with others, photographic action of electrons, 3080
Himmelreich, H., absorption-spectrophotometer, 3453
Himpan, J., electrolytic troughs, 1362, 3592; h.f. demodulator, 418
— with R. Theile, electrolytic troughs, 1362
Hinshaw, F. A., junction line filters, 2975
Hintenberger, H., electrical properties of PbS, 3125
Hipple, J. A., Jr., mass spectrometer, 3834
Hirano, K., with others, secondary electron emission, 118
Hirschmüller, H., with O. Spengler, slit-ultramicroscope, 3083
Hishida, M., with others, abnormal radiation from parallel wires, 1039
Hitchcock, F. L., product distribution, 1834
Hoare, R. R., science and war, 2177
Hobbs, M. E., with B. E. Hudson, dielectric constant measurement, 2443
Hochberg, B., h.v. electrostatic generators, 211
— with A. Joffé, h.v. electrostatic generator, 2799
Hochberg, B. M., and Ya. A. Oksman, breakdown of gases, 1501
Hoffman, A., life of neon states, 3359
Hofstadter, R., and L. I. Schiff, indicating circuits, 44
Höhl, H., h.t. voltage-divider for c.r.o., 2781, 3689; linear time-base circuit, 2785
Holcomb, P., Jr., varioplex telegraph, 3781
Holladay, L. L., with M. Luckiesh, penetration of fog, 329
Holland, L. N., and L. J. Gacioletto, f.m. transmitters, 1329
Holliday, T. B., electric power in aircraft, 216
Hollingsworth, L. M., resonant transmission lines, 991
Hollman, H. E., u.s.w. generation and reception, 2327; transversely controlled valves, 2986
Holm, R., electrical contacts, 2509; friction, 860
— and others, sliding contacts, 1784
Holmes, P., with F. Ireland, aircraft aeriels, 1045
Holop, —, permanent magnets from alloys, 3133
Holstein, T., with O. Halpern, depolarisation of neutron beams, 2538
Holsten, K. G., and W. Schätzel, s.w. and u.s.w. goniometer, 1074
Hölzer, E., distortion of f.m. oscillations, 80
Holzmüller, W., dielectric loss, 2124; valve regulator, 511; viscosity and dielectric relaxation, 2123
Holzwarth, H., amplifier valves, 716
Homer, C. E., and H. A. Watkins, soldering phosphor-bronze, 2110
Honnell, P. M., and L. W. Dickerson, 100 c/s. frequency standard, 3394
Honnor, W. W., and I. H. Mathieson, aircraft transceiver, 275
— and T. E. Trew, radio telephone links, 1812
Hood, S. R., thermostat metal, 1788
Hoover, H., oil-deposit location, 2244
Hoppe, J., upper atmosphere, 1606
Hopper, V. D., thermostats, 1208
Horenstein, W., with A. N. Lowan, function $H(m, a, x)$, 1560
Horle, L. C. F., and others, radio in wartime, 1673
Horn, J., conservation of materials in war-time, 3376
Houghton, H. G., transmission of light, 1900
Householder, A. S., with A. M. Weinberg, biological systems, 2213
Houstoun, R. A., relativity paths by least action principle, 3139; selenium barrier-layer photocells, 323, 1445, 3641
Houtermans, F. G., separation of isotopes, 902
— and K. H. Riewe, space-charge effect on electron beam, 2772
Howe, G. W. O., cable attenuation at 300 Mc/s., 2428; rectangular wave guides, 2268; twin-T method of measuring coil constants, 2437; wireless telegraphy handbook, 2568
Hromada, J. C., u.h.f. aural radio range, 1075
Huber, E., screening for h.f. conductors, 3002
Huber, H., and S. Wagener, oxide cathodes, 1694
Hudec, E., filters for phototelegraphy, 50; h.f. equalising filters, 49; quartz bridge filter, 2626
Hudson, B. E., and M. E. Hobbs, dielectric constant measurement, 2443
Hudson, G. G., corona in air, 2482
Hudson, O. F., alloys for instruments, 254
Hudson, P. K., characteristic impedance, 185
Huggins, W. H., response of video amplifiers, 1102
Huggins, W. T., neon-tube amplifier, 1147
Hughes, L. E. C., split horizontal frame aerial, 1352
Huguenard, E., standard note source, 1997
Hukawaga, S., and J. Nambu, adsorption in zirconium, 1696
Hulburt, E. O., propagation of radiation, 936
Hull, A. W., and F. R. Elder, h.v. surges in rectifier circuits, 3362; phase of arc-back, 2082
— and L. Navias, iron-glass seal, 3352
Hulse, E. L., radio engineering economics, 2563
Hultgren, R., and R. I. Jaffee, binary alloys, 876
Humby, S. E., and E. J. F. James, science and education, 3427
Hume-Rothery, W., structure of alloys, 2830
— and others, lattice-spacing measurements, 806
Hunt, F. V., and J. A. Pierce, sound reproduction, 1380
— with W. D. Lewis, tracing distortion, 730
Hunt, R. S., inner ear, 3628
Hunter, A., and A. D. Thackeray, Ha prominences on sun's disc, 2946
Hunter, J. L., supersonic waves, 467
Huthsteiner, H., with G. R. Fonda, fluorescence of phosphors, 2069
Hutter, R. G. E., with L. Marton, power supplies, 1929
Hutton, W. G., directional antenna patterns, 1054
Hygrade Sylvania Corporation, lock-in tubes, 1058
Hytron Company, beam tetrode, 1971
Ikebe, T., with H. Nagaoka, induction magnetograph, 955
Iberg, W., u.h.f. communication carrier, 3396
Ilford, Ltd., X-ray photographic paper, 2916
Indianapolis Water Company, drinking fountain, 612
Induni, G., cold-cathode c.r.o., 2578
Industrial Instrument Co., high-speed limit bridge, 3060
Industrial Instruments, Inc., conductivity bridge, 1461; decade capacitor, 3106
Ingham, J., with A. Fairweather, subsidence transients, 399, 534
Ingleby, P., with L. Jánosy, Geiger-Müller counters, 1259
Inglis, S. D., transceiver, 276
Institute of Radio Engineers, Convention 1942, 2863; publications, 2566; reception, 429
Institution of Civil Engineers, engineering education, 3160
Institution of Electrical Engineers, insulating oils, 2496, 3104; post-war planning, 3162; war-time relaxations of regulations, 3434; wireless section address, 3803
International Telephone and Radio Manufacturing Co., marine radio unit, 2845
International Telephone and Telegraph Laboratories, c.r. polar diagram indicator, 2777
Irany, E. P., water absorption of resins, 2121
Ireland, F., and P. Holmes, aircraft aeriels, 1045
Ishii, C., and others, cosmic rays, 960
Ishikawa, T., with Z. Kamayachi, piezoelectric vibrators, 989, 1631
Israel, D. D., receiver design, 1674
Israel, H., atmospheric electricity, 364, 1299; ions and nuclei, 1624; ions in atmosphere, 1624; radio-activity, 3472
— and M. Krestan, condensation nuclei, 661
— and K. Wurm, lightning-flash spectrum, 967
Israel, J. O., junction line filter, 2975
Ito, M., oscillating e. m. field, 929
Ito, Y., Barkhausen self-oscillation formula, 1020
Ives, H. E., pressure of radiation, 938
— and G. R. Stilwell, interference phenomena, 1295
Ives, R. L., ring hypothesis, 380
Iwase, E., luminescence, 1143
Iwataka, I., hollow metal tubes, 1593
Iyengar, K. R. K., fixed resistances, 1791
Jachnow, W., with others, aerial problems, 1050
Jack, W. A., with J. S. Parkinson, noise reduction coefficient, 748
Jackman, A. J., with N. F. Sephton, identifying wires in cable joints, 2836
Jackson, Dunham, Fourier series, 2546
Jackson, W., bitumastic compounds, 1512
Jackson, Willis, and A. E. Chester, electron emission, 522
Jacot, H., selenium rectifiers for repeater stations, 3124
Jacques, R. B., frequency control, 222
Jacquinot, P., autoabsorption, 901
— and R. Guillien, acoustical phenomena, 1091
Jaekel, R., and E. Kammerer, buna rubber for washers, 3096
Jaeger, J. C., with H. S. Carlsaw, applied mathematics, 1559
Jaekel, W., gauging, 1271
Jaeschke, H. E., hysteresis motor, 1543, 2838; induction motor, 2837
Jaffee, R. I., with R. Hultgren, binary alloys, 876
Jakovlev, see also Yakovlev
Jakovlev, N., arrangement of frets in plucked instruments, 2006
James, E. J. F., with S. R. Humby, science and education, 3427
Janes, R. B., and A. M. Glover, phototubes, 483
Jánosy, L., and P. Ingleby, Geiger-Müller counters, 1259
Janovsky, W., DIN sound-level unit, 1406
Janzen, S., photoelectric cells, 1580
Japolsky, N. S., elementary particles, 1555
Jarvis, E. F. J., and E. F. S. Clarke, beat-frequency oscillator, 3639
Jeffrey, R. B., decade calibrator, 784
Jeffreys, H., differential equations, 2601
Jenkins, R. O., with M. Benjamin, autoelectronic emission, 2383
Jenkins, —, with — Francis, electric-discharge lamps, 2069
Jennett, W. J., with B. P. Dudding, repetition work, 2550
Jennings, J. E., valve bridge, 2755
Jewett, F. B., science in national defence, 2179, 2559
— and others, defence aspect of scientific publications, 2180
Joffé, A., and B. Hochberg, h.v. electrostatic generator, 2799

- Johannsen, K., linear time-bases for c.r.o., 3344
 Johansen, F. C., flaw detection, 3486
 John, U., bus-bar circuit, 2629
 Johnke, F., direction finding, 455
 — with H. O. Roosenstein, rotating d.f., 3013
 Johnson, J. J., with H. W. Babcock, night sky, 1284
 Johnson, M., physical foundations of radio, 3844; u.h.f. valves, wave guide applications, 1920
 Johnson, R. P., electronic vacuum camera, 799
 Johnson, V. O., wave analysis, 1249, 3686
 Johnston, W. C., initial conditions in transients, 41
 Johnston, H. F., geomagnetic indices, 9
 Johnston, J. E. M., with R. Davis, surge characteristics, 384
 Jonas, B., and H. J. M. van Embden, magnet steels, 2138
 Jones, A. T., edge tones, 3303; organ pipes, 760
 Jones, C. H., with W. R. Brode, recording spectrophotometer, 1866
 Jones, C. K., with B. W. Currie, characteristics of auroras, 11
 Jones, E. Taylor, vibratory electron, 3409
 Jones, F., concentric cables, 2019
 Jones, L. A., and H. R. Condit, brightness scale, 775
 Jones, R. Clark, calculus for optical systems, 3509
 Jonsson, O., with J. A. Hedvall, supersonic waves, 771
 Jordan, E. C., variable acoustic impedance, 745
 — and W. L. Everitt, acoustic aeriols, 437
 Jordan, H. E., earthing, 572
 Jordan, P., sun-lit aurora, 1892, 2940
 Jordan, S. R., r.c. transistor oscillator, 3557
 Jordan, W. H., electrocardiograph mixing circuit, 205
 Josephs, H. J., coaxial cables, 983
 — with J. F. Doust, statistics in telecommunication engineering, 2551
 Joshi, R. D., receiver effect of cabinet, 1957
 Jouaust, R., and E. Vassy, sudden fade-outs, 362
 Judkewitsch (Yudkevich), F. S., with S. M. Rytow, reflection of e.m. waves, 361
 Juilfs, J., counter-tube amplifiers, 2222
 Junkers Factory, gauging, 1271
 Jupnik, H., photoelectric properties of bismuth, 1112
 Justi, E., superconductivity, 889, 2864
 — and G. Zickner, superconductors, 2154
- Kakiuchi, Y., X-ray reflection from quartz, 556
 Kalinin, V. I., magnetron generator, 1921
 — and V. A. Tolstikov, coupled systems, 1921
 Kallman, H. E., single carrier, 161
 Kallman, H. E., relaxation oscillations, 1233
 Kamayachi, Z., and T. Ishikawa, quartz crystal vibrators, 989, 1631
 — and H. Watanabe, quartz crystal vibrators, 1121
 Kamazawa, M., with T. Akahira, insulation resistance, 1130
 Kamen, I., hearing aid design, 3624
 Kamiyama, M., with T. Suga, u.v. photography, 335
 Kammerer, E., with R. Jaeckel, buna rubber for washers, 3096
 Kanai, K., with I. Sezawa, elastic wave transmission, 1989
 Kandoian, A. G., I. E. Mourmoutseff and others, u.h.f. technique: survey, 3776
 — with A. Alford, two-course radio range, 1698
 — with others, u.h.f. loop antennas, 1042
 Kaner, F., magnetic susceptibility, 874
 Kanno, M., metal-sealed glass, 1072; stem glass, 1073
 Kanonykin, B. N., dielectric losses in insulators, 225
 Kanta, C., sound reflection, 747; acoustic impedance, 746
 Kaplan, J., green line source, 1292
 Kapp, R. O., electrical units, 1474; three-phase bridge, 2438, 3680
 Kapre, P. K., patents and research, 306
 Kapur, P. L., and others, Geiger-Müller counters, 1858
 Karabascheff, N., migration of electrons in crystals, 3123
 Karash, W. J., with C. Kenty, mercury-arc temperature, 243
 Karnovski, M. I., sound radiators, 1988, 2391
 Kashimoto, T., and T. Tsumura, Rochelle salt vibrators, 1084
 Kasner, E., differential equation, 3768
 — and D. Mittleman, dynamical trajectories, 1824; theorems in dynamics, 2150
 Katz, D., projected writing, 2958
 Katz, H., and E. Westendorf, high recording speeds, 501
 Katz (Kats), M. L., and R. E. Solomonoyuk, antimony-caesium photocells, 1738
 Katzman, Yu. A., tube for velocity modulation, 2368
 Kaufmann, A. R., with G. T. Rado, magnetisation of Ni-Sb and Ni-Ta, 879
 Kausche, G. A., and others, tobacco-mosaic virus, 158
 Kautsky, H., and G. O. Müller, chemiluminescence of adsorbed dyestuffs, 2780
 Kawamura, H., with others, secondary-electron emission, 118
 Kawashima, S., sound transmission, 470
 Kaye, G. W. C., and T. H. Laby, tables of physical constants, 2850
 Kazanski, V. S., noise of Underground escalators, 3025
 — and K. P. Latyshev, noise level measurements, 2404
 Kearney, P., anti-sabotage fences, 1277
 Keck, W. G., and W. F. Colby, earth conductivity and surface potential, 2242
 Kegel, K., interference suppression, 1664, 2346
 Keinath, G., measuring apparatus for receiver repair, 2041
 Kell, R. D., A. V. Bedford, and others, television apparatus, 1104
 Keller, E. G., non-linear problems, 3545
 Keller, H., with P. Beerwald, piezo-electric microphone, 2398
 Kemp, J., wave guides, 1592
 Kendall, H. C., with C. J. Overbeck, supersonic waves, 767
 Kenna, L. P., with R. C. Woods, X-rays in industry, 338
 Kennedy, C. L., with L. E. Fletcher, control room for commercial radio transmitter, 2531
 Kennedy, M. E., special emergency service, 2844
 Kennedy, R. E., daily solar radiant energy, 1610
 Kennedy, W. J., and C. P. Boner, microphone calibration, 3607
 Kennedy, W. R., with P. L. Copeland, secondary emission from molybdenum plates, 3269
 Kennon, W. L., and A. B. Cullen, Anderson bridge for detection of temperature-change, 3327
 Kenrick, G. W., electronic integrator, 337; hurricane location, 22
 Kent, E. L., changing frequency of complex wave, 1087
 Kenty, C., and W. J. Karash, mercury-arc temperature, 243
 Kerawala, S. M., least squares, 565
 Kerkhof, F., d.c. amplification, 2982
 Kern, J., mercury vapour lamp, 3046
 Kerr, F. J., refractive indexes of gases, 617
 Kerst, D. W., induction accelerator, 1778; rheotron, 2796
 Kersten, H., with R. P. Krebs, time-delay relay, 2129
 Kesselring, F., design in industry, 2856
 Kessenikh, R. M., dielectric loss, 1514
 Kessenikh, V. N., energy relationships in oscillating systems, 705
 Keystone Carbon Co., porous iron bearings, 2840
 Kharakhorin, F. F., with A. S. Matveev, breakdown of compressed gases, 2485
 Khastgir, S. R., valve resistance, 1687
 — and C. Choudhury, antenna resistance and reactance, 2366; ionised gases, 1599
 Khodakov, A. L., u.s.w. absorption in liquid dielectrics, 3047
 Kholodenko, A. F., coupled oscillations, 1648
 Kiernan, E. F., portable transmitter, 1331
 Kilvington, T., with H. T. Mitchell, phase cyclometer, 2440
 Kimball, C. N., with others, f.m. waves, 2329
 Kimura, K., and Y. Uemura, counting instrument, 1261
 Kind, H., harmonic content of commercial a.c., 2452
 King, A. J., with B. G. Churcher, transformer noise, 1419
 — and others, objective noise-meter, 1089
 King, D. R., record patterns, 157
 King, R., transmission lines, 1743
 Kinne, E., production of sawtooth oscillations, 2422; production of high d.c. voltage, 3353
 Kirensky, L. W., with N. S. Akulov, magneto-caloric effect, 867
 Kirke, H. L., pulse exploration of Heaviside layer, 3499
 Kirkpatrick, C. B., air-core coils, 1695
 — with R. H. Healey, electrons in oxygen, 15
 Kirkwood, J. G., dielectric loss, 836
 Kirschstein, B., ionic converter, 822
 Kialov, V. P., thermocouple for small gaps, 2434
 Klages, G., dispersion of u.s.w. in polar liquids, 2599
 Klarmann, H., centrifuging of electrons, 3140; rectification in semiconductors, 1783
 Klein, M., standards, 1742
 Kleinsteuber, W., transit-time oscillations, 3229
 Kleinwächter, H., radiation diagrams of radiator groups, 3586
 Klemperer, H., dielectric igniters, 2478
 Klemt, A., high ohmic resistances, 1316
 Klette, H., with Th. Schoon, absorbents, 1253
 Klimpel, H., studio control console, 2721
 Kline, H. W., field-intensity recorder 26-155 Mc/s., 3320
 Klingelhöffer, H., with R. Vieweg, surface-leakage currents, 2815; synthetic resins, 1510
 Klinger, H. H., undamped millimetric waves, 2323; retarding-field valve, 2325
 Klinker, J., telemetering in power stations, 2250
 Klinkhamer, H. A. W., rectifiers, 824
 Klipsch, P. W., low-frequency horn, 727; vector computations, 2548
 Kluge, M., telephone line amplifiers, 1003, 1720
 Kluge, W., hot-cathode converter tubes, 3116
 Klumb, H., crystal detector for u.s.w., 2995
 Knauss, H. P., and W. J. Yeager, vibration of walls of cornet, 2717
 — with D. K. Weimer, a.c. resonant pendulum, 2766
 Kneissler-Maixdorf, L., electromagnetic field, 292
 Knight, J., thyatron control of a.c. switching, 3129
 Knoop, W. A., television-transmission, 1444
 Knorr, H. V., with R. W. Krone, recording apparatus for s.h.m., 3342
 Knowlton, A. E., electrical handbook, 2195
 Knox, J. B., and E. A. Laport, radiating system, 1675
 Knox, M. E., radio in air transports, 1815
 Knudsen, K. J., frequency meter for commercial power, 1127, 3654
 Kobayashi, M., and M. Endo, analyser for l.f. vibrations, 1267
 — and others, ceramic insulators, 1800
 Kobayashi, R., with J. Obata, pitch and intensity recorder, 753

- Kobeko, P. P., and others, amorphous state, 526
 Kobrak, H. G., human ear, 1429
 Koch, E., with H. Bohne, output resistance of amplifiers, 668
 Koeh, R., and S. Torelli, distortion of amplifying valves, 1366
 Kock, W. E., inverter circuit, 398
 Kockel, B., Barkhausen-Kurz oscillations, 3230; transit-time valves, 407
 Koehler, J. S., plastic deformation, 266
 Koehler, W., with W. Meyer-Eppler, interrupted arc with pulsating d.c., 2925
 Kogan, S. S., amplifiers, 395; Q of valve circuits, 394
 Köhler, A., and W. Loos, microscopy, 798
 Köhler, H., r.c. coupled amplifiers, 42
 Kohlhaas, H. T., communication progress, 2558
 Kolhorster, W., and K. Lange, counter mechanism, 859; counter tube recorder, 2787
 Kolin, A., induction meter for electrolytes, 924; variable-phase transformer, 665
 Kölle, H. K., television transmission from Berlin, 3310
 Kolomojstev, F. I., with others, conductivity of dielectrics, 3110
 Kolpinsky, V. A., with V. A. Fock, diffraction, 554
 Komel'kov, V. S., spark discharge, leader velocity, 3201
 Kömmnick, J., and E. Wehnelt, spin of a bullet, 598
 Kompfner, R., deflected electron beams, 2372; electron lenses, 513; transit-time phenomena, 1355
 — with W. H. J. Fuchs, space-charge effects, 1643
 König, H., compounding of grid controlled rectifiers, 2080; laws of similitude, 1304, 3522; self excitation of u.s.w. circuits, 408
 Koops, C. G., loss angles, 2022
 Kopetzky, K. A., 112 Mc/s. transceiver for civilian defence, 3749
 Koplin, E., parallel resistances, 1641
 Koppelman, F., contact converter, 1780
 Kopytin, L. A., s.w. transmitting aerial, 1047
 Korff, S. A., cosmic-ray research, 961
 — with E. T. Clarke, radiosonde, 29
 — and others, self-quenching counters, 2225
 Korman, N. I., phase distortion in f.m., 1018
 Korsching, H., ion sources, 210
 Korsunski, M. I., impulse generator, 1777
 Korsunski, M. U., and S. T. Shavlo, ion currents, 809
 Kosambi, D. D., significance test, 3774
 Koschel, H., measurements in communication technique, 2038
 Koschmieder, H., dynamic meteorology, 3195
 Kosman, M. S., and L. K. Chernyaev, potential distribution in glass, 3724
 Kossel, W., electron beams, 519
 Kosuhia, O. Y., with N. P. Beknova, magnetic disturbance, 9
 Kothari, D. S., scientific terminology for India, 3437
 Kotlyarevski, M. L., and E. Ya. Pumper, quartz-plate oscillations, 1451
 Kotowski, P., transmission of short h.f. pulses, 3012
 — and H. Wisbar, transoceanic wireless communication, 3198
 — and others, h.f. pulses, 1373
 Kovadlo, G. B., Faraday effect in electron gas, 3142
 Kowalenko (Kovalenko), G. M., breakdown potentials, 525, 2484
 Koyenuma, N., biological action, 1237
 Krähenbühl, H., with others, duplex system, 1819
 Krahl, W. L., noise in electron tube, 2373
 Kramar, E., position-finding, 1080
 Kramers, H. A., and G. H. Wannier, two-dimensional ferromagnet, 873
 Kransz, P. A., musical instruments, 1420
 Kranz, F. W., and C. E. Rudiger, audiograms and hearing-aids, 1375, 2703
 Krauz, N. A., and P. V. Sharavski, electric breakdown of copper-oxide rectifiers, 2503
 Krebs, R. P., and H. Kersten, time-delay relay, 2129
 — and others, turbidity comparator, 3451
 Kreihsheimer, K., testing of magnetic materials by c.r.o., 3664
 Krestan, M., thunderstorms, 1619
 — with H. Israël, condensation nuclei, 661
 Kretovich, E. L., erection of poles, 1056
 Kretschmar, G. G., electronic over-voltage relay, 2794
 Kretzmann, R., die-pressed-glass valves, 3261
 Kriebel, W., reception of u.s.w., 419
 Krishnan, K. G., damping of quartz oscillators, 3331
 Kritz, J., and E. L. Gruenberg, insertion loss in filters, 52
 Kroker, G., and K. Becker, cellulose triacetate, 838
 Krom, M. E., interference in telephones, 3250
 Krone, R. W., and H. V. Knorr, recording apparatus for s.h.m., 3342
 Kronig, R., breakdown in liquids, 2127
 Krueger, A. P., h.f. sound generation, 159
 Kuhn, J., photoelectric safety coupling, 2898
 Kühne, J., recording peak voltmeter, 2045
 Kummich, R., d.f. with rotating receiving systems, 3013
 Kunze, F., American valves, 3596
 Kunze, P., transportable expansion chamber, 2922
 Kurtz, A. R., with J. W. McGrath, ultrasonic crystal radiator, 2008
 Kurtz, J., improved alloy wire for grids, 2675
 Kushnir, Ya. M., and M. I. Frumin, secondary-electron emission, 1693
 Kushnir, Yu. M., E. A. Vaynrib and V. P. Goncharov, energy distribution of photoelectrons, 3039
 Küsters, W., measurements of dielectric properties of ceramics at cm. wavelengths, 3643
 Kutzner, W., phosphorescence, 520
 Kutzscher, E., sound lag calculator, 1992
 La Barbera, N., precision seconds-counters, 3336; short intervals of time, 2768
 Labaw, L. W., acoustic filtration, 1413, 2710, 2711
 Labin, E., output stage of television transmitter, 2411
 Labus, J., damping of coils with compressed-powder cores, 3537
 Laby, T. H., with G. W. C. Kaye, tables of physical constants, 2850
 Ladner, A. W., and C. R. Stoner, s.w. wireless communication, 2193
 Ladygin, D. A., interference fading of radio waves, 3497
 Lagasse, J. E. M., and W. W. H. Dean, life of valves in aircraft, 2381
 Lagun, J. B., with C. F. Dalziel, muscular paralysis, 343
 Laguzinski, S. V., water-cooling system, 414
 Laister, E. H., rhodium contacts, 2131
 Lal, Chaman, ionosphere, 360
 — and K. Venkataraman, whistling meteors, 1607
 Lamb, W. E., Jr., internal diamagnetic fields, 2152
 Lambert, R. O., receivers, 1960
 Lambert, W. N., aircraft insulation tester, 3669
 Lammel, E., with W. Glaser, image-formation equation, 202
 Lamont, H. R. L., wave guides, 3183
 Lanczos, C., matter waves and electricity, 3412
 Landé, A., electronic particles, 286
 Landes, G., electrocardiography, 1240
 Landolt, M., calculus of a.c. problems, 1638
 Lang, J. G., form factor of cylindrical coil, 3210; wide-band amplifiers, 1341
 Langdon, G. G., emergency radio communication, 269
 Lange, H., with K. Fink, magnetic properties, 263
 Lange, I., and S. E. Forbush, cosmic-rays and magnetic storms, 2942
 Lange, K., with W. Kolhorster, counter mechanism, 859; counter tube recorder, 2787
 Lange, P., dipoles, 435
 Langmuir, D. B., effect of d.c. heating of tantalum, 3271
 La Paz, L., and G. A. Miller, vertical antennas, 1052
 Laport, E. A., and J. B. Knox, radiating system, 1675
 La Prade, E., fidelity requirements, 698
 Larché, K., and R. Schulze, u.v. measuring apparatus, 3452
 La Roque, H. B., amplydine-controlled motor, 1206
 Larrick, C. V., with H. H. Race, coaxial cable attenuation, 175
 Latyshev, K. P., with V. S. Kazanski, noise level measurements, 2404
 Lau, H., distortion of surges, 2614
 Laub, J. H., u.v. light sources, 1262
 von Laue, M., superconductivity: survey, 3842
 Lauenstein, A., and M. Passer, thickness of coatings, 2258
 Lautner, P., atmospheric-electrical aerology, 1621
 — with W. Mecklenburg, space charge in atmosphere, 1622
 Laver, F. J. M., with C. F. Booth, temperature control for stable frequency oscillators, 3652
 Law, R. R., television c.r. tubes, 1731
 Lawrence, E., negative resistance oscillators, 1944
 Lawrynowicz, W., with E. Rohloff, logarithmic decrement, 757
 Lawson, A. W., and P. H. Miller, Jr., piezometer for transient pressures, 3816
 Lawson, H. K., and L. M. Belleville, mobile receiver, 30-40 Mc/s., 2648
 Lazarev, V. A., coupled systems, 1930; diode detection, 693
 LaBel, C. J., dulled lacquer-cutting stylus, 1393; glass-base recording discs, 1390
 LeClair, T. G., automatic printing ammeter, 3676
 Ledig, P. G., with others, ionosphere at Watheroo and Huancayo, 14
 Ledward, T. A., constant voltage supply, 1156
 Lee, R. H., and L. R. Crisp, speed control for sector discs, 1544
 Leeds and Northrup Co., Knorr-Albers microphotometer, 1862
 Leedy, H. A., noise survey, 1715
 Lees, A., forces on an electron, 1554
 Legler, E., frequency curves, 1753
 Leib, A., d.f. through interference, 3276
 Leigh, H., Post Office Electrical Engineers' Journal, 2567
 Leibnerger, E., space-charge, 410
 Leithäuser, G., light of night sky, 2275
 Leitner, H. H., electron-optics, 507
 Leitner, R., constant-groove-speed recording, 2398
 Lemmon, J. H., tropical receiver design, 1348
 Lent, L. B., invention for defence, 2176
 Leonard, D. S., civilian communications, 1217
 Leonard, F. O., detection of small meteorites, 2931
 Lettau, H., interchange processes, 1623
 Letovsky, F., skin effect, 2620
 Levich, V., damping of waves, 2961
 Levin, G. A., and Yu. M. Gadijev, frequency modulation, 1940
 Levinson, M., relaxation oscillations, 2161
 Levoy, L. G., Jr., and C. H. Schermerhorn, magnetic oscilloscope, 793
 Levy, M. L., i.m. receivers, 83
 Lewis, D., and P. E. Griffith, measuring audio-frequencies, 148

- Lewis, H. M., wave-form circuits for c.r. tubes, 3690
 Lewis, W., with T. F. Peterson, shielding of flexible leads, 1161
 Lewis, W. D., and F. V. Hunt, tracing distortion, 730
 Leyden, F. M., and W. R. Baker, impedance comparator, 1749
 Lichte, H., and A. Narath, sound films, 725
 Lichtenberger, Fr., knock indicator, 2263; remote recording of indicators, 2264
 — and F. Seeber, knock-measuring methods, 3175
 Lidbury, F. A., audio-frequency meter, 1086
 Lieblang, F., d.c. potential distribution of condensers, 3534; temperature coefficient of condensers, 2757
 Lifshitz, E., semiconductors, 1517
 Lifshitz, S., sound perception, 3626; vision and touch, 2210
 Likhachev, A. I., vertical incidence ionosphere measurements, 3197
 Lihenthal Society, competition subjects, 3790
 Lilly, J. C., capacitance diaphragm manometers, 1879
 Lin, S. N., solution of equations, 1828
 Lindenbergh, T., Jr., phonograph pick-up, 1394
 Lindenblad, N. E., television aerials and transmission lines, 99
 Lindenhovius, H. J., and H. Rinia, d.c. supply apparatus, 817, 2077
 Linder, L., modern condensers, 1807
 von Lindern, C. G. A., u.s.w. equipment for motorcars, 2141; u.s.w. telephone equipment for tropics, 2523
 — and G. de Vries, resonators for u.h.f., 3206
 Lindman, K. F., wave guides, 2932
 Lindsay, R. B., elastic-wave filtration, 156
 Lion, A., photoelectric cells, 2232
 Lion, K. S., measuring strong h.f. fields, 3665
 Lippert, W., sound propagation, 1412
 Lipson, H., lattice-spacing measurements, 2063
 Little, G. P., and F. E. McGee, noise abatement, 1714
 Little, J. B., with M. Avrami, diffusion of heat, 1977, 2336
 Little, M. E., ozone odour in aurora, 950
 Littlefuse, Inc., circuit break shown by indicator light, 3386
 Lloyd, L. S., musical theory, 144, 2003, 3299
 Lockenvitz, A. E., with E. P. de Turk, grinding capillary walls, 3700
 Lockhart, C. E., micro-waves, 1356; tuned-anode circuits and data sheets, 2631; video-frequency amplifiers, 1443
 Loeb, L. B., and J. M. Meek, electric spark, 668
 — and others, negative corona, 657
 Logan, K. H., soil corrosion, 2105
 Lohrmann, G., damping of coils with compressed-powder cores, 3537
 Loidis, A., and D. Nasilov, climate and communication, 1883
 Loos, W., with A. Köhler, microscopy, 798
 Lorenz Company, h.f. iron cores for goniometer, 2389
 Lothian, G. F., photoelectric fluorimeter, 320
 Lottermoser, W., Silbermann organ, 761
 Louden, W. C., with M. D. Stahl, sound-measurement room, 467
 Lowan, A. N., and W. Horenstein, function $H(m, a, x)$, 1560
 Löwe, F., optical measurements, 2211
 Lowe, J. T., less tin in cable joining, 3380
 Lowery, H., post-war education of physicists, 3804
 Lowy, K., middle-ear deafness, 1717; impedance deafness, 2701; pellet-type of artificial drum, 2702
 Loye, D. P., and R. L. Morgan, sound absorption, 1411
 Lübeck, H., broadcast receivers, 2355, 2356; foreign broadcast markets, 2357
 Lucas, R., reflection of longitudinal waves, 649
 Luck, D. G. C., omnidirectional radio-range system, 458, 2388
 Luckiesh, M., and L. L. Holladay, penetration of fog, 329
 Ludeke, C. A., resonance conditions, 3216, 3476
 Ludenia, W., excitation of cavity resonators, 2641
 Lüders, G., with O. Döhler, multi-slit magnetrons, 675; whole-anode magnetron, 409
 Lüdi, F., u.s.w. generator, 57
 Luebke, E. A., with others, ion accelerating tubes, 2798; velocity distribution of slow neutrons, 2798
 Lui, C. K., photoeffect in *d*-tartaric acid, 486
 Lunas, L. J., and P. MacGahan, power-circuit instruments for high a.f., 3619
 von Lüpke, A., reproduction in loudspeakers, 2999
 Lutkin, F. E., lightning and atmospheres, 1906
 Lutz, C. W., point discharge, 1618
 Lutz, S. G., transmission-line vector models, 932
 Lynch, A. C., with J. R. Tillman, measurement of capacitances, 3328
 Lynch, T. E., with S. J. Begun, lateral recording, 1398, 2691
 Lynn, R. A., sound recording, 1707
 Lyon, P. H. B., English in science course, 2190
 Lyot, B., monochromatic filter, 1291
 Lysenko, E. E., study of polymers, 3098
 Maa, D. Y., flutter echoes, 750
 McAuley, P. H., apparatus flashover, 1163, 3717
 MacCall, W. T., fusing currents, 3385
 McCann, G. D., with C. F. Wagner, lightning, 382
 MacCarthy, D. D., and T. J. Carpenter, protection of solid insulation, 3735
 MacColl, L. A., electron optics, 1767
 McCombe, J., ice on overhead lines, 3587; overhead line conductors, 708
 McConnell, R. E., electric wire, 1532
 McCrea, T. R., manufacture of capacitors, 1174
 McCreary, H. J., intercommunicators, 140
 McCrumm, J. D., investigation of subharmonic currents, 3546
 McCuskey, S. W., and R. M. Scott, star counter, 1577
 McDonald, J. F., marine communication equipment, 1817
 McDonald, W., W2TY transmitter, 884
 MacEachron, K. B., lightning to Empire State Building, 971, 3514
 MacGahan, P., with L. J. Lunas, power-circuit instruments for high a.f., 3619
 McGee, F. E., with G. P. Little, noise abatement, 1714
 McGrath, J. W., and A. R. Kurtz, ultrasonic crystal radiator, 2008
 MacGregor-Morris, J. T., and A. G. Stainsby, photoelectric photometers, 318, 1863
 MacHattie, L. E., high rotational speed, 593
 Machens, K., erecting telephone poles, 3003
 Machu, W., metal coatings, 1538
 McIlwraith, C. G., Doppler effect, 1093
 McKay, K. G., secondary emission from Na on W, 3005
 McKeag, A. H., with H. P. Rooksby, zinc silicate, 2070
 McKinney, D. S., with P. Fugassi, preparation of silver chloride films, 3846
 MacLaren, F. B., electronic pyrometer control, 2596
 McLean, D. A., and others, dielectric paper, 847
 McLoughlin, R. P., frequency standards, 1125
 McNicol, D., communications in war, 2862
 McNish, A. G., geomagnetic storms, 367, 953; geomagnetic storm of 18th Sept., 1941, 951
 McPetrie, J. S., and J. A. Saxton, diffraction of u.s. waves, 3184
 McPherson, A. T., with A. H. Scott, dielectric constant, etc., of rubber-CaCO₃ systems, 2493
 MacWilliams, W. H., Jr., with J. B. Whitehead, impregnated-paper insulation, 3736
 Maerksich, G., line protector for telephones, 2963
 Magnan, C., ionisation amplifier, 2054
 Magnus, W., cylindrical parabolic reflector, 1966
 Mahl, H., electron microscopy, 2065, 3077
 Mahlo, H., moisture content in spinning threads, 1270
 Mahoney, C. F., and P. O. Briggs, A.R.P. communication, police mobile radio, 2527
 Maibaum, N. K., non-uniform Lecher system, 3051
 Majumdar, B., solar magnetic field, 372
 Majumdar, V. D., surfaces for gramophone matrices, 2399
 Maloff, I. G., and W. A. Tolson, RCA theatre-television, 476
 Malpica, J. T. M., colour-temperature pyrometer, 322
 — and T. M. Berry, spark generator, 608
 Malsch, J., and W. Frings, u.s.w. current and voltage meter, 2430
 Malter, L., electrostatic electron multipliers, 1063
 Malyarov, D. E., with N. F. Alekseev, magnetron for powerful oscillations, 2639
 Mancha-Bennett, C. G., tilt-nut, 2512
 Mandelstam, L., and others, light modulation, 1755
 Manley, J. H., L. J. Haworth and E. A. Luebke, ion accelerating tubes, 2798; velocity distribution of slow neutrons, 2798
 Manley, R. G., damped vibrating systems, 586
 Mann, W. B., progress in physics, 2536
 Manning, H. P., and V. J. Young, pulse generator for circuit testing, 3128
 Manovski, V. S., and P. V. Sharavski, cuprous-oxide rectifiers, 2093
 Mansfield, A. P., stroboscopic lighting, 1257
 Manteyfel (Manteufel), Yu. A., with B. N. Gorozhankin, symmetrical circuits, 984
 Manz, G., control of mercury-vapour discharge, 2678
 Mao-Lin, T., with J. Dufay, forbidden doublet of nitrogen, 1890
 Marchand, N., response of electrical networks, 986
 Marconi, G., complete writings, 2291
 Marden, J. W., with N. C. Beese, fatigue effect in luminescent materials, 3085
 Mariani, M., smoothing filters, 1945
 Mariinsky, A., mitogenetic rays, 2212
 Mark, H., and R. Raff, high polymeric reactions, 1505
 de Mars, P. A., f.m. broadcasting, 1179
 Marsal, P. A., photo-flash synchroniser tester, 2903
 Marsch, B., with P. M. Pflier, earthing measurement, 2240
 Marsh, C. O., with others, velocity of radio waves, 2271
 Marsh, M. C., instrument makers and users, 589, 1222
 Marshall, D. E., with W. W. Watrous, gaseous tubes, 2677
 Marshall, E., wartime design practice, 3433
 Martin, D., 5 kw. transmitter, 72
 Martin, D. W., brass wind instruments, 2718; lip vibrations in cornet, 2718
 Martin, E. J., and others, pressure measurement, 3817
 Martin, O., with others, Lichtenberg figures, 656
 Martinez, J. P., e.m. dimensions and units, 3145
 Marton, L., regulated voltage supplies, 2073
 — and R. G. E. Hutter, power supplies, 1929
 Marven, E. L., transcription control box, 2695
 Marx, H., cylindrical and spherical waves, 1613, 1712
 Mason, W. J., and S. A. G. Emms, electricity in paper mills, 611
 Mason, W. P., electrical and mechanical analogies, 980
 Masriera, M., with others, decomposition of ozone, 17
 Masson, G., transmission by radioelectric paths, 3036

- Masteradio, Ltd., non-interfering vibrators, 1958, 2094
 Masumoto, H., and Y. Shirakawa, electric resistance of magnetite, 2522
 Mataré, H. F., absorption coefficients of gases, 1867
 Mathiesen, B., Potthoff's bridge circuit, 3323
 Mathieson, I. H., with W. W. Honnor, aircraft transceiver, 275
 Matsuo, S., depth-meter, 1096
 Matthias, A., development of electron microscope, 3349
 Matveev, A. S., and F. F. Kharakhorin, breakdown of compressed gases, 2485
 Matveev, Ya., discharge in s.w. transmitters, 1330
 Matz, W., with K. Schuster, Kundt's tube, 1433
 Maxfield, J. P., with D. Stanley, the voice, 145
 Maxted, R., infra-red radiation, 596
 May, A., mercury sensitisation and latent images, 2908
 Maybaum, see Maibaum
 Mayer, J. E. & M. G., statistical mechanics, 562
 Mayneord, W. V., radiation absorption by body, 3465
 Meacham, L. A., frequency comparisons, 2030
 Mecklenburg, W., and P. Lautner, space charge in atmosphere, 1622
 Meek, J. M., lightning leader strokes, 23; mechanism of electric spark, 3203; spark discharge, 1301
 — with L. B. Loeb, electric spark, 968
 Meier, E. H., and D. L. Waidehlich, iron-cored choke inductance, 2762
 Meinel, H., violins, frequency characteristics, 3298
 Meinhardt, H., electrostatic arc-extinction, 2808
 Meinke, H., telephone cable, 155; bolometer as u.s.w. power meter, 3048
 Melankholin, M., polarisation of light, 3457
 Menzel, W., with others, scattering in wave propagation, 1279
 Merrill, F. D., Jr., Solovov, 143
 Mertz, P., scanning, 1724
 Merz, L., and H. Niepel, bolometric compensator, 1746
 Mes'kin, V. S., and others, magnetostriction of alloys, 2140
 Metropolitan-Vickers Electrical Co., Ltd., power-factor correction calculator, 568; volt meter units, 2760
 Metz, P., scanning, 1103
 Meyer, E., solar radiation in atmosphere, 2949
 — and others, sound absorption, 471
 Meyer, H. H., and H. Fahlenbrach, magnetic materials, 1809
 Meyer-Eppler, W., distortions due to finite width, 2854
 — and W. Koehler, interrupted arc with pulsating d.c., 2925
 Mian, A. Majid, and S. Chapman, definite integrals, 1282
 — with S. Chapman, ion-production rate in atmosphere, 2273
 Michel, T. J., with E. J. H. Bussard, u.h.f. sweep generator, 3648
 Michels, W. C., electrical measurements, 790
 — and N. L. Curtis, pentode lock-in amplifier, 43
 — and A. L. Patterson, refracting media, 553
 Middleton, W. E. K., diffusing effect of fog, 1898; meteorological instruments, 976; visibility in meteorology, 576, 976
 Mie, G., electricity and magnetism, 3413
 Migulin, V. V., with others, electromagnetic field, 622
 Mikami, M., non-linear direction displacements, 899
 Mikhailov, M. L., interference, 1216
 Miles, E. E., with J. N. Bowtell, phosphorescence, 332
 Miller, C. J., Jr., insulator design to avoid interference, 3571
 Miller, C. W., and C. G. Montgomery, pulse size in Geiger-Müller counters, 3471
 Miller, G. A., with L. La Paz, vertical antennas, 1052
 Miller, H. G., panoramic radio spectroscopy, 2349
 Miller, J. C. P., with W. G. Bickley, numerical differentiation, 1197
 Miller, J. H., high-speed thermal wattmeter, 3675
 Miller, J. L., modern assembly processes, 1223
 Miller, P. H., Jr., resistance of semiconductors, 3671; zinc oxide, 1485
 — with A. W. Lawson, piezometer for transient pressures, 3816
 Miller, S. E., d.c. amplifier with a.c. operation, 2314
 Millikan, R. A., and others, origin of cosmic rays, 644, 2609
 Millman, J., and S. Moskowitz, tracing tube characteristics, 119
 — and S. Seely, electronics, 3445
 Milne, G. O., listening posts, 422, 550
 Milnor, J. W., pictures by submarine cable, 167, 3633
 Milshtein, V. N., exponential detector, 416
 Mimer, D. F., insulation, 1519
 Minorsky, N., control problems, 1202
 Minter, J., frequency meter, 1120
 Miram, P., output transformer, 1383
 Mitchell, H. T., and T. Kilvington, phase cyclometer, 2440
 Mitchell, R. G., anode dissipation in amplifiers, 2378
 Mitra, S. K., radio in peace and war, 2562
 — and S. D. Sarma, zodiacal light, 3503
 Mitropol'ski, A. K., correlation equations, 3153
 Mittelman, D., with E. Kasner, dynamical trajectories, 1824; theorems in dynamics, 2150
 Mittelman, E., heat-treatment generators, 342, 2889
 Mix, D. H., acoustic system for aircraft detection, 2396; all-wave converter, 2350
 Miyoshi, Y., spark discharge, 1498
 Mochizuki, S., and T. Takeda, corona production, 2088
 Moeber, R., broadcast receivers, 1347; interference, 1956
 Moeller, F., current and voltage instruments: survey, 2743; water comparison, 2198
 Moen, E., electronic electroscopes, 1465
 Möglichen, F., R. Rompe and N.W. Timofeff-Ressovsky, biological applications, 3466
 Möhring, G., diodes for voltage measurement, 781
 Moldaver, T. I., repairing of photocells, 3043
 Moll, P. J., with G. Drotschmann, batteries and accumulators, 2881
 Möllenstedt, G., electron beams, 519
 — and I. Ackermann, electron optics, 518
 Möller, F., thermal radiation of water vapour, 637, 3188
 Momot, E. G., phase selection, 420
 Monch, E., magneto-elasticity, 264
 Monfort, R. A., and F. J. Somers, television synchronising impulses, 1106, 2421
 Montgomery, B. E., inductively coupled f.m., 1015
 Montgomery, C. G., with C. W. Miller, pulse size in Geiger-Müller counters, 3471
 Moody, W., tone control, 699
 Moon, P., solar radiation curves, 331; system of photometric concepts, 2924
 Moore, C., and H. Bloomer, electro-kymograph, 3706
 Moorhead, J. J., metal fragments in wounds, 1584
 Moreau, L., degassing by electron bombardment, 2257
 Morgan, C., with J. Gould, hearing in rats, 1098
 Morgan, R. L., with D. P. Loye, sound absorption, 1411
 Morgans, W. R., second order differential equations, 891
 Morgulis, N., cathode sputtering, 3361
 Morgulis, N. D., secondary electron emission, 3598
 — and B. I. Dyatlovitskaya, antimony-caesium cathodes, 171
 Mori, K., with others, abnormal radiation, 1039
 Morison, G. E., power for given sound, 2713
 Moriya, Y., aluminium reflectors, 1539; vapour trap and vacuum gauge, 1150
 Morozov, P. M., secondary electron emission, 3008, 3007
 Morris, W. E., with O. S. Duffendack, Geiger-Müller counters, 1856
 Morrison, H., ten-frequency receiver, 1549
 Morton, G. A., electron microscope research, 2579
 Moseley, E. L., sunspots and tree rings, 1894
 Moser, E., specific resistance of platinum, 738
 Moser, W., and others, aerial problems, 1050
 Moskowitz, S., with J. Millman, tracing tube characteristics, 119
 Moss, H., and E. Cattanes, c.r. screen curvature, 2773
 Moulinier, G., cosmic rays and hexane, 2575; spark discharge, 1497
 Mountjoy, G., with D. E. Foster, receiver circuits, 1036
 Mourmstseff, I. E., valve cooler, 715
 — with others, u.h.f. technique: survey, 3776
 Mücke, G., magnetic inductance, 1759
 Mueller, H., and B. W. Sakmann, colloids, 3044
 — and M. H. Shamos, magneto-optical properties of ferro-magnetic suspensions, 2740
 Muirhead & Co., frequency bridge, 751
 Müller, E. W., adsorbed ions, 240
 Müller, G., electron-path recorder in valve development, 2379; protection against surges, 660
 Müller, G. O., with H. Kautsky, chemiluminescence of adsorbed dyestuffs, 2780
 Müller, H. O., and C. W. A. Pasewaldt, structure of diatoms, 2214
 Müller, J. J., and E. Rostas, transit-time generator, 406, 1010
 Müller, L., magnetrons with grids, 677
 Müller, O., electrical pressure measurement, 3815
 Müller, R. H., with H. H. Baker, differential electrometric titrations, 3835
 Müller, Th., with B. Schönwald, Junginger visibility recorder, 2589
 Müller, W., and others, physics, 1821
 Müller-Hillebrand, D., surface contacts, 860
 Mullin, C. J., with E. Guth, electron emission, 1975; Schottky line, 453
 Mundel, A. B., with S. F. Carlisle, Jr., frequency-response curve tracer, 136
 Muniz, R., and A. Tait, television pre-amplifier, 163
 Münzinger, F., engineers, 1847
 Murphy, O. J., orchestral pitch, 754
 Murphy, P. B., programme switching, 2147, 3287
 Murphy, P. M., and H. E. Edgerton, flash lamps, 1256
 Murrain, E. S., amphidyne-controlled motor, 1206
 Mushkin, E. S., infra-red photography, 334
 Muth, H., transmitter for short pulses, 3555
 — and H. Roosenstein, generating electric waves, 2324
 Mutschke, H., semiconducting materials, 2091
 Muzak Corporation, restricted reception, 274
 Myasnikov, L. L., effect of plane screen on loudspeaker, 3279
 Myers, H. C., and J. H. Cox, ignition rectifiers, 1496
 Nace, A., vibrator-operated power supplies, 1158
 Nagaoka, H., and T. Ikebe, induction magnetograph, 955
 Nagel, W., and E. Brandenburger, water on insulating materials, 1801
 Nakagami, M., and others, fading reduction, 1666; space diversity effect, 1667

- Nakayama, T., with N. Takagi, Rochelle salt crystal, 1085
 Nambu, J., with S. Hukawaga, adsorption in zirconium, 1696
 Namias, J., air mass analysis, 387
 Narath, A., with H. Lichte, sound films, 725
 Narayan, B. G., with A. K. Das, solar prominences, 1611
 Narayanaswami, R., radiation of earth's atmosphere, 1285
 Nasilov, D., Doppler effect, 1882
 — with A. Loidis, climate and communication, 1883
 Nasilov, D. N., Maupertuis principle and e.m. waves, 3496
 Naslund, R. S., impedance of r.f. inductors, 187
 National Bureau of Standards, aurora, 368; ionosphere, 6; h.f. transmission conditions, 949; standard frequency broadcasts, 1996
 National Lead Co., conserving tin, 2511
 National Research Council, industrial research, 573; insulation review, 3738
 Naumann, A., pH measurements, 2884
 Naumann, O., lightning protection, 975
 Naumov, P. A., duplex balance, 672
 Navias, L., with A. W. Hull, iron-glass seal, 3352
 Nedungadi, T. M. K., with C. V. Raman, conical refraction, 2868
 Neergaard, C. F., noise in hospitals, 1417
 Neher, H. V., and W. H. Pickering, cosmic-ray radiosonde, 2305
 Nelson, G., double pitch-fork antenna, 1969
 Nelson, R. B., and A. K. Wing, Jr., emission-regulation, 3089
 Nemilov, Yu. A., secondary electron emission, 1361
 Nepomnyaschi, E. A., spectra of rotating bodies, 3616
 Nettleton, H. R., and E. G. Balls, resistance measurement, 1131
 Neuberger, H., atmospheric haze, 650
 Neubert, U., with W. Gohlke, vibrating voltmeter, 2758
 Neuert, H., light counters, 2918
 Neugebauer, Th., light scattering of molecules, 2958
 Neumann, H., magnetometer, 1761; production of magnetic fields, 2823
 Newhouse, A. B., power-amplifier tank circuits, 2315
 Newman, M., with J. M. Bryant, high-speed oscillography, 3685
 Newton, H. W., bright eruptions, 2946; solar eruption and magnetic storm, 3502; sunspots, 1287
 Nevski, A. S., thermal radiation equations, 3187
 Neyman, M. S., with A. A. Pistol'kors, travelling-wave coefficient, 1046
 Nicholson, S. B., magnetic polarity of sunspots, 954
 Nickless, J. E., with E. Rosenthal, ceramic h.f. insulators, 227
 Nicol, H., science and war, 3156; statistics, 2166
 Nicoll, F. H., etching glass to reduce reflection, 776, 2415
 Nief, G., with others, excitation of rarefied gases, 2985
 Niepel, H., with L. Merz, bolometric compensator, 1746
 Nightingale, S. J., tin solders, 2842
 Nimi, A., velocity of light, 652
 Nims, A., circle diagrams for tube circuits, 2672
 Nishibori, E., H. Kawamura and K. Hirano, secondary electron emission, 118
 Nitsche, H., supersonic signal generator, 3632
 — and H. Reich, h.f. signal generator, 181
 Nitsche, R., and E. Dober, insulating plastic temperatures, 3730
 Nixon, G. M., N.B.C. studios, 2402
 Noback, G. J., with I. Rehman, stereoscopic effect in photographs, 2859
 Noizeux, P. J., aviation radio, 1077
 — H. Krähenbühl, and B. Noviks, duplex, 1819
 Nolle, A. W., and C. P. Boner, organ pipes, 1422
 Nomoto, H., ignitron, 1495
 Nomura, Y., propagation of finite wave train, 935
 Nonken, G. C., high-pressure gas as dielectric, 1165, 3368
 Nordahl, J. G., ten-frequency transmitter, 1540
 Nordström, S. R., carrier equipment for cables, 2249
 Norman, N. C., with W. L. Black, programme-operated amplifier, 1189
 North, D. O., receiver sensitivity, 1656, 2337
 — with others, space-charge-limited currents, 397
 Norton, E. L., magnetic fluxmeter, 3340
 Norton, K. A., ground-wave field intensity, 1596
 — with E. W. Chapin, field-intensity survey, 1597
 Nottingham, W. B., class A amplifiers, 1634; r.c. oscillator analysis, 3558
 Novak, K., Satori pendulum drive, 2033
 Noviks, B., with others, duplex, 1819
 Novobatzky, K. F., black screen light diffraction, 2959
 Noyes, H. B., measuring h.f. attenuation, 494
 Nuovo, M., electro-mechanical and acoustic analogies, 3219
 Nüsslein, G., with others, d.c. amplification stability, 1633, 2633
 Obata, J., and R. Kobayashi, pitch and intensity recorder, 753
 Obradovic, I., regulation circuits, 3830
 O'Brien, D. F., with A. H. Weber, photoelectricity of bismuth, 485
 Occhialini, G., high voltage stabilisation, 3091
 Ochem, H., with W. Wild, interference, 2247
 Ogg, A., giant micropulsations, 2943
 Ohio Carbon Co., contact improver, 2839
 Ohtsuka, see also Otuka
 — I., with S. Okazaki, disfigurement of hard rubber, 1793
 Oka, K., Cauchy integral, 897
 Okabe, K., M. Hishida, and K. Mori, abnormal radiation, 1039
 Okaya, T., and T. Tobihi, vibration of metallic discs, 1095
 Okazaki, S., and I. Otuka (Ohtsuka), dielectric losses, 1167; disfigurement of hard rubber, 1793; solid insulating materials, 1792
 — and K. Yamamoto, dielectric losses, 1168
 Oksman, Ya. A., with B. M. Gokhberg (Hochbeig), breakdown of gases, 1501
 Olmstead, N. C., and A. A. Skene, f.m. transmitter, 1016
 Olney, B., noise-analysis in loudspeakers, 3614
 Olson, H. F., microphone calibration, 461
 Olte, H., transformer fault correction, 999; homodyne reception, 2344
 O'Neill, G. D., contact potential, 1070
 Ono, K., statistical series, 561
 Opadowski, I., chain processes, 2549; motion of electric particle, 1601
 Oplinger, K. A., regulation, 1157, 3711, 3828
 Orlov, S. S., and A. A. Pirogov, valve-voltmeter relay, 1155
 Orlovski, E. L., phototelegraphic recording, 491
 Osbon, W. O., turbine-governor performance, 1269
 Osgood, T. H., physics, in 1941: survey, 2849
 Osida, I., h.f. oscillations in liquids, 769
 Osipov, N. V., super-regenerative receivers, 1949
 Oswatitsch, Kl., sound dispersion in clouds, 764
 Otpuschennikov, N. F., retarding-field circuit, 59
 Otuka, I., with S. Okazaki, dielectric losses, 1167; disfigurement of hard rubber, 1793; solid insulating materials, 1792
 Overbeck, C. J., experimental physics developments, 909
 — and H. C. Kendall, supersonic waves, 787
 Packard, L. E., impedance measurements, 1115, 3049
 Page, L., magnetic moments, 1176
 Panofsky, W. K. H., and C. F. Robinson, rectifier circuits, 33
 Panzerbieter, H., and A. Rechten, quality of telephone circuits, 3023
 Parkinson, J. S., high-intensity noise, 1418
 — and W. A. Jack, noise reduction coefficient, 748
 Parkinson, W. C., ionosphere at Watheroo, 947
 — and others, ionosphere at Watheroo and Huancayo, 14
 Paro, H., amplifiers, 739
 Parodi, M., oscillations of a pendulum, 663
 Parr, G., cathode-ray tubes, 1477
 Parratt, L. G., and R. G. Stephenson, voltage stabiliser, 3090
 — and J. W. Trischka, voltage stabiliser, 1489
 Parshad, R., supersonic waves, 2732; ultrasonic waves, 3306
 Parsons, S. L., voltage regulator, 2076
 Parthasarathy, S., with S. S. Bhatnagar, Indian research, 3164
 Partridge, N., distortion in a.f. transformers, 3288, 3289
 Paschiks, V., with M. Avrami, heat flow, 1977
 Pasewaldt, C. W. A., with H. O. Müller, structure of diatoms, 2214
 Päsler, M., matrices for h.f. technique, 3225; π transformers in series, 3538
 Passer, M., with A. Lauenstein, thickness of coatings, 2258
 Passow, E. B., preselection broadcast receivers, 86
 Patrick, R. K., demonstration panel, 303
 Patterson, A. L., with W. C. Michels, refracting media, 553
 Paul, W., electron gun, 796
 Pauthenier, M., and E. Brun, mist droplet diameter, 1576
 Payne-Scott, R., and A. L. Green, superheterodyne tracking charts, 1669
 Peabody, E. H., noise abatement, 1715
 Peddie, W., magnetisation in crystalline media, 872
 Peiser, E. S., with R. C. Evans, structure factor computation, 3424
 Pekeris, G. L., correlation coefficient of turbulence, 2977
 Penick, D. B., temperature stability of pilot channel, 580
 Penndorf, R., constitution of stratosphere, 3492; temperature of upper atmosphere, 3492
 Penney, W. G., with A. G. Gaydon, energy of dissociation of CO, 3493
 Penher, C. J., and D. J. Pompee, electronics in petroleum research, 323
 — with D. J. Pompee, pen recording by photocell, 3179
 Pen Tung Sah, A., matrix theorem, 3771
 Penzig, F., thermochrome crayons, 2023
 Pepinsky, A., larynx as acoustical filter, 3629; tone quality, 762
 Perkins, H. A., residual magnetism, 3389
 — and H. D. Doolittle, residual magnetism, 2521
 Perry, C. S., with E. S. Winlund, f.m. transmitters, 1645
 Perry, F. R., lightning voltages and currents, 970
 — and others, lightning research, 1300
 Pershin, A. F., s.w. propagation, 956
 Peter, O., secondary electron tubes: survey, 2375
 Peters, C. C., and W. R. van Voorhis, statistical procedure, 1194
 Peters, H., and B. Gosner, improved solder fluxes, 256
 Peters, J., distortion, 490; negative feedback, 2981; repeater, 1719
 Peters, J. C., automatic control, 2251
 Petersen, A. H., with E. G. Cook, equipment-failure alarm, 1550
 Peterson, T. F., and W. Lewis, shielding of leads, 1161
 Petrie, D. P. R., electron beams, 1664
 Pettersen, S., meteorology, 1626, 1896

- Pettit, J. M., reception of f.m. signals, 1023
 Petukhov, N., back-firing in mercury rectifiers, 2810
 Pfestorf, G., and K. H. Strauss, h.t. insulators in humidity, 2997
 Pfister, R. J., and D. H. Rank, deflection recording system, 3449
 Pfister, W., earth conductivity, 3199
 Pfläer, P. M., suspension of moving element in measuring instruments, 2455
 — and B. Marsch, earthing measurement, 2240
 Pfund, A. H., refractive indices, 651
 Philips Company, valves, 1982
 Philpott, S. F., speed control, 219
 Photovolt Corporation, photoelectric colorimeter, 2894
 Pickering, W. H., with H. V. Neher, cosmic-ray radiosonde, 2305
 Pickles, S., antennas for transoceanic communication, 1044
 Pidduck, F. B., s.w. oscillations with magnetron, 2328
 Pielemeier, W. H., with D. Telfair, supersonic velocity and absorption, 2733
 Pieplow, H., c.r.o. construction, 502, 2776; linear time-base potentials, 3074
 — with H. Ganswindt, decimetric-wave oscillography, 197
 Pieracci, R. J., stabilised f.m. system, 1644, 2330
 Pierce, J. A., ionosphere eclipse expedition, 946
 — with F. V. Hunt, sound reproduction, 1380
 Piesker, B., switching devices, 3827
 Pigge, H., rectification of decimetric waves, 1333
 Pike, O. W., cathode design, 2874, 2805
 Pike, V. B., cable splices, 1794
 Pilofy, H., reactance quadripoles, 1933, 1934; wave filters, 1934
 Pincherle, L., eigenfunctions in spectral problems, 3141
 Pinciroli, A., negative resistances, 2636
 Pintsch, J., Co., reflectors for u.s.w. relaying, 2360; retarding-field valves, 2329
 Piontkowski, B. A., alkaline counter-e.m.f. cells, 829
 Pipes, L. A., four-terminal networks, 1312; torsional oscillations, 3419; multiconductor transmission lines, 618; non-linear dynamical systems, 1311; waves along wires, 619
 Pirogov, A. A., with S. S. Orlov, valve-voltmeter relay, 1155
 Pistol'kors, A. A., and M. S. Neyman, travelling-wave coefficient, 1046
 Pitsch, H., matching screened aerial leads, 3258
 Planck, M., wave mechanics, 887
 Plank, R. N., receiver response in r.f. fields, 2656
 Plass, G. N., electron lenses, 2774
 Platoff, V., with O. Yadoff, electrostatic machines, 1162
 Plotts, E. L., coupling unit in continuous rotation, 710
 Plummer, H. C., numerical solution of $\tan x = xf(x)$, 890
 Pogodaev, K. N., quartz crystal diffraction spectra, 1755
 Pohl, R. W., definition of Loschmidt number, 3415
 Pohler, G., with W. Wolff, enamelled wires, 846
 Pöhlmann, W., crystal band-pass filters, 3540
 Poleck, H., insulation faults, 2037; i.f. measurements, 1748; phase-adjusting circuits, 2750; testing equipment for coils, 3063
 Polk, H. S., contact-less volume control, 2714
 Pollard, W. G., double layer and electronic forces, 3272
 Polydoroff, W. J., iron cores, 2516
 Pomeranchuk, I., sound absorption in dielectrics, 3033; thermal conductivity of dielectrics, 1802, 3112
 Pompeo, D. J., and C. J. Penther, pen recording by photocell, 3179
 — with C. J. Penther, electronics in petroleum research, 328
 Ponomarev, L. T., relaxation times, 226
 Poole, H. H., illumination under water, 3508
 Poritsky, H., wave transmission, 934
 Porter, B. H., electrostatic shielding, 1978; non-metal shields, 3597
 Posey, W. E., focusing of infra-red rays, 3845
 Possenti, R., quadripoles, 1306
 Posthumus, K., Dutch 125 kv. transmitter, 1946
 Postlethwaite, F., aircraft navigation instruments, 3015
 Potier, R., Huyghens-Fresnel principle, 648
 Potter, R. D., manuscripts, 1227; reading of scientific papers, 2860
 Powers, R., phototube inspects oil holes, 2899
 Powers, R. A., industrial electronics, 327
 Pracher, A., u.h.f. conductivity of electrolytes, 3646
 Prasad, R., see Parshad
 Prasad, S. P., and others, dielectric constant and liquid flow, 2873
 Pratt, C. C., beauty of music dependent on notes, 3301
 Pratt, H., Mackay Co. communication system, 544
 Pratt, J. H., feedback circuits, 393
 Prebus, A., electron spectrometer, 3084
 Preisman, A., amplifier analysis, 3314; bridged tee pads, 190
 Preston, E., Pierce crystal oscillator, 1943
 Price, G. H. S., and others, heavy alloy, 253
 Prichard, J. S., generation of subharmonics, 2450
 Primakoff, H., sound dispersion in gases, 3630
 Prinz, H., Peek's corona-loss law, 2812; rotating voltmeter, 3067, 3672
 Fritchett, W. A., with F. A. Everest, polar pattern calculator, 1054
 Prottopopov, V., chemical analyses by X-rays, 2914
 Prouse, E. J., excitation temperature of sun, 2947
 Provis, W. J., speech-amplification, 3285
 Pruden, H. M., coastal radio-telephone systems, 3402
 Prunier, F., Boltzmann constant, 1553
 Puckle, O. S., time bases, 1145, 2784; survey, 3691
 Pumper, E. Ya., with M. L. Kotlyarevski, quartz-plate oscillations, 1451
 Pungs, L., with E. von Collas, anode modulation of u.s.w., 3554
 Purcell, G. H., with R. B. Abbott, wood for violins, 758
 Purington, E. S., symmetry networks, 990
 Pütschel, B., measurement of short times, 2256
 Putseyko, E., selenium photocells, 1739
 Pützer, W., with H. Gerwig, measuring phase angles with c.r.o., 3326
 — with others, conductivity meter, 2956
 Quarrell, A. G., with B. Chalmers, examination of metals, 578
 Quéney, P., atmospheric perturbations, 639; mobility spectrum of atmospheric ions, 1915
 Raabe, H., cupal sheet and foil, 3745
 Race, H. H., pre-breakdown currents in dielectrics, 3740
 — and C. V. Larrick, coaxial cable attenuation, 175
 Rademacher, W., modulation circuit, 2990
 Radio Corporation of America, error-proof teleprinter, 3760
 Radley, W. G., submarine cables, 142
 — and E. P. G. Wright, a.f. signalling, 3780
 — and others, materials in telecommunications, 2500
 Rado, G. T., and A. R. Kaufmann, magnetisation of Ni-Sb and Ni-Ta, 879
 Raether, H., electrical breakdown in gases, 3202
 Raethjen, P., physics of atmosphere, 3196
 Raff, R., with H. Mark, high polymeric reactions, 1505
 Rahmel, H., variable equaliser amplifier, 139
 Rainwater, J., ionisation-gauge circuit, 2072
 Raithel, K., with F. Eckart, lead selenide, 248
 Rajewsky, B., and others, spherical counter tube, 2921
 Rakov, V. I., h.v. electrical apparatus, 2081
 Rakovich, O. S., coaxial cable conductors, 477
 Rama, S., elastic materials, 2874
 Ramaiya, D. S. S., with B. V. R. Rao, supersonic velocities in fluids, 766
 Ramakrishnan, M. V. S., film reflectivities, 3461
 Raman, C. V., the solid state, 3414; X-ray reflection, 3763
 — and T. M. K. Nedungadi, conical refraction, 2968
 Ramberg, E. G., with others, photographic action of electrons, 3080
 Ramer, L. G., absorption of strips, 469
 Ramo, S., non-uniform transmission lines, 930
 — with J. P. Blewett, wave propagation, 676
 Ramsauer, C., electron microscopy, 3695
 Ramsay, B. P., and others, optical resolution, 2778
 Ramsey, W. E., self-quenching counters, 1859
 — with M. E. Rose, counter amplification, 2919, 2223
 — with P. Weisz, counter for cosmic rays, 2920
 Randolph, D. W., aircraft-engine shielding, 3247
 Rank, D. H., with R. J. Pfister, deflection recording system, 3449
 — and others, Raman spectra, 3454
 Rankin, J. A., with D. E. Foster, f.m. receivers, 1022
 Ransley, C. E., diffusion of oxygen in copper, 255
 Rao, A. S., and S. S. Banerjee, i.f. amplifiers with negative resistance, 2313
 Rao, B. V. R., and D. S. S. Ramaiya, supersonic velocities in fluids, 766
 Rao, N. S. S., effect of sunset on atmospheres, 1906
 Rao, V. V. L., tests on broadcast receivers, 1670
 Rashevsky, N., mathematical biology, 1238
 Ratheiser, L., broadcast receiver amplification, 3242
 Raudenbusch, H., photographic film, 500
 Rannio, N., with M. Tommila, radiosonde, 662
 Ravdel, A. A., and B. V. Gorelik, cathode phenomena in vacuum, 2424
 Rawer, K., ionospheric observations, 359; see also H. G. Booker
 Ray, B. B., with K. D. Gupta, allotropes of selenium, 1740
 Rayleigh, Lord, active nitrogen, 2289
 RCA Institutes Technical Press, radio at u.h.f., 1853
 RCA Laboratories, alternative raw materials, 887; amplifiers, 1928; c.r. tubes, 2601; cathode sleeve, 1370; concentric lines, 1922; distribution system, 1351; grain structure of metals, 2215; h.v. electron microscope, 512; interference suppressor, 1338; midjet amplifiers, 447; negative feedback amplifier, 1326; regulated h.t. supply unit, 2075; transformers, 1924; u.s.w. resonant-line oscillator, 1448; valve circuits, 1344; vernier condenser, 2111
 R.C.A. Manufacturing Co., automatic curve tracer, 1402
 Reboul, J., semiconductors, 2209
 Rechten, A., with H. Panzerbieter, quality of telephone circuits, 3023
 Recknagel, A., electrostatic electron microscope, 514; generation of s.w. and u.s.w., 58
 — with E. Brüche, X-ray tubes, 800
 Reed, J. C., acorn valves for oscillators, 3551
 Reed, J. W., with R. H. Healey, slow electrons in gases, 16, 629
 Reed, M. B., circuit frequency response, 54; networks, 671
 Rehfish, T. J., insulation resistance meter, 2445
 Rehman, I., and G. J. Noback, stereoscopic effect in photographs, 2859

- Reich, H., with H. Nitsche, h.f. signal generator, 181
 Reich, H. J., intermodulation frequencies, 2834 ; principles of electron tubes, 2380, 2569
 Reichardt, W., microphones, 1083
 Reid, J. B., galvanometer shunt, 3341
 Reid, J. D., f.m. receivers, 1023 ; large-radius stylus, 1396
 Reid, W. P., molybdenum filaments, 3270
 Reinhart, E. A., tube conservation, 1980
 Reissner, E., singular integral equations, 1829
 Regoliosi, F., insulating liquids, 3324
 Renne, V. T., and A. V. Bogdanov, copper-oxide rectifiers, 421
 Renneberg, W., with K. F. Bonhoeffer, activation waves, 2207
 Renner, F., with A. Sommerfeld, dipole aeriels, energy equations, 1677, 3583
 Rentsch, W., amplifier for c.r.o. measurements, 3325
 Rentschler, H. C., photocells for u.v. region, 2902
 Renwick, F. F., and H. S. Tasker, fluorescent materials, 521
 Rettinger, M., averaging decibel measurements, 146
 Reusse, W., velocity-modulation in u.s.w., 3552
 Revutzkaja, M., and E. Akatnova, X-ray tube, 1841
 Reyner, J. H., s.w. radio, 2193
 Reynolds, S. I., dielectric constants at 1-50 Mc/s., 3645
 Reynst, M. F., with P. J. Hagendoorn, electrical indicators, 1874
 Rhines, F. N., and W. A. Anderson, substitute solders, 2841
 Riabouchinsky, D., gaseous jets, 1723
 Rice, H. E., f.m. receivers, 1024
 Rice, H. E., Jr., power tuning, 3562
 Rich, T. A., ampere-squared-second recorder, 1273
 Richards, D. L., with R. O. Carter, smoothing-choke design, 2514
 Richards, E. A., selenium rectifiers, 248, 3704
 Richards, P. A., with H. F. Folkerts, c.r. tube traces, 2458
 — with L. C. Waller, television system for amateurs, 2413
 Richardson, A. G., with others, signal generator, 179
 Richardson, A. McD., portable c.r.o., 198
 — and A. G. Brown, radio telephone, 277
 Richardson, E. G., particle-size analysis, 1276
 Richardson, H. M., plastics in radio industry, 2492
 Richardson, R. S., geomagnetic storm, 18th Sept., 1941, 951
 Riddle, R. H., airport communications, 459, 547
 Rider, G., music-proof field pick-up, 2720
 Riedinger, A., oscillations in metallic tubes, 358, 926
 Riedrich, G., non-magnetic steel, 866
 Riehl, H., luminescence, 805
 Riehl, N., and others, action of ionising rays, 919
 Rietzke, R. D., multiple u.h.f. reception, 2381
 Riewe, K. H., with F. G. Houtermans, space-charge effect on electron beam, 2772
 Rigden, P. J., and H. J. H. Starks, carbon-resistor elements, 3481
 Riggerink, M. D., ceramic materials, 839
 Rinehart, J. S., karolith and lucite, 833
 Ring, F., television picture edges, 3309
 Rinia, H., with H. J. Lindenhovius, d.c. supply apparatus, 817, 2077
 Risch, C., and A. Weygandt, railway bridges, 2876
 Rissik, H., mercury-arc current converters, 2811 ; power limits of interconnector, 979 ; probability graph paper, 297 ; quality control, 1836, 2855, 3155
 Rivlin, R. S., television distortion, 3637
 — with E. C. Cherry, non-linear distortion, 31, 1917
 Rizkin, A. A., high-selectivity systems, 1000
 Roberts, W. K., with S. P. Sashoff, tropical storm static, 2301
 Robertson, D., load characteristics, 740
 Robinson, C. F., with W. K. H. Panofsky, rectifier circuits, 33
 Robinson, G. D., thunder-clouds, 1907
 Robinson, S. L., vibrators, 1492
 Rocard, Y., auto-oscillation, 3550
 Rock, G. D., with F. E. Fox, variable resonator, 1756
 Rockwood, G. H., cold-cathode tubes, 1153, 3702
 Roe, G. M., vibration modes, 749
 Rogers, D., and G. Williams, thermojunctions, 2433
 Rogers, F. T., Jr., photometry, 2230
 Rogot, S. R., electrical terms, 1226
 Rogov, V., filament diameter measurement, 2456
 Rogowski, W., coaxial circular rings, 2972 ; heterodyne process, 3523
 — O. Martin, and H. Thielen, Lichtenberg figures, 656
 Rogozinski, A., residual current, 851
 Rohats, N., transient analysis, 2053
 Rohde, L., and others, h.t. testing plant, 2047
 Rohde & Schwarz Laboratories, exploring-head voltmeter, 1118
 Rohloff, E., and W. Lawrynowicz, logarithmic decrement, 757
 Romanow, F. F., hearing aids, 743, 1377
 Rompe, R., with others, arc discharge, 597, 3462 ; biological applications, 3466
 Romis, D. F., monochromatic light filters, 3458
 Roof, G., portable transmitter, 885
 Rookshy, H. P., industrial X-ray technique, 2913
 — and A. H. McKeag, zinc silicate, 2070
 — and L. A. Thomas, vitreous silica, 1513
 Roosenstein, H. O., and F. Johnske, rotating d.f., 3013
 — and P. G. Violet, multi-wave reception in wave guides, 3563
 Roosenstein, H. O., with H. Muth, generating electric waves, 2324
 Rorden, H. L., with T. F. Brandt, h.v. bushings, 85, 3572
 Rose, A., light sensitivity, 1109
 Rose, M. E., and W. E. Ramsey, counter amplification, 2919, 2223
 Rose, R. E., radium detection in geophysics, 3165
 Rosen, E. E., post-war training, 304
 Rosen, N., interpretation of wave mechanics, 3411
 — and A. E. Ruark, quantum mechanical systems, 3411
 Rosenblith, W. A., noise, 1417
 Rosenthal, A. H., television picture storage, 2738 ; television reception, 1439
 Rosenthal, E., and J. E. Nickless, ceramic h.f. insulators, 227
 Rösseler, G., and K. Vogt, aircraft receiver, 1953
 Rostas, E., with J. J. Müller, transit-time generator, 406, 1010
 Roters, H. C., electromagnetic devices, 865
 Roth, A., K. Berger and others, lightning arresters, 1617
 Rothe, A., with E. Franke, modulation of light sources, 2870
 Rothé, E., prospecting, 915
 Rothe, H., transmitter amplifier, 1021
 — and W. Kleen, valves as oscillators and rectifiers, 3263
 Rowe Radio Research Lab., angular sweep potentiometer, 2879
 Rowland, E. N., and W. Burns, a.f. for weak signals, 2686
 Ruark, A. E., fog from supersaturated air, 3193
 — with N. Rosen, quantum mechanical systems, 3411
 Rubens, S. M., with J. E. Henderson, anode spots in oxygen, 242
 Rubin, L., and L. C. Zouneveld, modulation amplifier, 2643
 Rudd, J. B., beat-frequency oscillator, 154
 Rüdenberg, R., transformer surge characteristics, 3507
 Ruder, W. E., new magnetic materials, 2516
 Rüdiger, C. E., with F. W. Kranz, audiograms and hearing-aids, 1375, 2703
 Rüdiger, O., surface structure investigation, 2471
 — and H. Schlechtweg, magnetostriction, 3391
 Ruedy, R., absorption of light by carbon, 937 ; illumination under water, 3508 ; scattering of light, 1901
 Rüfer, W., supersonic waves in electrolytics, 2734
 Ruhle, F., dielectric liquids, 1805
 Ruhrmann, A. A. W., energy propagation along lines, 620
 Runge, W., distance determination, 122
 — and A. Gothe, night effect, 3604
 Rupp, H., with others, stability of d.c. amplification, 1633, 2633
 Russell, A. W., detecting pinholes, 1591
 Russell, E. J., Russian for scientific workers, 2186
 Rutelli, G., directive broadcasting, 436
 Ruthemann, G., energy loss of fast electrons, 517
 Ryazin, P. A., with others, electromagnetic field, 622
 Ryder, R. M., oscillations of conducting spheroid, 2662
 Rylatt, H. C., service-men, 1350
 Rytov (Rytov), S. M., and F. S. Judkevitch, reflection of e.m. waves, 361
 Rzhavkin, S. N., and S. T. Terosipyants, sound-absorbing systems, 1414
 Rzyankin, A. G., breakdown of compressed gas, 811
 Sabaroff, S., frequency-modulation, 62
 Sabine, H. J., studio construction, 1416
 Sabine, P. E., acoustics of small cavities, 3627 ; noise abatement, 1713 ; sound-absorption coefficients, 468
 Sackmann, L., stroboscope using thyratron, 2905
 Saba, M. N., solar corona, 2285
 St. Clair, B. W., materials, 1540
 St. Dallos, G., receivers, 1337
 Sakmann, B. W., with H. Mueller, colloids, 3044
 Salford Electrical Instruments, Ltd., a.c. instrument test panel, 783
 Salmon, V., c.r.o. impedance comparator, 3611 ; hypex horns, 131
 Salzberg, B., graphs for transmission lines, 2616 ; triode amplification factor, 2377
 Sammer, F., design of directive aeriels, 3584
 Sándor, A., electroballistic measuring method, 201 ; electron lenses, 504
 Sandretto, P. C., airline radio maintenance, 3278
 — and E. P. Buckthal, direction finding, 1701
 Saneyosi, Z., gas bubble in liquid, 2736
 Santoro, M., diode amplitude-limiting circuits, 1334
 Sapozhkov, M. A., piston diaphragm, 2392
 Sarbacher, R. I., amplifiers, 1068
 Sarma, S. D., with S. K. Mitra, zodiacal light, 3503
 Sashoff, S. P., and W. K. Roberts, tropical storm static, 2301
 Sasso, J., plastics, data and suppliers, 3731
 Saunders, J. B., expansivity of glass, 2117
 Saunders, M. G., hard-valve time bases, 2783
 Savelev, V. Ya., klystron theory, 3228
 Savitski, G. A., mast guys, 443
 Sawade, S., microphone combination, 134
 Sawkins, D. T., goodness of fit hypotheses, 1564
 Sawyer, R. A., with H. B. Vincent, microphotometer, 604
 Saxton, J. A., with J. S. McPetrie, diffraction of u.s. waves, 3184
 Scarr, H. F., studio speech-input systems, 1387
 Schad, see Lindenhovius and Rinia
 Schade, O., and H. DeRyder, testing television tubes, 2418

- Schaefer, H., electrophysiology, 2204 ; protection against X-rays, 1241
- Schaefer, V. J., and D. Harker, surface replicas for electron microscope, 3350
- Schaevitz, H., with W. L. Barrow, hollow pipes, 96
- Schäfer, O., thermionic wattmeters : survey, 3053
- Schäffer, H., and H. Viehmann, screening in concentric cables, 104
- Schaner, F. A., electronic attenuator, 2756
- Scharawskij (Sharavskij), P. W., selenium rectifiers, 533
- Scharlau, H., revolving beam u.s.w., 3579
- Schätzel, W., and K. G. Holsten, s.w. and u.s.w. goniometer, 1074
- Scheibe, A., quartz clocks, 2765, 3333
- Schelkunoff, S. A., e.m. waves, 925 ; theory of aerials, 1049
- von Schelling, H., with J. Dosse, electron beam, 2463
- Schermerhorn, C. H., with L. G. Levoy, Jr., oscilloscope, 793
- Scherzer, O., magnetic electron lenses, 2060
- Schiebold, E., panoramic X-ray equipment, 1340
- Schienemann, R., television amplifiers, 3313
- Schiff, L. I., electron microscopy, 2064 ; electron microscope, 3078
— with R. Hofstadter, indicating circuits, 44
- Schintlmeister, J., electron tube as measuring apparatus, 3339
- Schirobokov, M., ferromagnetic bodies, 3392
- Schlayer, K., aerial problems, 1050
- Schlechtweg, H., with O. Rüdiger, magnetostriction, 3391
- Schlechtweg, W., technical amplifiers, 3022 ; magnetic interference in broadcast apparatus, 2447 ; valves for amplifiers, 1691
- Schlegel, H., ZnS and CdS phosphors, 2472
- Schleimann-Jensen, A., valve manufacture, 120
- Schmersow, H., magnetron, 1947
- Schmideck, A. J., relay circuits, 3223, 3549
- Schmidt, A., Schottky effect, 826
— with F. Eckart, selenium barrier-layer cells, 2012
- Schmidt, H. J., earth contact resistances, 787
- Schmidt, K., current generators and motors, 3383
- Schmidt, R. J., linear simultaneous equations, 566
- Schmidt, R. R., with R. L. Drake, dial-calibration system, 3245
- Schmidt, —, and —, Widakovitch, circuits for d.c./a.c. converters, 3130
- Schmitt, O. H., cathode phase inversion, 666
— and W. E. Tolles, electronic differentiation, 2174
- Schneider, O., lunar magnetic variation, 10
- Schneider, P., differential equations for coupling, 2627
- Schnitzer, H., amplification, 1692 ; electron multipliers, 451
- Schnurmann, R., and E. Warlow-Davies, sliding friction, 1232
- Schoen, A. L., electron microscope, 1251
- Scholz, H., cathode-ray tubes, 1733
- Schönfeld, W., receiver for modulated signals, 2340
- Schönwald, B., light signals in daylight, 2238
— and Th. Müller, Junginger visibility recorder, 2589
- Schoon, Th., and H. Klette, absorbers, 1253
- Schottky, W., boundary layer rectifiers, 2092
- Schouten, J. F., distortion of sounds on film, 2698 ; note pitch, 1425
- Schraub, A., quartz glass, 2239
- Schrieffer, O., e.m. theory and physical phenomena, 628, 2600 ; Zenneck field inclination, 375
- Schrodinger, E., eigenvalue problems, 2164
- Schaubert, O., with H. J. von Braunmühl, tuning-note generator, 755
- Schulz, H., Siemens-Hell recorder, 1551
- Schulz, P., with others, arc discharge, 597, 3462
- Schulz, R., and E. Wägele, screw terminals, 2106
- Schulze, A., materials for thermocouples, 789 ; resistance materials, 2034, 2134
- Schulze, R., with K. Larché, u.v. measuring apparatus, 3452
- Schulze, W. M. H., communication technique, 1672
- Schumacher, F. X., and R. A. Chapman, statistical methods, 3425
- Schumann, T. W. E., Yule's method, 1288
- Schumann, W. O., discharge plasma, 680
- Schüssler, K., effect of impedance on electromagnets, 3713 ; omnidirectional radiator for u.s.w., 3578
- Schuster, K., and W. Matz, Kundt's tube, 1433
- Schwan, H., inhomogeneous dielectrics, 918
- Schwartz, A., action of bimetallic strip, 2436
- Schwarz, W. M., voltage stabiliser, 2795
- von Schweidler, E., ionisation equilibrium, 1625
- Scott, A. H., and A. T. McPherson, dielectric constant, etc., of rubber-CaCO₃, 2493
- Scott, G. W., and C. P. Haskins, proton accelerator, 808
- Scott, H. H., analyser for sub-audible frequencies, 1587, 2727, 2875 ; vibration meter, 352
- Scott, H. J., and L. J. Black, f.m. sideband limitations, 1017
- Scott, L. B., with D. S. Elliott, city noises in New Orleans, 3295
- Scott, E. M., with S. W. McCuskey, star counter, 1577
- Scott, T. R., styrene, 530
- Scroggie, M. G., foundations of wireless, 1571
- Sealey, W. C., transformer noise, 466
- Seashore, C. E., music, 2002 ; science in music, 3300
- Seaton, S. L., multi-band end-fed antenna, 709
- Seeber, F., with F. Lichtenberger, knock-measuring methods, 3175
- Seeley, S. W., and E. I. Anderson, spectrophotometer, 319
— C. N. Kimball and A. A. Barco, f.m. waves, 2329
- Seeliger, R., arc discharge, 239 ; electron-plasma oscillations, 1685 ; inert gas penetration, 3358
- Seely, S., with J. Millman, electronics, 3445
- Seeman, H. E., industrial radiography, 2907
- Seidell, A., microfilm copying, 309, 1850
- Seiler, E. O., electron-coupled oscillator, 683
- Seki, H., noise in valve oscillators, 1067
- Selegenev, V. Ya., with M. N. D'yachenko, u.v. phosphorescence, 3087
- Selker, M. L., brittle temperature of rubber, 2620
- Selvaige, H., flexible materials for cables, 2491
- Selwyn, E. W. H., dimensions of physical quantities, 3766
- Sen, B., bending of thin plates, 2709
- Sen Gupta, M. M., and S. K. Dutt, random scattering theory, 2272
- Sephton, N. F., and A. J. Jackman, wires in cable joints, 2836
- Sepmeyer, L. W., tracing-distortion, 1395
- Sergeyev, L. A., with J. G. Dorfman, location of oil wells, 916
- Seth, B. R., transverse vibrations, 1706
- Setter, J. A., anti-freezing dewpoint recorder, 2892
- Severini, E., phase- and frequency-modulation, 3233
- Sewig, R., and G. Werkmeister, a.c. standard, 1463
- Seymour, H., infra-red baking, 3100
- Sezawa, I., and K. Kanai, elastic wave transmission, 1989
- Shafer, C., Jr., splicing rubber-insulated wires, 1531
- Shaikovich, P., Geiger-Müller counter, 2586
- Shallcross Company, counters, 600 ; Kelvin-Wheatstone bridge, 3061
- Shamos, M. H., with H. Mueller, ferromagnetic suspensions, 2740
- Shan, H. C., primary cosmic rays, 647
- Shand, E. B., dielectric strength of glass, 1515, 3725
- Shankland, R. S., pulse analysis, 153
- Shannon, C. E., differential analyser, 1832
- Shapiro, B. K., acoustic filter, 1716
- Shaposhnikov, I. G., sound in piezoelectric crystal, 3032
- Sharavskij, P. V., copper-oxide rectifiers, 249, 2502
— with N. A. Krauz, copper-oxide rectifiers, 2503
— with V. S. Manovskij, copper-oxide rectifiers, 2093
- Sharp, H. S., quartic equations, 1828
- Shavlo, S. T., with M. U. Korsunsky, ion currents, 809
- Shaw, M. E., Jr., with J. B. Whitehead, h.v. testing, 195
- Shaw, R. F., micro-wave technique, 3521
- Shaw, T. M., freezing points of soils, 1355
- Shchegolev (Schegolev), E. Ya., phase angles, 624
- Shepard, B. E., with J. E. Hancock, peak voltmeter, 3064
- Shepard, F., Jr., synthetic base, 2359
- Shepherd, J. E., direct-reading phasemeter, 1747
- Shepherd, W. G., deionisation in a harmonic producer, 1148
— and R. O. Wise, bridge-stabilised oscillators, 1650
- Sherman, H., electrical network responses, 986
- Sherman, J. B., television demonstration system, 1726
- Sherman, E. L., computing air-earth currents, 977
- Shestakov, V. I., two-terminal networks, 1639
- Shetzline, R. A., man-made radio interference, 3249
- Shevchuk, R. M., voltage stabiliser, 1154
- Shewhart, W. A., statistics in engineering, 1837
— and others, statistics in engineering, 2553
- Shilov, N. M., induction currents in a plate, 313
- Shiple, J. F., and others, water diving, 1234
- Shirakawa, Y., with H. Masumoto, electric resistance of magnetite, 2522
- Shmushkevich, I., with V. Davidenko, dielectrics, 3109
— with B. Davydov, semiconductors, 828
- Sholl, W. S., protection from lightning, 2303
- Short, T. T., with C. M. Summers, voltage regulator, 3710
- Shuleykin, G. V., de-icing aerials, 442
- Shull, C. G., electron polarisation, 2149
- Shulman, A. R., electrical conductivity of alumina, 3113 ; gaseous-discharge plasma, 2444
- Shulvas-Sorokina, E. D., Rochelle-salt crystals, 1379
- Shur, Ya. S., thermal treatment of alloys, 262
- Shute, E. R., varioplex, 298
- Sibaiya, L., Raman effect, 287
- Sibley, J. A., power and heat from the sun, 3468
- Sichling, G., probe measurements in arcs, 111
- Siday, R. E., optical properties of magnetic lenses, 2465
- Siedentopf, H., oscillograph-photometer, 602
- Siemens and Halske A.G., circuits for thermoclements, 2748 ; compensation-temperature regulator, 2748 ; DIN noise-meter, 1407 ; electron microscope, 2217
- Siemer, W., surge currents, 2050
- Sigmon, L. C., 5 kW transmitter, 279
- Silberstein, L., hyperbolic functions, 3149
- Sillars, R. W., negative temperature : survey, 2788
- Silsbee, F. B., and F. J. Gross, volt boxes, 191
- Silva, H., and B. Gross, superposition, 1170
- Simon, R., relaxation effects in amorphous media, 2439 ; polymers and viscosities, 2488
- Simon, H., vertical radio determination, 3275
- Simon, L. E., statistics, 1195
- Simon, A. G., U.S. forest service, 1184
- Sinel'nikov, K. D., and others, vacuum pumps, 1487
- Singer, C. H., transmitter maintenance, 3236
- Singer, S., electro-dynamometer, 2018

- Singh, B. N., magnetic susceptibility, 557; quantum statistics, 1823
 Singh, N. L., with R. K. Asundi, excitation of spectra, 2950
 Sinitsyn, P. A., noise in electron tubes, 2374
 Sinyakov, E. V., with others, conductivity of dielectrics, 3110
 Sivian, L. J., sound-pressure measurements, 151
 Sixtus, K., with H. W. Conradt, magnetic anisotropy, 2515
 Skene, A. A., amplifier for f.m. transmitter, 3232
 — with N. C. Olmstead, f.m. transmitter, 1016
 — with L. Winner, modulated transmitters, 2642
 Skilling, H. H., and W. C. Brenner, electric strength of air, 234, 3719; electric strength of N₂ and freon, 3720
 Slack, C. M., with L. F. Ehrke, radiography, 1243
 Slavín, I. I., discharge phenomena, 2461
 Slepian, J., Poynting vector, 3259
 — and others, dielectric strength of water, 3737
 Slevogt, K. E., decimetric waves, 1880
 Slonczewski, T., calibrations of scales, 3330
 Smalley, A. G., musical notation, 3302
 Smethurst, J. O., control terminal for r/t circuits, 2532
 Smirnov, A. A., non-linear electro-dynamics, 377
 Smith, B. M., alnico properties, 2828
 Smith, C. G., mercury arc cathode, 2806
 Smith, F., Langford, radiotron designer's handbook, 700
 Smith, J. E., relay systems, 1725
 Smith, J. L., uni-directional carrier system, 3750
 Smith, N., sky-wave transmission, 358
 Smith-Rose, R. L., velocity of radio waves, 3495, 3803
 Smoluchowski, R., work function of metals, 1071; magnetostriction of nickel, 880
 Snavelly, B. L., optical errors, 1479
 Snelson, J. W., and F. Brailsford, coil-turns measuring equipment, — with F. Brailsford, routine coil testing, 3659 [2102
 Snoddy, R. E., concentric transmission line filter, 3560
 Snook, J. L., strong permanent magnets, 3135
 Sochnev, A. Ya., electromagnets, 280
 Soddy, F., harmonic series, 2163
 Sokolnikoff, I. S. & E. S., higher mathematics, 2165
 Sokolov, S. Ya., tempered steel, 904
 Solomonyuk, R. E., with M.L. Kats, Sb-Cs photocells, 1738
 Solov'ev, V. A., interference, 1216
 Somers, F. J., with R. A. Monfort, synchronising impulses, 1106, 2421
 Sommer, A., photoelectric alloys, 172
 Sommer, J., h.f. filter circuits, 695
 Sommerfeld, A., e.m. dimensions and units, 3145; superconductivity, 2155
 — and F. Renner, energy equations of dipole aeriels, 1677, 3583
 Sonada, S., electromagnetic horns, 1038
 Sowerby, A. L. M., Wall's dictionary of photography, 1255
 Sowerby, J. McG., output data charts, 3610
 Spangenberg, K., space-charge flow, 449
 — and L. M. Field, electron lenses, 1142, 2464
 — with W. J. Barclay, cable impedance, 2617
 Speaker, D. M., auditory research, 147
 Spencer Lens Co., microfilm reader, 2927
 Spengler, O., and H. Hirschmüller, slit-ultramicroscope, 3083
 Spenke, E., dry-plate rectifier theory, 532; thermal noise, 1636
 Spitzer, A., cellulose insulating material, 231
 Sprague Specialties Co., resistors, 1521
 Sproull, W. T., photographic films, 336
 Stäger, H., new materials, 3374
 Stahl, M. D., and W. C. Loudon, sound-measurement room, 467
 Staiger, K., small movement measurements, 3174
 Stainsby, A. G., with J. T. MacGregor-Morris, photometers, 318, 1863
 Stair, R., with others, solar and sky-radiation in high latitudes, 2605
 Standring, W. G., solid dielectrics, 528
 — with G. W. Bowdler, porcelain insulators, 424, 529
 Stanesby, H., narrow-band crystal filter, 3539
 Stanford, B., photographic recording, 1144
 Stanley, D., and J. P. Maxfield, the voice, 145
 Stansfield, R., torsional vibration measurements, 3479
 Stanton, C. I., co-operation of aeronautics and industry, 3605
 Stark, A., remote control, 1209
 Starks, H. J. H., with P. J. Rigen, carbon-resistor elements, 3481
 Starr, E. C., h.v. d.c. point discharges, 3568; static interference in aircraft, 1662, 3510
 Stauffer, L. H., fluorescent materials, 1494
 Steffenhagen, K., bridge-type filters, 1308; note-frequency generators, 3291
 Stein, D., wind power installations, 2832
 Steinberg, J. C., stereophonic sound film, 722
 Steiner, L. A., thermostat control, 858
 Steinheimer, H. W., magnetic flux measurement, 3662
 Stellwagen, F. W., lateral recording, 463
 Stenzel, H., sound field near piston diaphragm, 2707
 Stephenson, A., relay testing equipment, 2453
 Stephenson, R. G., with L. G. Parratt, fluorescent lamp as voltage stabiliser, 3090
 Stephenson, S. T., X-ray absorption structure, 2219
 Sterling Varnish Co., insulating varnish, 3099
 Stetson, H. T., cosmic-terrestrial laboratory, 143; delayed fade-outs, 632; solar radiation and state of atmosphere, 2951
 Stetson, H. T., and C. F. Brooks, aurorae, 2282
 Stevens, A. M., radiotelephony, Buenos-Aires/New York, 2530
 Stevens, J. B. & E. C., light-beam communication, 2872
 Stevens, S. S., rectifier for voltage integration, 2887
 Stever, H. G., Geiger-Müller counters, 1859
 Stewart, H. J., fluid equation in atmospheric motion, 2967
 Stewart, W. E., receivers for tropics, 91
 Steyskal, H., u.s.w. resonator, 2969
 Stiassny, W., low-power rectifiers, 244
 Stiles, W., 112 Mc/s. defence equipment, 2143
 Stiles, W. J., Jr., u.h.f. antenna heights, 101
 Stilwell, G. R., with H. E. Ives, interference phenomena, 1295
 Stock, J. P. P., with C. R. Burch, phase-contrast microscopy, 2066
 Stockhausen, E. W., negative feedback, 1952
 Stoner, C. R., with A. W. Ladner, s.w. wireless communication, 2193
 Störmer, C., aurora borealis in Norway, 2283
 Störmer, R., inductance of "sieve" contacts, 1786
 Stoyko, N., velocity of short waves, 945
 Strachkewitsch (Strashkevich), A. M., electron lenses, 505
 — with M. T. Glushko, electron-optical systems, 1478; polarisation of cylinder, 3697
 Stratton, J. A., with L. J. Chu, wave functions, 1594
 — and others, wave functions, 2269
 Straubel, H., arc lamps, 2233; h.f. ammeter, 1446; h.f. voltmeter, 1117; wavemeter, 1449
 Strauss, K. H., with G. Pfestorf, h.t. insulators in humidity, 2997
 Streckler, F., non-linear distortion, 1640
 Street, C. C., tube data, 1364
 Street, J. N., with J. H. Dillon, extraction of polonium, 2098
 Street, R. E., e.m. field, 284
 Streiff, F., design with economy in material, 3787
 Strieby, M. E., and J. F. Wentz, television line transmission, 3634
 Striegel, R., discharge lag, 1803
 Strutt, M. J. O., h.f. current measurement, 2015
 — and A. van der Ziel, amplifier valve for metre waves, 2666; photocurrent amplification, 3041; photocurrents, 484
 Stueckelberg, E. C. G., point electron, 285
 Stumpf, F., television reporting, 3311
 Sturley, K. R., frequency modulation, 2145
 Sturm, C. H., wide frequency range meters, 2749
 Suga, T., and M. Kamiyama, u.v. photography, 335
 Suhrmann, R., and F. W. Dehmelt, emission constants of cathodes, 3040
 Suita, T., breakdown in ionic crystals, 1804
 Summerhayes, H. R., Jr., f.m. station monitor, 1119
 Summers, C. M., h.v. testing equipment, 195, 3668
 — and T. T. Short, voltage regulator, 3710
 Sunawala, S. D., with S. S. Bhatnager, vinyl resins, 2490
 Süring, R., clouds, 386
 Suryan, G., sound velocity in liquids, 1431; vibrations of twisted strings, 2007
 Sutherland, D. M., testing equipment for valves, 121
 Sutton, G. G., h.f. properties of wire, 2321
 Suzuki, M., and R. Fujioka, liquid dielectrics, 1502
 Swaminathan, B., s.w. condenser field, 917
 Swann, W. F. G., cosmic-river latitude effect, 12; statistical fluctuations in Geiger counters, 3471
 Sweet, M. H., densitometer, 3448
 Szekely, A., and E. Zauner, ionised rarefied air, 2771
 Szpor, S., lightning stroke, 1616
 Taeger, W., voltage-stabilising circuits, 3548
 Taft, E. B., vacuum-tube intensity meter, 2917
 Tait, A., with R. Muniz, television pre-amplifier, 163
 Takagi, N., piezoelectricity, 1123
 — and T. Nakayama, Rochelle salt crystal, 1085
 Takagi, Y., binary alloys, 875
 Takahashi, H., thermal noise of quadrupole, 35
 Takada, T., with S. Mochizuki, corona production, 2088
 Takéuchi, T., cosmic particles, 963
 Tamm, K., sound waves in water, 3305
 Tanasescu, T., class C amplifier, 71
 Tansley, A. G., science and culture, 3426
 Tarrant, A. G., recording paper, 3071
 Tasker, H. S., with F. F. Kenwick, fluorescent materials, 521
 Tawde, N. R., and V. D. Desai, point-o-lite lamp, 2290
 Taylor, A. H., low brightness meter, 1275
 Taylor, F. J. D., carrier system, 2594
 Taylor, J. F., field-intensity meter, 184
 Taylor, S. G., amateur radio in defence, 2144; ballast tubes, 2793; broadcast tuner, 83; civil defence communication, 3401; photography in laboratory records, 3799; production of receivers, 90; signal strength reports, 703; voltage regulator, 818
 Teele, R. P., physical photometer, 317
 Telefunken Co., d.f. aerial systems, 2389, 3013
 Telequipment Co., low-capacity cables for u.h.f., 3580
 Telfair, D., and W. H. Plemeier, supersonic velocity and absorption, 2733
 Tellegen, B. D. H., networks, 1305
 Tenac, S. C., with S. D. Wilburn, architectural acoustics, 141

- Tenani, M., magnetic declination and dip, 2039
 Tenney, H. W., atmospheric temperature, 595, 3810
 Teodorichik, K., thermoregeneration of sound, 1991
 — and K. Veleganina, thermoregeneration of sound, 2390
 Teodorichik, (Theodortschik), K. F., auto-oscillations, 32
 — and K. Welezhanina, sound receiver, 460
 Teofilato, P., coefficients of curves, 564
 Terman, F. E., feedback amplifier systems, 1001; higher modulation with diode, 2668
 — and others, resistance-coupled amplifiers, 1002
 Terosipants, S. T., with S. N. Rzhievkin, sound-absorption, 1414
 Thackeray, A. D., solar prominences, 1895
 — with A. Hunter, H α prominences on sun's disc, 2946
 Theile, R., and R. Filipowsky, multivibrator, 2423
 — and J. Himpan, electrolytic troughs, 1362
 Theis, A., strains in materials, 2260
 Thiel, K., battery-charging rectifier, 820
 Thielen, H., with others, Lichtenberg figures, 656
 Thiemann, H., with F. Fischer, television, 1736; television projection, 2410
 Thienhaus, E., concert reproduction of cymbalo, 2715
 Thierbach, D., and F. Vogel, telephone lines, 1386
 Thomas, A. M., with W. Hackett, mica, 527
 Thomas, C. H., with W. E. Bahls, gas control tubes, 112
 Thomas, H. E., f.m. police receiver for u.h.f., 2338
 Thomas, H. P., f.m. transmitters, 178
 — and R. H. Williamson, 50 kw. f.m. transmitter, 1180
 Thomas, L. A., with H. P. Rooksby, vitreous silica, 1513
 Thomas T. R., with A. E. Hayes, Jr., acoustic aircraft-detection, 3608
 Thomas, T. S. E., nomogram for inductance, 37
 Thompson B. J., electron multipliers, 1063
 — D. O. North, and W. A. Harris, space-charge-limited currents, 397
 Thompson, L., shock waves in air, 349
 Thompson, L. E., with A. L. Williams, metal rectifiers, 248
 Thornton, B. M., flaw detection, 3486
 Thornton, W. M., transmission lines, 933
 Thurlow, W. R., with C. W. Bray, deafness of birds, 1717
 von Thyssen-Bornemisza, St., lead-cadmium accumulators, 1160
 Tibbetts, D. R., interpolation oscillator, 1455
 Tibbs, C., phase vs frequency modulation, 3553
 Tiedman, J. A., linear densitometer, 2897
 Tihelka, F., with G. Willoner, note generator, 2026
 Tillman, J. R., and A. C. Lynch, capacitance measurement, 3328
 Tilton, E. P., amateur reception, 2270; u.h.f. propagation and meteorology, 3489; superheterodyne receivers for 2½ m., 2647
 Timoféeff-Ressovsky, N. W., with others, biological applications, 3466
 Tintner, G., variate difference method, 2172
 Tischner, H., control processes, 1203
 Tisza, L., supersonic absorption and viscosity, 2735
 Tobiasi, T., with T. Okaya, vibration of metallic discs, 1095
 Tobin, T. C., curve equations, 1199
 Tolles, W. E., with O. H. Schmitt, electronic differentiation, 2174
 Tolson, W. A., with I. G. Maloff, RCA theatre-television, 476
 Tolstikov, V. A., with V. I. Kalinin, coupled systems, 1921
 Tomituka, T., modulation and demodulation, 1019, 1647
 Tommasi, A., time intervals, 1689
 Tommila, M., and N. Raunio, radiosonde, 662
 Tompkins, E. S., illustrating technical lectures, 2857
 Tongiorgi, V., with G. Cocconi, cosmic radiation at 2 km., 2607, 2608
 Tonnies, J. F., valve-voltmeter for high voltages, 2442
 Tönsberg, E., with L. Vegard, atomic lines, 1603
 Torelli, S., with R. Koch, distortion of amplifying valves, 1366
 Torreson, O. W., with G. R. Wait, atmospheric electricity at Watheroo, 26
 Torzo, G., precision seconds-counter, 2767
 Toshniwal, B. D. & G. R., with I. A. Ansari, soil constants, 374
 Toulou, P., valve models in air, 1363
 Townes, C. H., cathode sputtering, 815
 Townsend, C. L., television sound, 1388
 Trabacchi, G. C., thread electrometer, 2042
 Trainer, M. A., television equipment, 1108, 1727
 Trapeznikov, A., X-raying of commercial goods, 1841
 Treloar, A. E., statistical reasoning, 2170
 Trew, T. E., with W. W. Honnor, radio telephone links, 1812
 Trillat, J. J., microradiography by reflection, 2909
 Trischka, J. W., with L. G. Farratt, voltage stabiliser, 1489
 Frist, E. L., colour in sound, 2001
 Triumph Explosives, Inc., flashlight batteries, 535
 Trnka, Z., harmonic analysis of voltage and current curves, 3296
 Trost, A., testing of materials, 591
 von Trotha, W., electric fence, 1266
 Truckess, D. E., electronic inverter, 217
 Trump, J. G., and J. Andrias, flash-over of solid insulators, 1164, 3718
 — and others, breakdown strength of air and freon, 233, 3719
 Tselishchev, V. P., non-linear effects in ionosphere, 3498
 Tsumita, Y., dielectric losses, 1169
 Tsumura, T., with T. Kashimoto, Rochelle salt vibrators, 1084
 Tucker, D. G., impedance-matching for unloaded cable, 2318
 Tumerman, L. A., luminescence decay, 3086
 de Turk, E. P., and A. E. Lockenwitz, grinding capillary walls, 3700
 Türk, W., duration thresholds, 472
 Turnbull, C., methods in invention, 1221, 2178; photoelectric translator, 316
 Turnbull, H. W., geometry of matrices, 3151
 Turney, T. H., laboratory sub-standards, 2764; mutual inductance, 1458
 Tüxen, O., influence of detector selectivity, 3243
 Tweeddale, J. E., sound-level meter, 149
 Tykociner, J. T., and L. R. Bloom, spectral sensitivity, 778
 Tyler, J. E., and others, coated lens systems, 2414
 Uehara, Y., ZnS crystal phosphors, 804
 Uemura, Y., with K. Kimura, counting instrument, 1261
 Ufford, C. W., and E. P. Wigner, distribution function, 3143
 Uhlig, H. H., magnetic delay of stainless steel, 2518
 Ulbricht, G., direction-finding, 720
 Ultra Electric, Ltd., incendiary bomb detector, 1860
 Unckel, H., plastic flow, 837, 1796
 United States Department of Agriculture, protein content of wheat, 325
 United States Department of Commerce, national defence, 1218
 United States National Association of Broadcasters, sound recording, 732
 Unna, P. J. H., waves and tidal streams, 1296
 Usmani, I. H., films on copper, 827
 Usunoff, G. A., matrices in network problems, 3227
 Vaccarino, S., logarithmic recording voltmeter, 1404
 Vacuum Science Products, augetron, 1359
 Vaidhianathan, V. I., with R. R. Bajpai, quartz oscillators, 1723
 Väisälä, V., radiosonde, 662
 Vaks, I. P., wire broadcasting, 1186
 Van Atta, L. C., and others, electrostatic generator, 810
 Van Beuren, J. M., signal generator, 50-400 Mc/s., 2429
 Van Dyck, A. F., and H. B. Deal, civil defence radio alarm, 1213
 Varney, R. N., integrator, 1566
 Varrall, J. E., variable-selectivity i.f. amplifiers, 3576
 Vasil'ev, G. S., background noise, 413
 Vasil'ev, P. P., with M. T. Grekhova, electron-beam valves, 1972
 Vasil'ev, R. P., with others, magnetron, 1328
 Vassy, A., u.v. absorption of air, 633
 — and E. Vassy, atmospheric ozone, 640
 Vassy, E., with R. Jouaust, sudden fade-outs, 362
 — with A. Vassy, atmospheric ozone, 640
 Vaynrib, E. A., with others, energy distribution of photoelectrons, 3039
 V.D.I. Committee, vibration technique, 584
 Vegard, L., and E. Tönsberg, atomic lines, 1603
 Vekshinski, S. A., microstructure of photocathodes, 3316
 Veleganina, K., with K. Teodorichik, thermoregeneration of sound, 2390
 Vellat, T., reception of f.m. waves, 79; side-bands in f.m., 678
 Venderovich, A. M., with others, conductivity of dielectrics, 3110
 Venkataraman, K., radio fade-outs in Feb. and March, 1942, 2939; magnetic storm reception, 1236
 — with Chaman Lal, whistling meteors, 1607
 Vercelli, F., barograms, 2613
 Vermeulen, R., distribution of sound, 1408
 Vermilya, I., wireless Cape Cod, 2148
 Vernotte, P., representation of experimental function, 1827, 2547
 Ver Planck, D. W., initial breakdown voltage, 24, 235
 Veszi, G. A., selenium barrier-layer photocells, 2013
 Vetterlein, P., inertialess commutator, 1764; note-frequency spectrometer, 1710
 Vickerson, A. H., and R. L. Gray, air-raid monitor, 3783
 Viehmann, H., with H. Schäfer, concentric cables, 104
 Vierling, O., auditorium acoustics, 1994
 Vieweg, R., and H. Klingelhöfer, surface-leakage currents, 2815; synthetic resins, 1510
 Vigness, I. J. E., Dinger, and R. Gunn, flaw detectors, 3487
 Vilbig, F., generation of u.s.w., 1011
 — and J. Zenneck, h.f. technique, 577
 — with others, scattering in wave propagation, 1279
 Villem, R., universal receiver, 3239
 Vinal, G. W., with L. H. Brickwedde, standard cells, 1462
 Vincent, H. B., and R. A. Sawyer, micropotometer, 604
 Violet, P. G., with H. Roosenstein, multi-wave reception in wave guides, 3563
 Vissat, P. L., conductivity of tungsten, 3270
 Vital, K. A., sound absorber, 1415, 2403
 Vitkevich, V. V., multivibrator, 495
 Vitnitski, A. S., oscillators, 411
 Voelker, W. D., capacitance bridge, 1460
 Voelkner, H., conductors and semi-conductors, 3126
 Vogel, B., emission spectra of rare gases, 2611
 Vogel, F., with D. Thierbach, telephone lines, 1386

- Vogt, K., with J. Grosskopf, angle of arrival of u.s.w., 1280; earth conductivity, 376, 2955; phase velocity, 1281; rotating field near transmitter, 3001
— with G. Rösseler, aircraft receiver, 1953
— with others, conductivity meter, 2956
- Vogtherr, W., oscillatory circuits, 3322
- Volkmann, J. E., polycylindrical diffusers, 1409
— and M. L. Graham, air-raid alarms, 3609
- Vol'man, I. I., direction in linear conductors, 1051
- Vol'pyn, V. G., frequency-phase distortion, 1004
- Vonsovsky, S. V., magnetostriction, 869
- van Voorhis, W. R., with C. C. Peters, statistical procedure, 1194
- Vore, M. P., balancing machine, 1876
- Vorobjev, A., electrical breakdown of crystals, 3111; see also Worobjew
- de Vries, G., with C. G. A. von Lindern, resonators for u.h.f., 3206
- Vudynski, M. M., alkali-halide cathodes, 1360
- Vvedenski (Wwedensky), B. A., height-gain factor, 623
- Wachholtz, F., and A. Franceson, dielectric measurements on suspensions, 3372
- Wade, E. J., and others, c.r.o. for lightning-arrester research, 2964
- Wadey, W. G., with J. M. Cork, β -ray spectroscopy, 3683
- Wägele, E., with R. Schulz, screw terminals, 2106
- Wagener, S., with H. Huber, oxide cathodes, 1694
- Wagener, W. G., u.h.f. circuits, 2667
- Wagenseller, J. E., filament saver, 3591
- Wagner, C. F., and G. D. McCann, lightning, 382
— and others, lightning, 3513; shielding of transmission lines, 3512
- Wagner, H. M., and W. R. Ferris, orbital-beam multiplier, 1064
— with W. R. Ferris, orbital-beam multiplier, 446
- Wagner, K. W., acoustics of large buildings, 3027; electric furnaces, 590; Laplace transformations, 1637; operational calculus, 3224; theory of non-uniform lines, 3200
- Wahl, E., criterion for turbulence, 3194
- Wahlin, H. B., thermionic properties of iron group, 1534, 2683
— and R. Wright, emissivities of iron group, 3394
- Waidelich, D. L., numerical solution of equations, 567; rectifier circuits, 998, 3532; voltage-multiplier circuits, 34
— with E. H. Meier, iron-core choke inductance, 2762
- Wait, G. R., and O. W. Torreson, atmospheric electricity at Watheroo, 26
- Wakelin, J. H., Jr., magnetisation near boundaries, 2829
- Wald, M., capacitances in wide-band amplifiers, 2419; phase compensation, 2728; relaxation amplifier, 2351; oscillatory circuits, 3321; triode as smoothing condenser, 2553
- Waldmeier, M., chromospheric eruptions, 2945; corona observations, 2948; simultaneous geophysical and solar disturbances, 2277; solar research, 2604; variations in form of corona, 2948
- Waldow, W., communication transmissions, 2245
- Waldvogel, P., distribution in transformer winding, 2317
- Walker, E. A., phase angle of electrical quantities, 1129, 3677
- Walker, W. H., physiological effects of u.s.w., 920
- Wall, F. T., theory of rubber, 3097
- Wall, T. F., h.f. induction furnace, 2201; impedance of coupled-circuit system, 2628; magnetic penetration, 868; surge propagation, 1293, 1903, 2300
- Wallace, M., panoramic reception, 1702
- Wallaushek, R., bolometer-bridge, 1745; electron-optical focusing, 506
- Wallece, H., gas-driven plant interference, 3570
- Waller, L. C., and P. A. Richards, television system for amateurs, 2413
- Walter, B., amber, 843
- Wang, J. C., and others, Geiger-Müller counter, 2221
- Wannier, G. H., with H. A. Kramers, ferromagnet, 873
- Warlow-Davies, E., with R. Schnurrmann, sliding friction, 1232
- Warncke, H., stereophonic reproduction, 2699
- von Wartenberg, —, analysis of quartz glass, 3727
- Wass, C. A. A., negative feedback amplifiers, 3527; winding inductances, 2101
- Wasserfall, K. F., variations in magnetic elements, 957
- Watanabe, H., with Z. Kamayachi, quartz crystal vibrators, 1121
- Watanabe, M., resonators and wave guides, 927
- Waterton, F. W., d.c. voltmeter, 3066
- Watkins, H. A., with C. E. Homer, soldering phosphor-bronze, 2110
- Watkins, H. C., flux for solder, 2109
- Watrous, W. W., and D. E. Marshall, gaseous tubes, 2677
- Watson, E. M., high-speed action, 599
- Watson, F. R., acoustics of buildings, 2723
- Watson, G. N., integrals with Fourier kernel, 3420
- Watson, J. H. L., with D. M. Hamly, electron microscope, 3694
- Watson, L. A., audiometers, 1376
- Watson, N. A., aids to hearing, 1374
- Watson, R. B., and others, study of violins, 759
- Watzlawek, H., cyclotron: survey, 3357; electrostatic generator, 3355
- Wearmouth, W. G., plastics, 3732
— with E. G. Couzens, plastics in radio industry, 1506, 2817
- Webb, J. H., photographic latent image, 208; service-men, 95
- Webb, W. L., and G. O. Essex, automatic radio compass, 1984
- Webber, H. E., electronics in medical research, 1235
- Weber, A. H., and L. J. Elsele, photoelectric threshold, 485
— and D. F. O'Brien, photoelectricity of bismuth, 485
- Weber, H., phase difference measurement, 3068; television broadcast transmitting equipment, 2412, 3312
- Weber, L. R., and F. P. Goeder, velocity of sound, 1430
- Weber, R. L., temperature measurement, 2254
- Weber, W., electro-negative gases, 3367; flashover voltage, 3120
- Webster, F. D., and R. E. Downing, 30 kw. s.w. transmitter for America, 2334
- Wegener, K., climate in Soviet Union, 2187
- Wehnelt, E., with J. Kömmnick, bullet-spin, 598
- Weicker, W., ceramics in engineering: survey, 2816
- Weiller, P. G., fluxgraph for coil fields, 3660
- Weimer, D. K., and H. P. Knauss, a.c. resonant pendulum, 2766
- Weinberg, A. M., and A. S. Householder, biological systems, 2213
- Weir, I. R., f.m. transmitters, 273
- Weiss, J. G., with J. Friedheim, secondary-emission, 1065
- Weiss, W., detection in f.m. receivers, 81
- Weissler, G. L., corona in H_2 , N, and A, 2482
- Weissman, S. I., with S. Freed, wide-angle interference, 19
- Weisz, P., Geiger-Müller counters, 2224, 2535
— and W. E. Ramsey, counter for cosmic rays, 2920
- Weizel, W., R. Rompe, and P. Schulz, arc discharge, 597, 3462
- Welch Scientific Co., duo-seal vacuum pumps, 3095
- Welzhanina, K., with K. F. Theodortschik, sound receiver, 460
- Weller, R., photoelasticity, 330
- Wells, H. W., earth's field and ionosphere heights, 2276; ionospheric investigations, 1605
- Wells, N., aerial characteristics: survey, 3585
- Weltronic Corporation, u.s.w. transceiver, 2524
- Wen, L. T., equi-signal guiding beam, 3011
- Wendt, G., image errors, 1732
- Wenk, P., radiosonde, 1913
- Wenke, F. W. G., with F. de Fremery, studio acoustics, 2722
- Wente, E. C., and others, stereophonic sound film, 722
- Wentz, J. F., with M. E. Strieby, television line transmission, 3634
- Werkmeister, G., with R. Sewig, a.c. standard, 1463
- Werner, W., contact pressures, 861, 3132
- Wertli, A., police wireless system, 1813
- Wesch, L., dielectric constant of phosphors, 223; Lenard phosphors, 203
- Westendorf, E., with H. Katz, high recording speeds, 501
- Westendorp, W. F., with E. E. Charlton, X-ray outfit, 1242
- Western Electric Co., marine radio-telephone, 548; microphone, 1389
- Western Union Telegraph Co., telegraph lines, 1210
- Westinghouse Co., high voltage testing, 2759; mass spectrometer, 2581; phototube register control, 2899; dynamic balancing unit, 2266; vacuum seals, 2071
- Westphal, W. H., magnetic magnitudes, 3767
- Wever, E. G., and C. W. Bray, stapedius muscle, 1427
— and others, middle-ear pressure, 1428
- Wey, G. J., shielding of magnets, 1177
- Wey, R. J., photoelectric smoke meters, 1868
- Weygandt, A., with C. Risch, railway bridges, 2876
- Weyl, C., and others, radiologic physics, 2583
- Wheelco Instrument Co., electronic watt-hour-meter tester, 3820; liquid level controls, 3433
- Wheeler, H. A., common-channel interference, 1654; skin effect and depth of penetration, 2298
- Wheeler, L. L., and S. L. Brown, transcendental functions, 2173
- Whiddon, E. F., hiss-silencer, 2649
- Whinnery, J. R., u.h.f. skin effect formulae, 2619
- White, J. E., study of arc-back, 2809
- White, J. U., optical paths of large aperture, 2926
- White, W., hospital communication equipment, 2394
- White, W. E., stringing scale, 756
- Whitehead, E. R., lightning protection of sub-stations, 974
- Whitehead, J. B., and G. S. Eager, Jr., dielectric loss, 2814
— and W. H. MacWilliams, Jr., impregnated-paper insulation, 3736
— and M. R. Shaw, Jr., h.v. testing, 195, 3666
- Whitehead, R. C., in-phase amplifier, 1008
- Whitehead, S., potential distribution, 1191
— with A. E. W. Austen, dielectric strength, 2487
- Whitmore, J. M., electronics, 1873
- Whitney, L. V., light diminution in water, 939
- Whitney, R. L., porcelain insulator design, 1339
- Whittleston, W. G., sine-wave a.f. oscillator, 3024
- Wichmann, H., field fluctuations, 658, 3204, 3205
- Widakovitch, —, and —. Schmidt, circuits for d.c./a.c. converters, 3130
- Widder, D. V., Laplace transform, 3148
- Wiechowski, W., skin effect in coaxial cables, 3488
- Wiener, F. M., electroacoustic systems, 726, 1378
- Wiener, M. A., aurora observations, 1940, 2281
- Wiesner, J. B., recording laboratory, 1391
- Wigand, R., receivers, 1037

- Wiggin, H., & Co., monel metal, 2136
Wigner, E. P., with C. W. Ufford, distribution function, 3143
Wilburn, S. D., and S. C. Tenac, architectural acoustics, 141
Wilcox, N., remote amplifier, 1385
Wild, W., and H. Ochem, interference, 2247
Wilde, H., and R. Feldtkeller, warble frequencies, 3530
Wilhelm, K., amplifier-loudspeaker combination, 3018
Wilke, R., sensitivity of u.h.f. receivers, 3241
Wilkinson, E., sets for training, 3795
Willard, G. W., ultrasonic absorption, 765
Willers, F. A., analysers of periodic functions, 3152; harmonic analysers, 3152; analysis by section integration, 2853; product planimeter, 2853
Williams, A. L., and A. W. Duffield, crystal elements, 351
— and L. E. Thompson, metal rectifiers, 248
Williams, G., with H. T. Flint, measurement of impedance, 780
— with D. Rogers, thermojunctions, 2433
Williams, H. J., with R. M. Bozorth, torque on silicon-iron crystal, 870
Williams, W. D., magnetostriction, 2139
Williamson, R. H., with H. P. Thomas, 50 kw. f.m. transmitter, 1180
Willmott, W., music, 1424
Willms, W., sound attenuation in absorbing tubes, 3294
Willoner, G., and F. Tihelka, note generator, 2026
Willson, J. E., capacity and inductance measurements, 186; crystal filter as bridge circuit, 48
Wilson, A. J. C., X-ray intensity data, 3464
Wilson, C. E., total security, 299
Wilson, M. S., five-metre wave paths, 2; weather prediction, 3
Wilson, R. G., amplifier for stellar currents, 3528
Wilson, W., c.r.o. in industry, 1248, 3171; dimensions, 1193; lightning arresters, 1910; recording pressure fluctuations by c.r.o., 3480
Wilson, W. Ker, torsional vibrator, 3478
Winchell, A., square-corner reflector system, 100
Winckelmann, J., vacuum-tight seals, 1148
Wing, A. K., Jr., with R. B. Nelson, emission-regulating circuit, 3089
Winlund, E. S., and C. S. Perry, f.m. transmitters, 1645
Winnek, D. F., three-dimensional X-ray photography, 2911
Winner, L., I.R.E. Convention, 3441; plastic materials, 224
— and A. A. Skene, modulated transmitters, 2642
Winspear, G. G., behaviour of sulphur in rubber, 2819
Winston, M. E., aids to hearing, 1374
Wise, R. O., with W. G. Shepherd, bridge-stabilised oscillators, 1850
Witts, A. T., radio repairs, 430
Witwer, E. R., electro-encephalograph, 1236
Woelken, H., Möllinger-Gewecke diagram, 2971
Wolf, F., electronic theory of metals, 2153
Wolf, J., zinc-oxide phosphors, 777
Wolf, S. K., acoustic experiments, 1575
Wolfe, I. R., portable broadcast amplifier, 738
Wollenden, H. E., statistics, 3425
Wolff, W., and G. Pöhler, enamelled wires, 846
Wood, H. H., push-button switching, 278
Woods, R. C., and L. P. Kenna, X-rays in industry, 338
Woods, R. W., initial permeability of iron, 2825
Woodward, J. G., resonance characteristics of cornet, 2717
Woolnough, G. L., hot-wire vacuum switch, 2790
Worobjev (Vorobjev), A. A., insulating crystals, 852
Worrell, F. T., V^2 relation for molybdenum, 2681
Worthington, J. S., sensitive relay, 2130, 2598
Wright, E. P. G., with W. G. Radley, a.f. signalling in telephony, 3780
Wright, G. M., Sonovox, 724
Wright, R., with H. B. Wählin, emissivities of iron group, 3394
Wright, R. W., thermionic emission from molybdenum, 116
Wright, W. L., photoelectric control devices, 1579
Wucherer, H., band-rejection filters, 1309, 3541
Wul, B. M., and others, glass cloth, 842
Wunderlich, R., r.c. amplifier, 1926, 1927, 3526
Wurm, K., with H. Israel, lightning-flash spectrum, 967
Wwedensky, see Vvedenski
Wyman, C. T., telephone cables, 3387
Wynne, S. W., noise abatement, 1714
Yadoff, O., dissipation of atmospheric electricity, 854; high voltages, 2046
— and V. Platoff, electrostatic machines, 1162
Yager, W. A., and W. O. Baker, dielectric properties, 836
Yakovlev, N. I., piano strings, 2716
Yamada, N., concentrated constant circuits, 987
Yamaguti, Z., thermoelectricity of bismuth, 2017
Yamamoto, K., with S. Okazaki, dielectric losses, 1168
Yanus, R. L., and others, control of raw material, 1838
Yardeny, M., remote-control system, 73
Yarmack, J. E., selenium rectifiers, 247, 1781
Yarnold, G. D., electric and magnetic dimensions, 1192, 2542
Yarsley, B. E., hydrocarbon polymers, 1504; plastics, 1799
Yasnopolski, N., blocking effect, 3599
Yeager, W. J., with H. P. Knauss, cornet vibration, 2717
Yerzley, F. L., neoprene, 844
Yosioka, K., supersonic wave generator, 1097
Yoshiyama, K., elastic wave propagation, 1989
Young, R. G., supplementary a.v.c., 427
Young, R. W., tuning of valved wind instruments, 2718
Young, V. J., with H. P. Manning, pulse generator, 3128
Yü, S. H., X-ray data for crystal analysis, 2910, 3464
Yu, Y. T., virtual mass of discs, 2708
Yudkevich, see Judkevitch
Yunker, E. A., patterns of antenna systems, 1053
Yuzvinski, V. I., e.m. field, 625; reception, 626; tuning of amplifying stages, 1703
Zadig Patents, aircraft detector, 3019
Zauner, E., with A. Szekey, ionised rarefied air, 2771
Zauscher, H., with A. Büchner, condenser technique, 1806
Zech, T., harmonic analysis, 3772
Zeleny, J., discharge from pointed conductors, 238; mechanism of electric spark, 3203
Zelyakh, E. V., two-way h.f. amplification, 1009
Zender, R. G., insulated-wire requirements, 2835
Zenneck, J., with F. Vilbig, h.f. technique, 577
Zickendraht, H., acoustic resonators, 3030; sensitive flames, 1721
Zickner, G., with E. Justl, superconductors, 2154
van der Ziel, A., with M. J. O. Strutt, amplifier valve for metre waves, 2666; photocurrent amplification, 3041; photocurrents, 484
Zierold, H., with K. Birus, phosphorescence, 1483
Zin, G., r.f. impedance, 1459; transients in non-uniform lines, 2615
Zingerenko, A. M., interaction between parallel lines, 994
Zonneveld, L. C., with L. Rubin, modulation amplifier, 2643
Zworykin, V. K., and others, electron microscope, 199, 2470; Mg-alloy emissive electrodes, 117
— with others, electron microscope, 3346

SUBJECT INDEX

- Absorption. (See also Acoustics; Light; Sound; Wave propagation, electromagnetic; Waves, electromagnetic)
of radiation, theory of, 1282; in turbid media, 936
of sound at oblique incidence, 1415, 2403
spectra, of ozone, 1886
Accelerometer, 10g—5,000g for 10-10,000 c/s., 3477
Accumulators. (See also Batteries); lead-cadmium, 1160
Acoustic filters, design of cells of, 1716
— filtration by membranes, 1413, 2710; in non-homogeneous media, 156; in parallel-conduit structures, 2711
— impedance, continuously variable, 745; measurement of, 746; of meshed screens, 1414; of porous materials, 1410, 2725
— resonators, Helmholtz type, 3029; resonance curves, 3030
— wattmeter, for measuring sound-energy flow, 150
Acoustics. (See also Hearing; Noise; Sound; Speech)
absolute sound-pressure measurements, 151
absorbing chamber, 3028
absorption coefficients of small samples, 1411
in aircraft detection, 3608
American standard terminology, 3620
architectural, of Argentine Chamber of Deputies, 141; construction of a dead room, 471; flutter echoes, 750; improvements of auditorium, 1994; in hospitals, 1417; large buildings and theatres, 128, 3027; polycylindrical diffusers in rooms and studios, 1409; studio construction, 1416, 3026, 3286
axis sound in high speed rotation, 1907
books: Acoustics of Buildings, 2723; Mechanism of the Human Voice, 3284; Musical Acoustics, 763; Practical Acoustics and Planning against Noise, 2724; The Voice, Its Production and Reproduction, 145
decibel measurements, 146, 1473
density fields, 3613
duration thresholds for perception of transient phenomena, 472
electro-mechanical analogies, 2970, 3219
electronics in auditory research, 147, 1575
fidelity from musician's viewpoint, 1343
harmonic relations in organ pipes, 1422
knock rating, 2262
noise-meters, 1406, 1407
physical representation of phenomena, 1091

- in small cavities, including the ear, 3627
 sound-absorption coefficients, 468
 sound-prevention mechanism of non-porous materials, 470
 standards for electrical transcriptions, 138
 steady circulations in Kundt's tube, 1433
 surveys, 126, 473
 thermoregenerated resonator as sound receiver, 460
 of two or more loudspeakers from same amplifier, 2705
- Adjacent-channel interference, elimination of, 2345**
- Adsorption of gases, properties of metallic zirconium, 1696**
- Aerial coupling, best circuit for, 428 ; unit for continuous rotation, 710 ; for mobile multiple reception, 2361**
 — heights, u.h.f., 101
 — leads, screened, matching of, 3258
 — systems, field-strength patterns of, 1053, 1054, 3586 ; interference reducing, 2658 ; multicoupler for blocks of flats, 1968 ; parabolic mirror for, 1966, 3255 ; polar characteristics, 437, 2364 ; short wave radiation impedance, 2663 ; for 75 Mc/s. cone-of-silence marker, 1675
- Aerials.** (See also Beacons ; Dipoles ; Masts ; Waves, electromagnetic, ultra-short)
 abnormal radiation from parallel-wire circuit, 1039
 adjusting rotary elements by remote control, 106
 beam, square-corner reflector system, 100
 broadcast, measurements on, 1055
 characteristics : survey and data sheets, 311, 3585
 de-icing of, 442
 dipole, radiant energy and earth absorption with, 1677, 3583
 directional, current distribution, 1051 ; design of two-element radiation-coupled, 3584
 emergency and mobile, 105, 1967, 3581
 at Empire State Television Station, 99
 for f.m. reception, 98
 half-wave, operating at second harmonic, 3582
 impedance measurements, 2366, 3167 ; on aircraft, 1045
 loop, for u.h.f. broadcasting, 1042
 multi-band end-fed, 709
 noise in receiving, 438, 2362
 rhombic, 441, 1048
 short-wave transmitting, 1047, 2664
 split horizontal frame, as polarised radiator, 1352
 theory and problems of, 1049, 1050
 three-direction double-pitchfork, 1969
 transmitting, field in neighbourhood of, 3001
 for transoceanic communication systems, 1044
 ultra-short-wave. (See also Ultra-high-frequency technique) ; 1041, 1043 ; production of sharp beam, 2359
 vertical, current distribution in, 1052
- Air,** calculation of initial breakdown voltage in, 24
 coefficient of absorption in u.v., 633
 d.c. breakdown strength of compressed, 233, 234
 shock waves in, 349
- Air raid precautions, alert signals, 1213, 2189, 2352 ; automatic monitor, 3783 ; communication networks, 3401 ; communication, police mobile radio, 2527 ; directive signal, 2397 ; in electrical industry, 1844 ; incendiary bomb detector, 312, 1860 ; preliminary warning device, 3782 ; remote control of blackout, 2231, 3785 ; warble note generator, 3220 ; warnings : survey and tests, 3609 ; 112 Mc/s. transmitter-receiver for, 2843, 3749**
- Aircraft.** (See also Aviation ; Cable, dielectric ; Direction finding ; Lightning) ; applications of electric power in, 216, 1522 ; automatic control, 124 ; blind landing, 1372, 2366 ; communication between, 3186 ; detection, 2395, 2396, 3019, 3608 ; direction finders for, 456, 457, 1030, 1076 ; engines, voltmeter for investigation, 2758 ; equipment, German, 2851, 3016 ; gauging altitude of, 123 ; insulation tester, 3669 ; interference in, 1682, 3247, 3510, 3568 ; lightning detector for, 659 ; model, control of, 314, 588, 2130, 2598 ; navigation, competition, 3790, in fog, 1700, 3307, instruments, German, 1963, 3015 ; radio equipment for, 275, 276, 1549, 1814, maintenance, 2381, 3278 ; range-finder, use of calculating machines, 2555
- Alloys, Be-Co-Cu, 252, 1787**
 binary, 875, 876
 book : Researches on Structure of Alloys, 2830
 equilibrium relations of Fe-Co system, 877
 formation of radioactive electrode, 2098
 G.E.C. heavy, 253
 for heater-elements, thorium in, 3377
 for instruments, 254
 lead, corrosion of, 1528
 magnetism in, 879, 2140, 2515
 photoelectric alkali metal, 172
 properties of quenched Cu-Fe, 878
 secondary-emission, from Ag-Mg, 1065
 of silver, as resistance materials, 2134
 for standard resistances, 2034
 survey, 3844
 thermal treatment in a magnetic field, 262
 use of spongy or powdered chromium, 2510
- for vacuum-tight seals, 1148
 wire for grids, 2675
- Alnico, properties, magnetisation and test equipment, 2928**
- Alternating current, commercial, determination of harmonic content, 2452**
 operation, d.c. amplifier with, 2314
 problems, mathematical treatment, 1638
- Alternators, voltage and frequency control of, 2252**
- Altimeter, an integrating, 1872**
- Amateur radio activities, 2571 ; conditions for licences of, 913 ; in defence activities, 2144 ; electronic gadgeteering as substitute, 3823 ; frequency range extension, 2350 ; reception reports on 5, 2½ and 1¼ m. waves, 2270 ; wired wireless, 2571**
- Amber, insulating qualities of natural and moulded, 843**
- Ammeters.** (See also Instruments, measuring)
 a.c. standard using photoelectric principle, 1463
 automatic printing, 3676
 for h.f., 1446
 micro-, recording, 1914
- Amorphous media, relaxation effects in, 2489**
 — state, investigation of, 526
- Ampere, absolute determination of, 1762**
- Ampere-hour meters, d.c. micro-, 536**
- Amplidyne controlled motor, use of, 1206**
 generator, 2928
- Amplification, automatic control of 2 frequency bands, 2996**
 behaviour at l.v. of proportional counter, 2223
 in broadcast receivers, valve and circuit problems, 3242
 control of spontaneous fluctuations in, 484
 d.c., push-pull circuit for, 2982 ; stability of, 1633, 2633
 measurements in communication technique, 2038
 orbital-beam secondary-electron multiplier for u.h.f., 1064
 power, mercury rheostatic element, 1157
 by secondary-electron emission in static multipliers, 1692
 stabilisation by negative feedback, 2981
 two-way h.f., 1009
- Amplifier circuits, radiotron 13 W 6V6-G, 667**
 — systems, design of feedback, 1001
- Amplifiers.** (See also Broadcasting apparatus)
 "add-a-unit," 739
 audio-frequency, expansion circuits, 2654 ; for weak signals, 2686
 augetron as i.f., 1359
 automatic phase reversal, 1332
 book : Einhundert neuzeitliche Rundfunk-Empfänger-und Verstärker-Schaltungen, 432
 broadcast, portable, 738 ; remote, 1385
 choice of valves for, 1691
 class A, optimum conditions for maximum power, 1634
 class C, anode dissipation in, 2378 ; calculation of, 71
 counter-tube, 2222
 for c.r.o. measurements, 3325
 d.c., with a.c. operation, 2314 ; in industry, 1586
 design of, 396 ; for panel mounting, 3022 ; resistance-coupled, 1002 ; wide-band video-frequency, 1443
 for differential electromagnetic titrations, 3835
 direct-coupled stabilised neon-tube, 1147
 distortion in valves for, 1365, 1366
 equalising, flexible, 3621
 fidelity of, 3212
 grounding of high-gain h.f., 1925
 inductive-output, 1356
 in-phase, design of non-phase-reversing stage, 1008
 intermediate-frequency, variable-selectivity, 3576
 inverting characteristics of, 1928
 measuring and control technique, 1134
 midjet, u.h.f., 447
 mixing, using AH1 hexode, 2401
 modulation, without coupling transformers, 2643
 negative feedback, 395, 668, 1326 ; for photoelectric currents, 3528 ; survey, 3527
 pentode lock-in, of h.f. selectivity, 43
 power, plate tank circuits for, 2315 ; for u.h.f. use of c.r. tube, 2371
 programme-operated level-governing, 1189
 push-pull power, with phase-reversing stage, 1384
 radio-frequency instability of, 2979
 reduction of frequency-phase distortions in, 1004
 relaxation, 2351
 resistance-coupled, 1325, 1926 ; admittance stabilisation, 2632 ; for d.c. pulses, 42 ; voltage transmission, 1927, 3528
 response to square waves, 1005, 3314
 self-biased plate-modulated, performance, 1068
 telephone line, 1720 ; significance of grid/anode capacitance for, 1003
 testing of, 182
 transmitter, with complex external resistance, 1021
 u.s.w. See Ultra-high-frequency technique
 variable equaliser, 139
 valve, fluctuations in, 397

- video, relaxation response, 1102
wide-band, compensation of capacitances in, 2419; noise voltage of, 1341
- Amplifying stages**, automatic tuning of, 1703
- Amplitude-limiting circuits**, diode, 1334
- Amplitude-modulated signals**, frequency doubling of, 1335
- Analogies**, electro-mechanical and electro-acoustic, 2970, 3219
- Anisotropic media**, electro-dynamics of, 555
- Anode dissipation in class C amplifiers**, 2378
- effect, excitation of, 1368, 2571
- spots, in oxygen, 242
- Antimony**, explosive; structure of, 3642
- Applied mechanics**, book: Applied Mechanics, Theodore von Kármán Anniversary Volume, 559
- Arc-back**, study of, 2082, 2809
- Arc discharge**, control and modulation, 410; h.f. probe measurements in mercury-vapour, 111; high-pressure modulation, 597; optical temperature determination of, 236; theory, 239
- extinction, electrostatic, 2808
- lamps, crater focusing adjustment for, 2233
- Atmosphere**. (See also Clouds; Meteorology)
condensation due to adiabatic compression, 3193
condensation nuclei and ions in, 1624
of earth and Mars, disturbances in, 2284
haze, polarisation of, 650
ionisation-balance of, 977, 1625
Junginger visibility recorder, 2589
motion represented by viscous fluid equation, 2967
propagation of sound in, 1711
radiation in, 1283, 1285, 1289, 1610, 3189
slope of surfaces of second-order discontinuities in, 638
stratosphere, chamber for reproducing conditions in, 196; constitution, 942, 1886, 1913, 3491, 3492
temperature variation with altitude in U.S.A., 595, 3810
tropopause, variation of, 943, 1612
troposphere, book: Correlation between Geopotential of Tropopause and Temperature of Middle Troposphere, 636; constitution, 3491; reflection from, 941, 2936
turbulence processes, 1623, 3194
upper. (See also Ionosphere); constitution, 641, 642, 1606, 1891; perturbations at Lyons, 1939/40, 639; temperature, 27, 1887, 3492
water vapour, condensation in, 2294; thermal radiation in, 637
- Atmospheric electricity**, annual variation in diurnal potential drop, 1620
apparatus for study of, 1621
and atmospheric pressure, 389
of cloud and rain, 2302
computing of air-earth currents, 977
counting of condensation nuclei, 661
dissipation of, 854
earth-current voltages during geomagnetic disturbances, 1604
maintenance of, 364
point-discharge recorder for, 1914
potential gradient and space charge of, 1622
results from Watheroo for 1924-1934, 26
sudden "jumps" in, 1299
during thunderstorms, 658, 1618, 1619, 1907
- Atmospherics**. (See also Static)
effect on reception: survey, 3246; effect of sunset on, 1906; and lightning, 1906; wave form, 966
- Atomic forces**, 290
— lines, in aurora borealis, 1603
- Attenuation**. (See also Cables)
of e.m. oscillations in metallic tubes, 356, 926
measurement, coaxial cable, 175; in communication technique, 2038; high frequency, 494
of Rayleigh waves, 381
- Attenuator design**, formulae for resistance networks, 2320
- Attenuators**, bridged tee pads, 190; electronic, 2756
- Audio-frequencies**, measurement of, 148; with Conn chromatic stroboscope, 1086
- Audiometers**, calibration of bone-conduction receivers for, 1376
- Aurora**, atomic lines in, 1603; at Blue Hill Observatory, 1885-1940, 2282; book: Aurora Observations, 1940, 2281; borealis in S. Norway, 2283; directional and diurnal characteristics, 11; forbidden rays in spectra of, 1890, 1891; ozone odour in, 950; of 18th September, 1941, 368, 369, 950, 951; sunlit, interpretation of, 1892, 2940
- Autoelectronic emission from metal points**, 2383
- Automatic volume control**, supplementary, 427
- Auto-oscillating systems**, energy balance in, 32; frequencies in, 1649
- Auto-oscillation**, duality of mechanisms, 3550
- Auto-oscillators**, amplitude-stability of, 3235; theory of leaky-grid, 412
- Aviation**. (See also Aircraft); airport communications, 459; azimuth indicator for flying fields, 721; Luftwaffe air arm signal-corps, 2188; radiating systems for 75 Mc/s. cone-of-silence marker, 1675; radio aids in the U.S.A., 1077; use of radio in air transports, 1815; transmission of light in atmosphere and, 1900; United Airlines ground station d.f., 1701
- Azimuth indicator**, for flying fields, 721
- Bacteria**, lethal effects of h.f. sound on, 158, 159
- Ball-bearings**, noise and vibration of, 353
- Ballistics**, device for detecting passage of a bullet, 1268; measuring initial spin of a projectile in motion, 1590
- Band spread**, in broadcast receivers, 1961
— width in telegraphy, 2331
- Barkhausen-Kurz oscillations**. (See also Retarding-field); extension of formula, 1020; influence of electron-sorting, 3230
- Barograms**, structure and prediction of, 2613
- Barretters** as automatic voltage regulators, 2793
- Barrier-layer cells**. See Photoelectric cells, barrier layer
- Bass**, synthetic, for small receivers by use of distortion, 2358
- Bats**, effect of supersonic sounds, 3631
- Batteries**, book: Die Fabrikation von Trockenbatterien und Bleitakkumulatoren, 2831
h.t. portable, improvements in efficiency, 702
mobile unit for laboratories, 218
primary, manufacture in India, 2095; no deterioration in storage, 535
secondary, alkaline type c.e.m.f. cells, 215, 829; lead-cadmium with low spontaneous discharge, 1160; regeneration of sulphated cells, 830, 2096; silver zinc, 2097
- Beacons**. (See also Radio range); u.s.w., two-note, 2387
- Bearings**, porous iron, 2840
- Beryllium oxide**, applications of, 2115
- Beta ray spectrometry**, application of magnetic lenses, 2465
- Bias supply**, circuit for saving, 685
- Bioelectric potentials**, amplifier for, 2686; rectifier for, 2887
— research, synchronised voltages for, 340
- Biological analogies**, acoustics and larynx, 3629
— applications, absorption measurements on blood, 2014; blood pressure recorder, 3836; books: Advances and Applications of Mathematical Biology, 1238, Biologic Fundamentals of Radiation Therapy, 1238, Elektrophysiologie, 2204; dielectric behaviour of inhomogeneous substances, 918; effect of commercial currents on vital organs, 1231; electro-kymograph, 3706; mechanism of action of ionising rays, 919; mitogenetic rays, 2212; models of energy propagation mechanisms, 3466; physical effects of u.s.w. radiation, 920, 1237; research apparatus, 2205
— systems, statistical distribution of impedance elements, 2213
- Bismuth**, photoelectric properties of, 485, 1112
thermoelectricity of thin films, 2017
- Black-body radiation**, 2537
- Bolometer-bridge**, for measuring small powers, 1745
- Bolometric compensator**, measurements with, 1746
- Boltzmann constant**, relations between h , e , m , f , M , and, 1553
- Books**: Admiralty Handbook of Wireless Telegraphy, 2568; Complete Edition of the Writings of Guglielmo Marconi, 2192; Foundations of Wireless; 3rd Revised Ed., 1571; Radio Amateur's Handbook: Defence Edition, 3444; Radio at Ultra-High Frequencies: Part I, 1853; Science and World Order, 2560; Short-Wave Radio, 2193; Short-Wave Wireless Communication: 4th Ed., 2193
- Breakdown**. (See also Dielectric)
cables and bushes under d.c. potentials, 2813
of compressed gases, 1501, 2485
effect of iodine on liquid dielectrics, 1502
electrical, of crystals, alkali-halide, 852, insulating, 3111, ionic, 1804, 2487; in gases, 3202; in liquids of simple structure, 2127
formation stage of spark, 1498
thermal, in super-tension cables, 3102
voltage. (See also Rectifier, copper-oxide); of air, 24, 234, 3719; air and freon, 233; compressed gas with rotating electrodes, 811; h.v. electrical apparatus, 2081; mixed crystals, 232; mixtures of dielectric liquids, 1805; various gases, 525, 2484
- Bridge**. (See also Phase shifting)
Anderson, for detection of temperature change, 3327
circuits. (See also Power, measurement of); Potthoff's, inductance for, 3323; tone control with, 1342
conductivity, independent of line-voltage fluctuations, 1461
frequency, for a.c. in a.f. range, 752; using Wien resistance-capacitance network, 751
Kelvin-Wheatstone, 0.00001 Ω to 11 M Ω , 3061
phase, electronic, 3679
for rapid testing of condensers and resistances, 3060
three-phase, 2438, 3680
valve, ultra-sensitive, 2755
- Brightness scale**, for photographic exposure computation, 775
- Broadcasting**. (See also Amplifier, power)
apparatus, magnetic interference in, 2447
book: Power behind the Microphone, 882
in Canada, 1188

- CBS, International, 2528; to Latin America, 280; WABC, New York, 2529
 comparison of markets in Germany and U.S.A., 2357
 competition in, 3757
 developmental tendencies in, 1985
 distribution for flats, 1351
 "Forces" wavelength, future use, 2846
 French, reorganisation of, 3137
 frequency indicator for r.f. monitor, 183
 frequency-modulation, 271, 274, 1179
 German, microphones used, 1083; number of listeners, 1st April, 1941, 434
 news presentation, 570
 post-war planning, 281, 881
 programme-operated level-governing amplifier, 1189
 programme switching and preselection, 2147, 3287
 receivers, development and use, 2356
 studio speech-input systems, 1387
 systems, in Iran, 551; N.B.C. international, 549
 technical developments: survey, 3756
 wire. See Wire broadcasting
- Brush discharge, reduction of, in electrostatic machines, 1162
 Bubble, gas, in liquid, 2736
 Bushes, breakdown in, under d.c. potentials, 2813
 Bushings, h.v., design to avoid interference, 85, 3572
- Cable attenuation at 300 Mc/s., 2428**
 — joints, identification of wires in, 2836; use of less tin, 3380
 — sheaths, lead-calcium test castings for, 3378
 — splices, temporary protection for, 1794
 — unloaded, impedance matching networks for, 2318
- Cables, breakdown in, under d.c. potentials, 2813**
 coaxial, attenuation measurements, 175; impedance converting properties, 2427; internal noise, 993; mechanics, 3257; non-stationary processes, 992; optimum conductor diameters, 477; skin effect, 3488; television experiments, 1437
 concentric, action of various screenings and gaps in, 104; measurement of capacity and inductance, 2019
 dielectric, flexible, materials for, 2491
 dielectric loss measurement, inductance for, 3323
 low-capacity, for u.h.f. experimental work, 3580
 metal-shielded, 1529
 paper insulated, use of, 3634
 telephone, identification of conductors by colour discs, 3387
 underground, lightning over-voltages in, 383
- Calculating machines, for anti-aircraft use, 1588, 2555**
- Calculus of a.c. problems, 1838**
 approximate formulae for definite integrals, 1282
 operational, book: Operational Methods in Applied Mathematics, 1559; of circuits excited by sinusoidal impulses, 1919; comparison of methods, 2625, 3224; elastic wave transmission problems, 1989; and Laplace transformations, 1637
- Calibration of oscillator scales, commercial, 3330**
 printing method for, 2770
- Camera, electronic vacuum, 799**
- Capacitance, bridge for precision measurements, 1460**
 calculation of telephone cable, 155
 measurement of, 1748, 3328
 of oscillating crystals, 2031
- Capacitors, decade, 3106**
 effects in high ohmic resistances, 1316
 oil, 2114, 3105
 recovering boric acid in manufacture of, 1174
 temperature-compensating, 1173
 u.h.f. aluminium-case transmitting, 2113
- Capacity, measurement of concentric cable, 2019**
 measurement of distributed at r.f., 186
 valve-controlled, 3220
- Capillary, grinding inner wall, 3700; as impedance, 3699**
- Carbon resistor elements, behaviour under load, 3481**
- Carnegie Institution, Washington, summary of year's work, 2274**
- Carrier equipment, 12-channel Göteborg-Malmö cable, 2249**
 — frequency communication, development of modulators for, 687
 — systems. (See also Telegraphy)
 f.m. telegraphy, 3752; telephony, 3751
 pilot channel regulator, 3779
 Post Office, 2594; Stevens Point to Minneapolis, 1438
 temperature stability of, 580
 terminal equipment for the L1, 1212
 uni-directional communicator, 3750
 — telephony, generation of 1 kc/s. synchronising signal, 2449
- Cartography, solution of great circle problems, 965**
- Cathode. (See also Conductivity)**
 design, 2674; survey, 2805
 follower, output impedance calculations, 2980
 phenomena in vacuum and rarefied gases, 2424
- Cathode-ray demonstration panel, 303**
- Cathode-ray oscillograph. (See also Oscillographs; Potentiometer; Time bases); amplifier for use with, 3325; applications in industry, 1248, 3171; construction, 502, 503, 2776; flexible sweep circuit and deflection amplifier, 2466; frequency comparisons, 3655; high speed, developments, 3685; h.t. voltage divider for, 2781, 3689; masking control, 3684; measurement of high surge currents, 2050; multiple switching, 507; portable, 198; for rapid processes, 1136; recording mechanical pressure fluctuations, 3480; with rotating-drum camera, 1141; six-trace micro-, 1475; for wire-broadcasting service, 1187**
- Cathode-ray oscillography, transient analysis, 2053; of decimetric waves, 197; difficulties in, 2062; discontinuous sweep circuit, 508; l.f. linear time-base generator, 2055; measurement of inclination vectors, 1772; measuring initial spin of bullet in motion, 597; phase inversion, 666; recording of high-speed transient phenomena, 1139; stabilised neon-tube direct-coupled amplifier for, 1147; tracing valve characteristics, 119, 3267**
- Cathode-ray polar diagram indicator, 2777**
- Cathode-ray tubes, book: Cathode-Ray Tube and Its Applications: 2nd Ed., 1477; circuit for generation and emission of s.w. and u.s.w., 58; circuits, thermal-delay relays, 2676; deflecting plate calculations, 3683; electrode assembly of, 2061; for high recording speeds, 501; magnetic deflection, "mat" coils, 1733; pedal operated switches, 2057; reduction of reflection of glass of, 2415; trace, photography, 2458, screen curvature effect, 2773; wave form circuits: survey, 3690**
- Cathode rays, distribution of energy in, 795**
 — sleeve, indirectly-heated seam, 1370
 — sputtering, 815, 3360, 3361
- Cathodes, alkali-halide, stability of secondary emission, 1360**
 antimony-caesium, emission from, 171
 oxide, investigation of, 1694
- Cavity resonators, application of e.m. field laws, 1304, 3522; and circuits of high "Q", 1920; concentric line, 2969; excitation by saw tooth oscillations, 2641; for measurement of dielectric constants, 2306, 3644; survey, 3521; toroidal, 3206; two-layer, fundamental oscillation of, 2306**
- Cells. See Batteries**
- Cellulose esters, crystallinity in, 1797**
 — triacetate, effect of heat on, 838
- Centrifuge, production of high rotational speed, 593**
- Ceramics. (See also Insulating materials); fused alumina cements, 2116; measurement of dielectric properties at cm. wavelengths, 3643; survey, 839, in engineering, 2816**
- Chain processes, 2549**
- Characteristic impedance, transmission equivalent and network matrix, 1935; of transmission lines, 185, 1314**
- Chemistry, book: Chemical Aspects of Light, 2923**
 X-ray absorption structure in, 2219
- Chokes. (See also Coils)**
 iron-core in voltage-stabilising circuits, 3548
 smoothing, design of, 2514
- Chromium, electrical resistance of, 3379**
- Chromospheric eruptions. (See also Hydrogen); 2945**
- Chronograph, the "Garceau," 794**
- Chucks, magnetic, 2595**
- Cinema integrator, in Interrefraction problems, 1831**
- Circle diagrams for tube circuits, 2672**
- Circuit break, shown by indicator light, 3366**
 — elements, abac for calculating, 3533
 — theory, solution of linear equations, 3543; solution of non-linear problems: survey, 3545; "Thévenin" theorem, 3544
- Circuits. (See also Feedback circuits)**
 acorn valve, with shielded parallel-rod, 3551
 book: Theorie der linearen Wechselstromschaltungen, Band 1, 392; Transients in Electric Circuits, 1201
 bridge. See Bridge circuits
 cascade tuned, band-width factors in, 53
 consisting of concentrated constants, 987
 coupled, 1630; input impedance, 2628
 coupling, reactance networks, 895
 electrical and mechanical analogies, 587, 980
 equivalent, failure of electric and hydraulic analogies, 2198
 of high "Q", 1920
 non-linear, theory of, 985
 oscillatory, a.f., use of sweeping frequencies, 3530; loss resistance measurement, 3322; testing of, 3321
 parallel resonant, frequency response, 54
 rectifying, with capacitance filters, 3532
 symmetrical, operation at second order resonance, 984
 series-resonance, 1630
 sinusoidal impulse excitation of, 1919
 twin-triode for coupling time-base voltage to time-base amplifier, 204
 two loads on single current source, 3681
 valve, raising Q, 394
 voltage-stabilising, analysis, 3548
- Climate, in the Soviet union, 2187**

- Clocks, design of electric pendulum drive for, 2033
 Clouds, book: Die Wolken, 388; electricity of, 2302; sound dispersion and absorption in, 784
 Coatings, aluminium oxide, thickness measurement, 3821
 Cobalt, magnetic anisotropy of single crystals, 869
 Coils. (See also Chokes; Cores)
 a.c. choke, with d.c. polarisation, 3547
 air-core, magnetic induction field of, 1695
 with compressed-powder cores, damping, 3537
 constants, twin-T method of measurement, 2437
 with cores of molybdenum permalloy, 1536
 cylindrical, formulae for, 3210; magnetic field-strength near, 3661
 flat induction, 1537
 machinery for producing insulated, 1524
 magnetic fields of, plotting by "Fluxgraph," 3860
 natural frequencies, methods of determining, 3658
 production testing of receivers, 1749
 self-capacity of, data sheets, 2624
 short wave winding data, 2652
 testing equipment, 3063, 3659
 turn measuring equipment for, 2102
 Coincidences, ionisation amplifier for recording, 2054
 Colloidal graphite, electrostatic shielding for valves and ground connections, 1978
 Colloids, electro-optical properties, 3044; selenium, X-ray study, 2425; viscosity of solutions, 1503
 Colour and music, 3297; in sound, 2001
 Communication engineering, book: Jahrbuch des elektrischen Fernmeldewesens 1940, 2861
 — networks, asymmetric-sideband, transmission characteristics, 475, 3638; automatic selection, 3747; equipment-failure alarm, 1550; mobile emergency, 2844; phase selection in, 420
 — system, emergency, for electric power system, 269; of Mackay Radio and Telegraph Co., 283
 — technique, attenuation and amplification measurement, 2038; development of condensers for, 1807; new potentiometer for, 862; and tropical climate, 1672
 Communications. (See also Mobile communication)
 air arm signal-corps, 2188
 book: Drahtloser Ueberseeverkehr, 3198
 civilian under wartime conditions, 1217
 effect of climatic conditions on, 1883
 induction transmission, 2571, 2572
 interference, railway, 1216
 at La Guardia air field, 547
 modern marine equipment, 548, 1817, 2845
 radio, in coalmine, 2882; examination questions, 1852
 review of progress, 2558
 small accessories for apparatus for, 1541
 s.w., range of frequencies necessary throughout sunspot cycle, 630
 u.h.f., multiple use of carrier, 3396
 U.S. Forest Service, 1184
 Commutators, contact improver, 2839
 inertialless, for note frequency spectrometer, 1710
 Compondors, for systems of amplitude-range, 1928
 Compasses, automatic radio, 1984
 Components, ageing and tropical humidity tests, 2446
 Computation, electronic differentiation, 2174; evaluating $2f \cos(hx + ky)$ in crystal structure, 3424
 Condenser field, investigation of s.w. and u.s.w., 917
 — smoothing, 3221
 — technique, the mixed-body problem in, 1806
 Condensers. (See also Dielectric constant)
 ceramic, d.c. potential distribution, 3534
 development for communication, 1807
 for dielectric measurements, 3324
 electrolytic, plug-in, 1520; testing equipment for, 3670
 metal-coated mica, 2112
 temperature coefficient measurement, 2757
 temperature compensation of, 2486
 two range vernier, 2111
 Conductivity. (See also Cosmic rays; Dielectric constant; Earth)
 of dielectrics or semi-conductors using plasma as electrode, 2444
 electrical, of alumina, 3113; of crystals, 526; of titanium dioxide, 1516; of zinc oxide, 1485; mechanism of, 889
 of hydrocarbons at high field strengths, 3107
 meter, 2956
 of silicate melts, influence of ion radius, 3728
 thermal, of dielectrics, 1802
 u.h.f., of aqueous electrolytes, 3646
 Conductors, cylindrical, skin effect in, 2299
 rectangular tubular, inductance, 1135, 3657
 solid and hollow, proximity effect, 391
 stranded, self-geometric mean distances, 1135
 surface distribution of electricity, 2957
 temperature-dependence of resistance, 3126
 Conferences, conventions and exhibitions, Broadcast Engineers, 3442, 3786; chemical exposition, New York, 3833;
 I.E.N.G.F., 3443; I.R.E., 310, 2863, 3441; I.R.E.-R.M.A. 1941, 2565; NAB, 3442; Swiss radio, Zurich, 1671
 Console, studio, with flexible control, 2721
 Constants, natural, relations between h , c , m , f , M , and k , 1553
 Contact converter, for rectification of polyphase current, 1780
 — materials, elkonite, 2792; platinum-nickel, 2132; rhodium, 2131
 — potentials, 2848; effect on characteristics of vacuum tubes, 1070; influence on initial current of high-vacuum triode, 1387
 — pressures, control of, 861; testing of, 3132
 Contacts, book: Die technische Physik der elektrischen Kontakte, 2509; inductance of a "sieve," 1786; for instruments, 2133, 3131; silver, new observations, 1785; sliding, wear and friction, 1784; surface, under high pressures, 860; use of powder-metallurgical products, 3381
 Continuity test by phase difference method, 2751
 Control. (See also Amplidyne; Regulation)
 room for commercial radio transmitter, 2531
 systems, application of operators to linear control problems, 1202; representation of control processes, 1203
 technique, magnetic saturation amplifiers for, 1134
 Converters, d.c./a.c. circuit for, 3130
 hot-cathode ignition characteristics, 822, 1367; performance of: survey, 3116
 miniature u.h.f. valves in, 110
 67-17,000 kc/s., 2350; 225 Mc/s., 2646
 Copper, diffusion of oxygen in, 255
 growth of chemical compounds on single crystals, 827
 influence of supersonic waves on attacking reactions, 771
 silver as a substitute, 1532
 — oxide, electron theory of crystalline, 1782
 Cores. (See also under Coils)
 iron, h.f., 1175, 2516; for goniometer, 2389
 of molybdenum permalloy for loading, 1536
 powdered-iron, 92; uses, 2650; developments, 2826
 transformer, voltmeter unit for investigations, 2780
 Cornet, resonance and vibration of, 2717
 Corona, in air, 2482; effect on spark-over in freon, 1165; grid-controlled, 2085; in H_2 , N_2 and A, 2482; Peek's loss law, validity, 2812
 negative, pulses in point-to-plane discharge, 657; streamering, 1955
 positive, threshold field studies, 1909
 solar, 2285; theory, 3504; variations in form, 2948; Stark effect in helium, 2288; stratification of, 371
 Corpuscular mechanics, and wave mechanics, 887
 Correlation equations, 3153
 Corrosion, of lead alloys in different soils, 1528
 protection of metals underground, 2105
 Cosmic-ray radiosonde, 2305
 Cosmic rays, action on conductivity of hexane, 2575
 characteristics at 2 km. height, 2607, 2608
 electric fields in interstellar space produced by, 962
 existence of diffuse clouds, 963
 intensities, electric, magnetic and solar effects, 960, 1888, 2606, 2941, 2942
 latitude effect, and single primary component hypothesis, 12
 and magnetic storms, 2279; 18th September, 1941, 643
 motion of an electric particle, 1601
 origin of, 644, 2609
 use of photographic plates in investigations, 1254
 positive excess of radiation, 2280
 primary, energy spectrum, 647; protonic nature, 645
 research of U.S. Antarctic service, 961
 Cosmic-terrestrial research, new laboratory for, 13
 Counter circuits, and their applications, 983
 mechanism for impulses, 859
 Counters, in destructionless testing of materials, 591
 electronic integrator for circuit contacts, 337
 Geiger-Müller, 2585; absolute sensitivity of, 592; applications of, 1856; circuit for self-recording, 1259; for detecting weak X-rays, 1246; discharge mechanism of fast, 1859; in γ -ray defectoscopy, 2586; helium-filled, 1858; modification of the Barnes, 2221; proportional; statistical fluctuations in, 3471; pulse demultiplier, 2587; pulse generator for testing, 3128; pulse size as function of pressure, 3471; quenching-recording circuit, 2588; resolving times, 2221; self-quenching, 2224, 2225, directional properties, 1859; in study of weak radio-activities, 1857
 high speed electronic, 600
 with linear amplifier, 1261
 photon, for spectrum investigations, 610
 proportional, amplification at low voltages, 2223, 2919; for cosmic-ray measurements, 2920
 seconds, auxiliary apparatus for, 3336
 simple apparatus for, 1260
 Counter tubes, amplifiers for, 2222; for determination of radium deposits, 2220; photographic recorder for, 2787; for

- radiation-protection measurements, 2921; for X-rays and light, 2918
- Coupled oscillations**, of harmonic circuit and discontinuous generator, 1648
- systems, with distributed constants, 1921; oscillations in, 1930
- Coupling**, differential equations for, 2627
- Cross-modulation**, frequency generation, 2634; of pentode amplifier tubes, 1365; with two crystal receivers, 1029
- Crosstalk**, automatic measurement at carrier frequencies, 741
- Crystal analysis**, use of X-ray data for, 2910, 3464
- Crystals**. (See also under Breakdown; Electrons)
- conical refraction in, 2868
 - electrical conductivity of, 526
 - ferromagnetic, dependence of initial susceptibility on temperature, 871
 - oscillation, measurement of series capacitance and inductance, 2031
 - photoconductivity of NaCl, 1741
 - single, of *d*-tartaric acid, photoeffect, 486
- Current measurement**, for frequencies up to 1500 Mc/s., 2015; using bolometric compensator, 1746
- Curves**, determination of differential coefficients, 564; finding equations of, 296
- Cutting heads**, gramophone, crystal for lateral recording, 463; properties of dulled lacquer-cutting stylus, 1393
- Cyclotron**, automatic frequency control for, 212; survey, 3357
- Cymbal**, 2-channel concert reproduction for, 2715
- Deaf aids**. See Hearing-aids
- Deafness**, impedance, 2701; pellet type of artificial drum, 2702
- Defence**, civilian, wireless equipment for, 2142
- national, anti-aircraft calculating instrument, 1588; book: How Inventors can aid National Defence, 1218; communications above 112 Mc/s., 3789; inventions, 2176; mobilisation of science, 906, 1219, 2179, 2559; optics, 1274; radio industry in wartime, 1220; total security, 299, 1568; use of television in training, 3635
- Degassing**, by electron bombardment, 2257
- De-icing**, of aerials by heating, 442
- Deionisation**, in harmonic producer employing gas-tube switch, 1146
- Demodulation**, using condensers of periodically varying capacity, 1647
- Demodulator**, gaseous-discharge gap as h.f., 418
- Densitometers**, Agfa Anseo Model II, 3448; voltage regulator for lamps for, 2076
- Depth-meter**, direct reading, 1096
- Design**, book: The Radiotron Designer's Handbook, 700; in war-time, 3433; with economy in material, 3787
- Detection**, of a continuous frequency spectrum, 1658
- diode theory, 693
 - effect, in electron-beam valves, 1972
 - in f.m. receivers, 81
- Detectors**, crystal, for u.s.w., 2995
- diode, with negligible distortion, 3244
 - exponential, for f.m. oscillations, 416
- Dials**, calibration of, for superheterodyne receivers, 3245
- Diamagnetism**, calculation of internal fields, 2152
- Diameter of filament**, measurement by diffraction method, 2456
- Diaphragm**, piston, directional characteristics, 2392; sound field in front of, 2707
- Diathermy**. (See also Heat treatment); machines, registration of, 2998; s.w. apparatus for, 3587
- Dictionaries**, book: Dictionary of Electrical Terms, including Electrical Communication: 4th Ed., 1226; Handbuch für elektrotechnisches Englisch, 575
- Dielectric absorption**, in cellulose nitrate and methyl methacrylate, 1508
- Dielectric constant**, a.c. apparatus for measuring, 2443
- changes in liquids due to flow, 2873
 - and conductivity of rubber-CaCO₃, 2493
 - use for determination of freezing points of soils, 1855
 - of electronic medium in high-vacuum thermionic valve, 1688
 - of heterogeneous mixtures, 849
 - increase in crystal phosphors, 1482
 - of inductances and resistances, 3051
 - of ionised gases at medium frequencies, 1599
 - measurement, 3051; by cavity resonators, 2306; on insulating liquids, condenser for, 3324; liquids, 2021; at 1-50 Mc/s., by susceptance-variation, 3645; (See also Static effect)
 - of mixed bodies, including colloids, 3372; problem in condenser technique, 1806
 - of phosphors under illumination, 223
 - of Rochelle salt crystals, 1085
- Dielectric loss**, h.f., in boric glasses, 1514; of liquids and semi-solids, 1168; temperature characteristics, 1169
- in high-polymer solids, 2124
 - in insulators with gap spacings, 225
 - l.f., new capacitance loss-factor bridge, 1748
 - in paraffin wax solutions, 3370
 - in polar polymers, theory, 836
- of solid insulating materials at low temperatures, 1167
 - u.h.f., in hard rubber, 1793
- Dielectric materials**. (See also Ceramics; Insulating materials; Mica; Plastics)
- measurement of properties at 14 cm. wavelength, 3644
 - paper containing chlorinated impregnants, 847
 - properties of glass cloth in compressed gases, 842
 - replacement of oil by gases and vapours, 1166
 - validity of principle of superposition, 1170
 - vinyl resins, 2490
- Dielectric strength**, of gases, 853; glass, 1515, 3725; insulating crystals, 852; mixtures of liquids, 1805; water, use in circuit interrupters, 3737
- Dielectrics**. (See also Breakdown; Conductivity)
- behaviour of inhomogeneous substances, 918
 - conductivity, in strong fields, 3110
 - d.c.-a.c. correlation, 2814
 - electric strength of, 2487
 - electrical and mechanical relaxation times, 226, 2123
 - galvano-magnetic effects in, 3109
 - high-pressure gas as, 1165, 3368
 - liquid, measurement of u.s.w. absorption in, 3047
 - measurement of pre-breakdown currents, 3740
 - secondary electron emission from, 1361
 - solid, polarisation parameters of, 3371; strength under impulse voltage, 528
 - theory of residual phenomena in, 850
 - thermal conductivity of, 1802, 3112
- Differential analyser**, mathematical theory of, 1832
- equations. (See also Calculus; Equations, solution of; Matrix theory); all-electric integrator for, 1566; asymptotic solutions, 2601; for coupling, 2627; type $y'' = Gy' + Hy^2$, 3768
- Differentiation**, electronic, 2174
- Diffraction camera**, adaptation of electron microscope, 3346
- of light at black screens, 2959
 - patterns, quick interpretation of, 137
 - X-ray and electron, from a curved lattice, 554
- Diffusion**, book: Diffusion in and through Solids, 2385
- problems, and expressions, 2292
 - thermal, change of sign with composition, 3192
 - velocity in a mixed gas, 289
- Dimensions**, electric and magnetic, 792, 1192, 2542, 3070, 3145
- of physical quantities, 1193, 2541, 3765, 3766
- Diode detection**, theory of, 693
- detectors, voltage drop, 1321
 - in amplitude-limiting circuits, 1334; higher modulation with, 2668; shot effect in saturated, 714; for voltage measurement in decimetric-wave band, 781
- Diplex telegraphy**, Transradio Internacional System, 1819
- Dipole feeding method**, open wire line, 2659
- Dipoles**. (See also Aerials)
- measurements in decimetric-wave region, 435
 - theory of radiating system, 436
- Direction finders**. (See also Goniometer)
- Adcock, with *n* masts, 3010
 - in aircraft navigation, 456, 1076
 - pulse, 720
 - with rotating receiving systems, 3013
 - with special aerial arrangement, 3014
 - United Air Lines ground-station, 1701
- finding. (See also Radiolocation)
- aerial system with ferromagnetic cores, 2389
 - automatic for aircraft, 457
 - bearing indicator for ground stations, 1986
 - control of night error in airplane, 1079
 - co-operation of aeronautics and industry, 3605
 - development of u.h.f. aural radio range, 1075
 - free from night effect, 455, 3604
 - with interference present, 3276
 - at medium-high frequencies, 1701
 - with metric waves, land influences, 3603
 - at night, determination of vertical, 3275
 - omnidirectional radio-range system, 458
 - solution of great circle problems, 1082
 - transmission and reception of h.f. pulses, 1373
 - u.h.f. two-course range with sector identification, 1698
- Directive broadcasting**, on s.w. and u.s.w., 436
- Discharge**, electric, effect of magnetic field, 3117
- formation in s.w. transmitters, 1330
 - h.f., excitation of spectra by, 2950
 - lag in solid insulating materials, 1803
 - low pressure arc, modulation of, 410
 - non-stationary, theory, 597, 3462
 - phenomena, studied by c.r.o., 2461
 - plasma, grid control of, 680; oscillations, theory of, 488, 1685
 - point, 238; effect on aircraft, 3568
 - tube, operating with an impulse generator, 1777
- Disks**, virtual mass of, 2708
- Dispersion**. See Polar liquids
- Dissociation energy** of CO and N₂, 3493

- Distance-determination**, automatic tuning of amplifying stages, 1703
of receiver from transmitter, 122
- Distortion**, of amplifying valves, 1366
non-linear, of output transformers, 1383 ; of several sinusoidal oscillations in iron, 1640 ; and theory of f.m. waves, 31, 1917
of pentode amplifier tubes, 1366
in radio receivers, 2655
tests by Intermodulation method, 1709
in transmission of f.m. oscillations, 80
- Documentation**, foundation of German State Society for, 911
- Doppler effect**, produced by meteors entering ionosphere, 1607 ; of radio waves, 1882 ; with tuning forks, 1093
- Duplex operation** on 30-45 Mc/s. with low power system, 1812
telephone circuits, impedance matching networks for, 2318
transmission of f.m. sound and facsimile, 490
- Dyadics**, in electrical networks, 671
- Dyestuffs**, adsorbed, chemiluminescence of, 2780
- Dynamic balancing**, dyetric machine, 1876 ; portable unit, 2266
— constants, determination by response curves, 905, 1839
— shift, application of, 69
- Dynamics**, extended theorems in, 2150
- Ear**. (See also Deafness ; Hearing)
physiology treated by reciprocal representation, 1629
- Earth absorption** with dipole aerials, 1677, 3583
conductivity, dependence upon surface potential data, 2242 ;
measurement of, 2955 ; of stratified ground, 376, 3199
constants, detection of discontinuities, 3167
contact resistances, measurement of, 787
currents, communication by, 2573
magnetic field of. See under Geomagnetism
- Earthing**. (See also Lightning conductor earths) ; 572 ; characteristics of driven grounds, 25, 3516 ; of high-gain h.f. amplifiers, 1925 ; measurement, 2240 ; practical aspects, 1057 ; to water mains or pipes, 348
- Earthquake**, luminous phenomenon accompanying, 2576
- Eddy current tuning**, 2348
— currents. (See also Skin effect) ; extension of Foucault theory, 538 ; in cylinder, 259
- Education**, of engineers, 1848 ; English in the science course, 2190 ; physicists, post-war, 3804 ; post-war problems, 2181 ; radio, 3803
- Elasticity**, wave propagation, 2874
- Electrets**, field in presence of gaseous ions, 1303
- Electrical developments**, 1941, 3183
- Electro-deposition** of silver on non-conductors, 2030
of stratified Fe-Ni sheets, 540
- Electro-dynamometer**, for small a.c. voltages, 2018
- Electroacoustics**, book : Die elektroakustischen Wandler, 736
force/displacement characteristics of mechanical systems at a.f., 1401
phase distortion, 726, 1378
- Electrocardiograph**, three-phase mixing circuit, 205
- Electrocardiography**, investigation of circulation of blood, 1240
- Electrode leads**, protection in sealing, 2384
- Electrodes**, for electrolytic troughs, 1362
- Electrolysis**, electrical double layer, 3144
particle distribution function calculation, 3143
- Electrolytes**. (See also Conductivity)
rate of flow, meter for, 924
- Electrolytic coatings**, measurement of thickness, 1842
— solutions, ions in, 3108
— troughs, materials for electrodes, 1362 ; new design for field plotting, 1362 ; requiring only mains supply, 3592
- Electromagnetic conceptions**, particle *versus* field, 2539
— field, with curvilinear co-ordinates, 929
dielectric and magnetic media in, 292
of induction heating systems, 2199
laws of simultaneity, 1304, 3522
non-linear equations of, 284, 377
phase structure of, 622, 625, 1885
reciprocity theorem, 3260
— theory. (See also Ionosphere)
conducting sphere in oscillating electric field, 1176
monochromatic waves in dielectric media, 357
reflection and refraction, 628, 2600
and relativity, 1556, 3764
transmission of plane waves, 925
wave transmission by a row of equidistant plates, 934
— waves. See Waves, electromagnetic
- Electromagnets**, book : Electromagnetic Device, 865 ; d.c. effect of impedances, 3713 ; mechanical variations in field of, 260
- Electrometers**, for measuring ionisation chamber voltages, 3337
thread, high sensitivity, 2042
valve, for measurement of high insulation resistance, 1130
- Electron accelerator** induction, 1778
— amplifiers, amplification in, 1892
— beam oscillator with retarding field, 2640
— beams, convergent, interference phenomena in, 519
currents induced by, 2372
of diameter 1 μ , 518
intensity distribution in, 2463
investigations on oxide cathodes, 1664
ionisation of rarefied air by, 2771
space charge effects, 1643, 1684, 2772
- Electron diffraction**. (See also Diffraction)
by c.r.o. for structural research and absolute measurements, 2578
in study of films on copper, 827
- Electron emission**, 1693
alteration of cathode constants during activation, 3040
from antimony-caesium cathodes, 171
from cold metals at high field strengths, 522
reduction of spontaneous fluctuations, 3041
thermionic, from molybdenum, 116
transition from thermionic to cold, 1975
from tungsten crystals, 2680
- Electron emission, secondary**, from alkali-halide cathodes, 1360 ; antimony layers, 2679 ; composite cathodes, 3598 ; dielectrics, 1361 ; layers of MgF₂ and NaCl, 1974 ; MgO, 118 ; molybdenum plates, 3289 ; Ag-Mg alloys, 1065 ; Na on W, 3005 ; ThW, 3008 ; various metals, 3007
and cathode sputtering, 3361
effect of temperature, 3006
"jumps" caused by blocking effect, 3599
mechanism of, 3265
preparation of Mg-alloy electrodes, 117
problems in beam tetrodes, 2669
- Electron guns**, performance in television cathode-ray tubes, 1731 ; 1.3-ampere ray for 1-2 hours, 796
- Electron lenses**, correcting spherical error, 513 ; cylindrical electric, 505 ; optical characteristics, 515, 516, 1142, 2059, 2060, 2464 ; rotationally symmetrical, 504
- Electron microscopes**, adaptation to diffraction camera, 3346
deep penetration high voltage, 512
diffraction in, 3693
Eastman Kodak Labs. instrument, 1251 ; 300 kV, 2470
electrostatic, theory, 514
for investigating surface structure, 2471, 3346
for laboratory service, 199
limit of performance, 797
magnetic, regulated voltage supplies for, 2073
marking of preparation-carriers for, 3081
resolving power, 513, 1773, 3078, 3347
spatial measurement of objects, 3082
supplemented by optical, 3694
surface replicas for, 3350
survey, development and uses, 200, 344, 2579, 3348, 3349
universal, development of, 1773 ; object heating in, 1774, 1775 ; with object-shadowing device, 2059
- Electron microscopy**, atomic images in, 2064
books : Elektronenmikroskopie, 3695 ; Das Übermikroskop als Forschungsmittel, 2217
dark bands in images of crystalline structure, 3075, 3076
emission type, 3077
examination of surface structure, 1250, 2965, 2215
fine structure of diatoms, 2214
of influenza virus, 1252 ; silica gels, 1253 ; tobacco-mosaic virus, 158
interference in, 517
photographic action of electrons, 3079, 3080
- Electron motion**, effect of double layer, 3272
- Electron multipliers**, for detecting weak X-rays, 1246
electrostatic, behaviour as function of frequency, 1063
for generation of u.s.w., 1012
Mg-alloy electrodes for, 117
multi-stage, 451, 1973
orbital-beam for u.b.f. amplification, 446, 1064
voltage-controlled, 1063
X-ray photon efficiency of, 452
- Electron optics**, coils for apparatus, 2058
construction of path in rotationally symmetrical field, 201
experiments in interference, 518
focusing by quasi-static paths, 506
geometrical image construction, 504
to improve X-ray diagnosis, 1244
investigation with multiple oscillograph, 507
solution of integral equations of, 2157
spherical or cylindrical surfaces with apertures, 1478
trajectories of monoenergetic electrons, 1767
validity of Newtonian image-formation equation, 202
- Electron-path recorder**, use in valve development, 2379
- Electron paths**, construction by electroballistic method, 201
radiators, theoretical and experimental researches, 1771
spectrometer, for identifying molecules, 3084
theory, of crystalline compounds, 1782
- Electron tubes**, book : Principles of Electron Tubes, 2380
noise, origin in manufacture, 2373
secondary, noise in, 2374 ; survey, 2375
- Electronic intrusion-detection**, 2369
— speedometer, for typewriting, 2883

- Electronics**, in aircraft-engine manufacture, 1873
 applications in research, auditory, 147, 1575; canning, 1283;
 medical, 1235, 2888; petroleum, 328
 book: Electronics, 3445
 in control of voltage and frequency of alternators, 2252
 in industry, applications, 327, survey, 1569, 2183, 2255;
 buyers' guide, 3825; industrial tubes, 3826
 non-metal shields with various applications, 3597
- Electrons**, behaviour in oxygen, 15
 book: Behaviour of slow Electrons in Gases, 16, 629
 centrifuging of, 3140
 charge and mass of, 286
 in conductors, 3844
 evaporation heat of, 3009
 fast, energy loss in solid bodies, 517
 forces on, according to Dirac's wave equation, 1554
 migration in alkali-halide crystals, 3123
 model for classical theory, 285
 motion in magnetic field, 372
 polarisation of, 2149
 radiation from, 555
 secondary, effect of angle of ejection on energy distribution, 1693
 transit times in homogeneous electric oscillating fields, 109
 vibratory, in electrostatics, 3409
- Electroscopes**, electronic, 1465
- Electrostatic field**, solution of three-dimensional, 378
- Electro-surgery**, detection of metal fragments in wounds, 1584;
 location of tumours in brain, 1236
- Eliminator**, for electrometer tubes, 819
- Emission**. See Autoelectronic emission; Electron emission
- Energy**, radiant, thermo-electronic indicator of, 2747
 transmission through quadrupoles, 1306
- Engineering**, books: Fluid Mechanics and Statistical Methods in
 Engineering, 2553; Ingenieure, 1847
 education, 3160
 electrical, book: Standard Handbook for Electrical Engineers:
 7th Ed., 2195; examination questions in, 1852; wartime
 changes in regulations, V.D.E., 3788, I.E.E., 3434
 post-war, 3802
 progress during 1941, 2182
 radio, books: Radio Engineering Handbook: 3rd Ed., 2194,
 Reference Data for Radio Engineers, 3808; economics,
 2563
- Engineers**, education and training, 1848; radio, 305, 1570
- Engines**, Diesel, initial moment of combustion, 2378; petrol,
 2881
- Equations**. (See also Differential equations); constants of straight-
 line laws, 563; empirical, technique for obtaining, 3421;
 graphical solution, 2173; numerical solution, 566, 567;
 solution of, integral, 1829, 1830, 1831, 2157, 2158, linear,
 3543, operational, 295, polynomial, 565, 1828, second order
 differential, 891, $\tan x = x f(x)$, 890
- Evacuation**, vapour diffusion pumps, 2474
- Evaporation**, of molten metals from hot filaments, 856
- Exhibitions**. See Conferences
- Expansion chamber**, transportable, 2922
- Experimental law**, mathematical formulation of, 1827, 2547
- Facsimile**. See Telegraphy, photo
- Fade-outs**. (See also Ionosphere); origin of sudden, 362
- Fading**, interference due to reflections from various heights, 3497
 over short distances in high northern latitudes, 948
 reduction in space diversity reception, 1666
- Faraday effect** in electron gas, 3142
- Feedback**, circuits, equivalent characteristics of valves, 393
 negative, addition to existing receivers, 1952; in correction
 of transformer faults, 999; in high-selectivity systems,
 1000; and regulated power supplies, 1929; for stabilisa-
 tion of amplifiers, 2981; in tone control, 699
 raising Q of valve circuits by, 394
- Feeders**, direct measurement of travelling-wave coefficient, 1046
 losses in s.w. and u.s.w., 97
- Fences**, electric in Sweden, 1266; photoelectric, 1277
- Ferromagnetic bodies**, influence of elastic stresses, 3392
 — material, predetermination of mechanical properties, 263
 — powder particles, anisotropy of, 1535
 — substances, gyromagnetic effects in, 2519
 — suspensions, optical and magnetic properties, 489, 2740
- Ferromagnetism**. (See also Iron; Magnetism)
 and antiferromagnetism, theory of, 3393
 of binary alloys, 875
 heating and cooling of crystal in magnetic field, 867
- Ferromagnets**, passage of neutrons through, 267
 statistics of two-dimensional, 873
- Field intensity measurements**, of u.h.f. broadcasting stations, 1596
 meters, 184, 3665
- Field, uniform**, polarisation of cylinder in, 3697
- Filaments**, effect of high e.s. fields, on molybdenum, 3270; tung-
 sten, 3270
- Films**, aluminium and silver, reflectivities of, 3461
 measurement of thin, 609
- Filter circuits**, disposition of electrodes in rectangular piezoelectric
 vibrators, 989; four-circuit h.f., 695; for picture and
 teleprinter receivers, 50; theory of, 985
- Filters**, antimetric, operative equivalents, 1307, 3541
 band, 1630
 band-pass, transformed iterative networks, 1936
 band-rejection, composed of X-circuits and Zobel networks,
 1309
 bridge-type, determination of dipole functions of, 1308
 c.r. recording of characteristics, 2777
 crystal, band-pass, 3540; capacitance neutralisation, 2974;
 as impedance bridge circuit, 48; narrow-band, 3539
 graphical determination of properties, 1307
 h.f. equalising, 49
 increase in selectivity when combined with rectifier, 1028
 insertion loss in, 52
 junction line, 2975
 low-, high-pass design, 51
 piezoelectric crystal, history of, 47
 for 2B pilot channel, 1310
 quartz bridge, 2828
 quartz-crystal, of variable band-width, 46
 smoothing, design criteria, 1945
- Fire protection**, use of s.w. in forestry service, 543
- Flames**, ionising effect of, use for combustion determination, 2878
 sensitive, 744, 1721
- Flashover**. (See also under Insulators); atmospheric variations
 and apparatus, 1163, 3717; solid insulators in compressed
 nitrogen, 1164, 3718
- Flaw detection**, of commercial goods by X-rays, 1841; distribution
 of induction currents in a plate, 313; magnetic, effect of
 field distribution, 2259; non-magnetic metals, 3487; in
 railway axles, 3486
- Fluorescence**, law of, 3351; of phosphors in rare gases, 2069; of
 scapolite, 1143
- Fluorescent films**, experiments on, 19
 — materials, characteristics of, 1484; for X-rays, 521; yellow
 form of zinc silicate, 2070
- Fluorimeter**, photoelectric, 320, 1864
- Flux**, for phosphor-bronze hair springs, 2110; research on improved,
 256; for soft solders, 2109
- Fog**, diffusing effect of, 1898; effect on radio communication,
 1883; penetration by sodium and tungsten light, 329
- Formex wire**, characteristics, for magnets, 3101
- Fourier analysis**. (See also Harmonic analysis; Periodic analysis)
 application to finite interval distortions, 2854
 application to transmission problems, 2408
 — integrals, evaluation of integrals containing, 3420
- French radioelectric networks**, 3807
- Freon**. (See also Gases, electro-negative); d.c. breakdown strength
 of, 233, 3719, 3720; effect of corona and spark-over in,
 1165
- Frequency changers**, the augetron, 1359
 changing of a complex wave, 1087
 comparisons (See also under Cathode-ray oscillograph); high
 precision, 2030
 control, automatic, for cyclotron, 212; design and experimental
 verification, 1035
 converters, for superheterodyne reception, 1690
 curves, apparatus for recording, 1753
 division by c.r. tube, 3037
 doubling, of amplitude-modulated signals, 1335
 generators, Muirhead-Wigan decade, 1458
 indicator, visible for broadcast r.f. monitor, 183
 measurements, equipment at Galileo Ferraris Institute, 1450;
 sensitive meter for, 177
 meters, for commercial power frequencies, 1127, 3654; decade
 calibrator, 784; using Foucault current effect, 538;
 for 10-400 Mc/s., 1120
 modulation applied to circuit alignment, 1470
 modulator, inductively coupled, 1015
 response, curve tracer, 136, 1402; of parallel resonant circuit,
 54; ruler for record patterns, 137
 spectrum, suggested terminology, 2293
 standards, 100 c/s., 3334; for h.f., 1125; Hallicrafters HT-7,
 1454, 2029
- Friction**, of sliding contacts, 860, 1232, 1784
- Furnaces**, electric, in metallurgy, 590; 2000°C. resistor, 1518
- Fusing currents**, 1533, 2505, 3385
- Galileo Ferraris National Institute**, activities of, 1583
- Galvanometer**, Ayrton and Mather shunt for, 3341; ballistic,
 calibration of, 3069; deflection recording system, 3440
- Gas analysis**, mass spectrometer for, 2581, 3834
- Gases**, absorption coefficients in extreme u.v. region, 1867
 book: Gaseous Conductors, Theory and Engineering Applica-
 tions, 2084
 charge carried by minute solid particle, 888
 compressed, sound velocity, 768
 dielectric strength of, 853
 electro-negative (See also Freon); electrical behaviour, 3367

- excited, feeble radiations observed by autoabsorption, 901
 free electron, magnetic susceptibility of, 557
 frictionless, wave motion in, 1613
 high pressure, as dielectric, 1165, 3368
 inert, penetration into metals, 812 ; survey, 3358
 ionisation of, by collision, 1552
 ionised, dielectric constants, 1599
 mixed, velocity of diffusion, 289
 rare, emission spectra of, 2611
 rarefied, cathode phenomena in, 2424 ; excitation by u.s.w., 2985
 refractive indices at u.h.f., 617
- Gauging**, audible indication of differences of 1/25,000th in., 1271
 device for mass production, 1271
 length measurements using bolometric compensator, 1746
 thickness of electrolytic coatings, 1842
- Gears**, book: Gears for Clockwork Mechanisms: War Emergency
 British Standard 978, 1225
- Generators**, coupling-free bus-bars, 2629
 current, with tuning fork control, 3383
 d.c., voltage control for, 2078, 2795
 design chart for r.f. heat-treatment, 342, 2889
 electrostatic, for nuclear research, 810 ; reduction of losses by
 brush discharge, 1162 ; survey and theory, 3354, 3355 ;
 h.v., 211, 2795
 neutron, ion-source system for, 2067
 note, without oscillatory circuit, 2026
 note-frequency, optimum resistance for, 3291
 saw-tooth, for electronic inductorium, 341
 signal, for f.m., 179 ; h.f. beat-method, 181 ; for supersonic
 use, 3632 ; 50-400 Mc/s., 2429
 square-wave, 182, 3650
 sweep, wideband, for u.h.f., 3648
 u.s.w. (See also Ultra-high-frequency technique) ; with phase
 focusing, 57
 velocity-modulated, 406, 1010
 video signal for testing television tubes, 2418
- Geology**, application of nuclear physics to, 2930
- Geomagnetic disturbance**, due to cosmic rays and sunspots, 1888 ;
 index, 9, 2278 ; light of night sky, 2275
 — field and ionosphere heights, 2276 ; measurement of declina-
 tion and dip, 2039 ; of sunspots group of 25th Feb.—
 1st March, 1942, 1893
 — storms, and abnormal-E echoes, 8 ; cosmic rays, 2279 ; earth-
 currents, 1604 ; giant micropulsations, 2943 ; Greenwich
 frequency-statistics, 957 ; field relationships, 957 ; reception
 in India, 1286 ; s.w. propagation, 956 ; zodiacal
 light : survey, 3503 ; of 24th March, 1940, 953 ; of 18th-
 19th Sept., 1941, 367, 643, 951 ; of 1st-2nd March, 1942,
 3502 ; 27-day period, 2944
- Geomagnetism**, and s.w. transmission, 365 ; time relationships,
 366 ; world surveying, 366
- Geophysics**, books: American Geophysical Union, Transactions,
 1941, 959 ; Geophysics in War, 3800
 radio-geological investigations, 347
 waves and tidal streams, 1296
- Glass**. (See also under Dielectric) ; as colloid : survey, 3726 ; for
 electrical insulation, 228 ; expansivity, 2117 ; metal-
 sealed, 1072 ; potential distribution, 3724 ; reflection
 reduction, 776, 2415 ; for valve stems, 1073
 ground, transparency of, 2296
- Glow discharge**. (See also Ignitron; Mercury cathode)
 current density at cathode, 3119
 energy distribution among cathode rays, 795
 gap, as h.f. demodulator, 418
 life of neon states in, 3359
 penetration of inert gases into metals, 812
 photoelectric effects exhibited by, 1498
 theory of anode fall, 1499
 theory of cathode sputtering, 815
 tubes, materials for, 2803
 from wires in a cylindrical field, 814
- Glow-switch**, development of, 221
- Goniometer**, for s.w. and u.s.w., 1074
 use of h.f. iron cores, 2389
- Governors**, performance analyser of turbine, 1269
 power-system, 354
- Gramophone matrices**, silvering of wax surfaces for, 2399
 needles, for reducing needle scratch, 735
 pick-up, moving coil type, 1394
 record changers, automatic, 2400, 2694 ; R.C.A., 734
 recording, audograph, 2689 ; constant groove speed, 2338 ;
 tape, 2688
 records compared with sound track, 2687 ; errors in light-band
 width measurements, 729 ; lateral-cut, large-radius stylus,
 1396, pick-up for, 733 ; linear and non-linear distortion,
 730, 731
- Gramophones**, advantage of controlled response, 1397 ; dual turn-
 table control box, 2695
- Graphite**, for electrostatic screening, 1530
- Grid bias**, by cathode-resistance method, 1962
- Grids**, control of discharge plasma by, 680
- Grounding**. See Earthing
- Halicrafters' methods** for mass production of precision equipment,
 2354
- Harmonic analyser**, pulse analysis by means of, 153
 — analysis. (See also Fourier analysis; Periodic analysis);
 correlation coefficient in, 363 ; discontinuities in, 3772 ;
 of multi-wave a.c., 3215 ; of non-sinusoidal functions, 400 ;
 periodicities of disturbed systems, 1288 ; use of planimeter
 in, 2853 ; of voltage and current curves, 3296
 — content of commercial a.c., methods of determining, 2452
- Hearing**, in beast and man, 1426 ; in birds, 1717 ; in rats, 1098 ;
 capacity, for speech, 1376, 2704 ; conduction of sound in
 human ear, 1427, 1429 ; damping and selectivity of inner
 ear, 3628 ; dynamic auditory localisation, 1993, 2700 ;
 effect of middle-ear pressure upon distortion, 1428 ;
 middle-ear deafness, 1717 ; physiology of the human ear,
 1718
- Hearing-aids**, calibration of bone-conduction receivers, 1376 ;
 characteristics, and audiogram measurements, 2703 ;
 design, 3624 ; mass production, 3021, 3625 ; performance
 of, 743, 1376, 1377 ; of true selective amplification, 1374
- Heat**, diffusion through rectangular bar, 1977, 2386
 — flow, two-dimensional, electric model for, 1977
- Heating**, by h.f. induction field in valve manufacture, 1695
 — infra-red lamps for, 1789
 — elements, fused alumina cement for, 2116
- Heat-treatment**, design chart of generators for r.f., 342, 2889
- Helium**, radiation in solar prominences, 1895 ; Stark effect in, and
 solar corona, 2286
- Heterodyne process**, anomalous working regions, 3523, 3524
- High-frequency technique**, books: Fortschritte der Hochfrequenz-
 technik, 577 ; Hochfrequenz-Nachrichtentechnik für
 Elektrizitätswerke, 579
- High-voltage apparatus**, electrical strength of, 2081
 — measurement for aircraft engines, 2758
 — supply unit, heavy duty, 2075
 — testing, detection of initial failure, 195 ; at low power, 2759 ;
 in quantity production, 195
- Homodyne reception**, and frequency modulation, 2344, 3238 ; to
 aid selectivity, 1951
- Horns**, conical electromagnetic, theory, 1038
 exponential, application of transients, 2615
- Hospital communication equipment**, 2394
- Huancayo Magnetic Observatory**, ionospheric investigations at, 14,
 1605
- Humidity measurements**, moisture content in spinning threads, 1270
 tropical, tests of components, 2446
- Huyghens-Fresnel principle**, validity of, 648
- Hydrogen**, radiation in solar prominences, 1895
 — flocculi. (See also Bright eruptions; Solar phenomena)
 movements of, 2287, 2946
- Hydrogen-ion concentration**. (See also pH) ; automatic control of,
 2251
- Hysteresis motor**, 1543, 2838 ; resistance for sinusoidal field
 strength, 1759 ; torque in elliptically polarised fields, 2520
- Ignitrons**, 2478 ; characteristics, 1494 ; ignition mechanism, 1495
- Ignitron**. (See also Glow discharge ; Mercury cathode)
 reactors, use of hipersil, 3714
- Ignitrons**, excitation circuits for, 1496
- Illumination**. See Wave propagation, light
- Impedance**, comparator, c.r.o., applied to loudspeakers, 3611 ; for
 production testing of receiver coils, 1749
 complex, at 3,000 Mc/s., 2427
 matching, in concentric lines, 1922 ; at u.h.f., 3048
 measurement by Lecher wires, 780 ; at r.f., 1459 ; over wide
 frequency range, 1115, 3049 ; from 1-100 Mc/s., 1114
 of nerve fibre, 2208
 of r.f. inductors, 187
 using capillary tube, 3699
- Impulse characteristics**. (See also Surge characteristics) ; of
 porcelain insulators, 424
 — generator, operating with a discharge tube, 1777
 — spark-over, volt-time areas of, 989
 — voltage, measurement of, with ballistic galvanometer, 2048 ;
 by small sphere gaps, 2049
- Inaccuracy** due to finite width of physical apparatus, 2854
- Incendiary bombs**, detection of, 312, 1860
- Indicating circuits**, peak and null, 44
- Indicators**, electrical, for internal-combustion engines, 1874
- Inductance**, h.f. tuning, 1317
 iron-cored choke, measurement by bridge method, 2762
 measurement, of concentric cable, 2019 ; of oscillating crystal,
 2031 ; at r.f., 186
 mutual, of coaxial circular rings, 2972 ; and resistance measure-
 ment, 2763 ; of single-layer coils, 1458
 of rectangular tubular conductors, 1135, 3657
 of " sieve " contact, 1786
 of single layer solenoids, 2032

- for sinusoidal field strength and induction, 1759
of two parallel wires, 37
- Inductances**, improvements in air-cored, 1457
winding, small toroidal, 2101
- Induction**, relation between motional and transformer, 293
— accelerator, rheotron, 2796
— coils, flat, 1537, 2137
— currents, distribution in plate, 313
— heating, optimum frequency for hollow cylinders, 2200 ;
systems, h.f. furnace, 2201, method for investigating e.m.
fields of, 2199
— meter, a.c., for measuring flow of electrolytes, 924
Inductors, 3209 ; r.f., impedance and optimum Q, 187
- Industry**, efficiency of design in, 2856 ; needs of research in, 3798 ;
quality control in, 2855 ; rapid assembly, 257 ; scientific
research, 3435, 3436
- Infra-red apparatus**, silver chloride films for, 3848
baking, 3100 ; heating, 3100
rays, reflection and focusing, 3845
- Instruments**, alloys for, 254
books : Abriss der Instrumentenkunde, 574 ; Instrumenten-
kunde, 574
co-operation between makers and users, 589, 1222
measuring, for current and voltage : survey, 2743
reconditioning of jewels and pivots, 258
required for Service training, 188
- Insulating materials**. (See also Amber ; Ceramics ; Discharge ;
Glass ; Liquids ; Mica ; Paper ; Plastics ; Rubber)
book : A.S.T.M. Standards on Electrical Insulating Materials,
3373
general, permeability to water, 1801 ; properties, 1540 ; for
u.h.f., 3721
measurements on, use of thermochrome crayons, 2023
specific, amber, 843 ; beryllium oxide, 2115 ; bitumastic
compounds containing quartz sand, thermal and electrical
properties, 1512 ; cellulose, corrosive action, 231, me-
chanical strength, 1172, to replace silk, 1523 ; fibronised
korozeal tubing, 2118 ; liquids, applications of viscosity,
3103 ; mica, electric strength, 527 ; oils, 2496, 3104,
with semi-conducting rubber shield, 3743 ; paper, 848,
impregnated, temperature and stress, 3736 ; resins,
silicones for heat-resistance, 1798 ; hard rubber, disfigure-
ment, 1793 ; solid, discharge lag, 1803, temperature rise
at u.h.f., 1792 ; styrene, uses, 530 ; thermoplastic saran,
2119 ; tubing for low temperatures, 2494 ; varnishes, in
graphite-on-glass resistances, 1790, high temperature,
3099, with synthetic resin bases, 845
- Insulation**, book : Insulation of Electrical Apparatus, 1519
faults, determining the position of, 2037
field investigation of, 785
h.v., detection of initial failure, 195, 3666, 3668
resistance, high, measurement with valve electrometer, 1130
reviews and surveys, 855, 3738
solid, protection by lightning arresters, 3735
testing in aircraft, 3689 ; in the field, 3667 ; non-destructive,
1171, 3667
- Insulators**, breakdown of. (See also Flashover)
ceramic, h.f., 227 ; for machining, 1800
designed to reduce interference, 425, 3571
dielectric losses in, 225
flash-over voltages in compressed nitrogen, 1164 ; at high
pressures, 3120 ; and humidity, 2997
glass, performance of, 228, 841
h.f., h.t. testing plant for, 2047
porcelain, 423, 424, 529, 841, 1339
- Integrators**, for irregular plane surfaces, 1582 ; for solving differ-
ential equations, 1566
- Intercommunication systems**, "Vivavox," 1705
- Intercommunicators**, electronic interlocking for, 140
- Interconnector**, determination of power limits of, 979
- Interference**, electrical, in aircraft due to precipitation-static, 1662,
3510 ; screening, 3247
to broadcast reception in India, 1665
causes of, a.c. railway systems, 2247 ; equalising voltage
between compound rectifiers, 1216 ; gas-driven plant,
elimination, 3570 ; h.t. lines, 3573 ; man-made, factors
controlling, 3249 ; meter, 1954
cross-modulation frequency generation, 2634
effects, on car radio performance, 697 ; spurious reductions in
field of two strong signals, 1661
f.m. signals, 78, 1654
in long distance cables, 2247 ; in telephones, 3250
measurement, 2346 ; h.f., 1659 ; portable apparatus for, 1660
multiple receiver response, 2656
mutual, between wired and wireless services, 1956
reduction, by antenna system, 2658 ; by improved insulators,
425 ; in receivers, 1337 ; by variable-phase transformer, 665
statistical recording, 1336
suppression, 1338, 2346 ; from electro-medical apparatus, 3566,
3567 ; for machines and appliances up to 500 w., 1664 ;
due to motor-cars, 3248
- Interference**, magnetic, in broadcasting apparatus, 2447
— optical, with a moving medium, 1295
— wide-angle, 19
- Intermodulation**, distortion tests by, 1709
- Interreflection problems**, cinema integraph in, 1831
- Interstellar space**, electric fields in, 962
- Inventions**, book : How Inventors can aid National Defence, 1218 ;
for defence, 2176 ; method in, 1221, 2178 ; testing in
early stages, 3791
- Inverter circuit**, high-vacuum valves in, 398
- Ion-accelerating tubes**, 2798
- Ion currents**, production of large, 809
- Ion production**, high voltage apparatus for, 3356 ; rate in earth's
atmosphere, 2273
— sources, canal ray, 2797 ; cyclotron, 3088 ; new, 210 ; system
for neutron generators, 2047
- Ionic converters**. See Converters, ionic
- Ionisation of gases by collisions of their own accelerated atoms**, 1552
— amplifier, for recording coincidences, 2054
— chambers, measurement of voltage on, 3337 ; residual current
of, 851
— equilibrium in nucleus-carrying air, 1625
— gauge circuit, emission-regulating, 3089 ; with vacuum-tube
voltmeter, 2072
- Ionosphere**. (See also Atmosphere, upper ; Communication ; Fade-
out ; Fading ; Transmission)
abnormal E region polarisation, 8
Doppler effect produced by meteors, 1607
E layer pulse exploration on 200 m., 3499
eclipse observations, 8 ; 1st October, 1940, 946, 2602
F region and scattering, 1279, 2272 ; light of night sky, 2275
fade-outs in high northern latitudes, 948 ; in India, 2939 ;
delayed, and sunspots, 632
frequency/altitude at vertical incidence, 3197
height of maximum electron density, 2938
at Huancayo, 14, 947, 1605, 2276
interference fading, 3497
layer thickness, 359
magnetic storms, 2277, 3500
non-linear effects in propagation, 3498
oblique incidence transmission, 358, 360
reflection at layer with negative dielectric constant, 361
and sun, 370, 2277
at Watheroo, 14, 947
wave propagation in magnetised medium, 1884, 2276
- Ionospheric research**, application of magnetograph in, 955
— storms, f.m. transmission unaffected by, 416 ; solar phenomena
preceding, 7 ; of sudden onset, Feb./March, 1941, 631
- Ions**, adsorbed, tearing-off by high electric field strengths, 240
in atmosphere, 1624 ; in electrolytic solutions, 3108
- Iron**, ferrous and ferric, microanalytical method for, 2495
high purity, properties of, 3134
initial inner permeability, 30 kc/s. to 40 Mc/s., 2825
preparation of stratified sheets with Ni, 540
— group, thermionic properties, 1534, 2683, 3394
- Isotopes**, energy consumption in the separation of, 902
- Keying**, automatic, in telegraphy, 2332
secrets of good sending, 415
- Klydonograph**, surge recording by, 385
- Klystron**, theory, 674, 3228 ; transverse-modulation, 2986
- Lac**, the story of, 2125
- Lamps**, book : Electric-Discharge Lamps, 2089
densitometer, voltage regulator for, 2076
fluorescent, development of glow-switch-for, 221
infra-red, for heating and drying, 1789
negative-glow, 3707 ; characteristics and applications, 220
sodium and tungsten, penetration of fog by, 329
- Laplace transformation**, in linear networks, 670 ; and operational
calculus, 1637
- Lattice-spacing measurements**, film-contraction errors in, 806, 2063
- Laue photographs**, of Rochelle powder at high pressures, 1990
- Lead sulphide**, behaviour as semi-conductor, 3125
- Leads**, electrode, protection in sealing, 2384
screened aerial, matching of, 3258
- Leakage currents**, surface, 2815
- Lecher wires**, measurement of impedance by, 780
- Lectures**, illustrating of technical, 2857, 3439 ; projected writing
for, 2858
- Lenses**, coated, for optical instruments, 2414
electron. See Electron lenses
electrostatic, aperture error, 2775 ; with minimum aberration,
2774
magnetic, optical properties, 2465
optical, motion picture, 1729
- Library systems**, book : Dezimal-Klassifikation, 2191
- Lichtenberg figures**, initial processes in, 656
- Light**, absorption by carbon particles, 937
communication by light-beam, 2872
control of luminous flux by two photoelectric cells, 1861

- diffused backwards by drop of mist, 379; forwards, 1899
diminution of intensity in natural waters, 939
filters, monochromatic, 3456
inertia-less modulation of, 223
infra-red, industrial applications, 596; measurement of atmospheric emission, 333; photography in spectrum, 334
modulation, characteristics, 2870; by quartz crystals, 1735, 1755, 1870; by stationary supersonic waves, 487
polarisation studied by polaroids, 3457
scattering of, by small carbon spheres, 1901
signals, daylight range of, 2238
in thermal decomposition of ozone, 17
transmission in atmosphere, 1900
u.v., photography in extreme, 335; powerful sources of, 1262
validity of Huyghens-Fresnel principle, 648
velocity of, new method of measuring, 652
- Lighting, stroboscopic, in colour-printing of cloth, 1257**
Lightning. (See also Discharge, point); and atmospherics, 1906; direct measurement of current, 972; Empire State Building, 971, 3514; field studies of, 382, 3513; measurement of voltages and currents in South Africa and Nigeria, 970, 1300; mechanism, survey, 3512; over-voltages in underground cables, 383; physics of, 1908; theory of, 1301; warning instrument for aircraft, 659
— arresters. (See also under Insulation); survey of, 1617, 1910; use of c.r.o. for research, 2964
— conductor earths, 2965, 2966, 3517
— discharge, spectrum, 967; survey, 966
— protection. (See also Surge); of buildings, 2303, 2962; for electrical plant, 975; radio receivers, 1911; sub-stations, 974; telecommunication equipment, 973
— stroke, field fluctuations, 3204, 3205; in field and laboratory, 3515; formation, theory, 1616; leader propagation, 23
— surges, protection of power transformers, 3518
Line-voltage regulator, for protection of radio receivers, 1911
Lines, "Fraser" artificial, components for duplex balance, 672
Lines, high-tension, interference due to, 3573
overhead, erection of poles in permanently frozen subsoil, 1056; sag calculation, 708, 3587, 3588
transmission. See Transmission lines
Liquid level controllers, 3483
— mirrors, vibration-free suspension for, 2128
Liquids, behaviour under h.f. oscillations, 769
dielectric, breakdown, 2127; breakdown of mixtures, 1805; conductivity, 861; effect of iodine on breakdown, 1502
measurement of dielectric constant of, 2021
reflection of longitudinal waves in, 649
supersonic waves in, 487, 765, 766
viscosity and dielectric relaxation, 2123
wave motion in, 1613
- Listening equipment, for aircraft noise, 1992**
Lorentz transformations. See Relativity
Loss angles, measurement of small, 2022
Loudspeakers, effect of plane screen on output, 3279
with exponential horn, 3200
high-fidelity sound reproduction, 1380
hypex horns for, 131
improvement in reproduction, 2999
l.f. horn of small dimensions, 727
measurement of total output of, 152
with negative feedback to amplifier, 3018
noise analysis, 3614
scale distortion in, 737
theory of conical sound radiators, 130
- Luminescence of adsorbed dyestuffs, 2780; book: Physik und technische Anwendungen der Lumineszenz, 805; decay in complex molecules, 3086; of magnesium silicates, 1143**
Luminescent materials, fatigue effect in, 3085; study of, 804
Luminous phenomenon accompanying earthquake, 2576
Lunar magnetic variation, variability of, 10
Luxembourg effect, explanation of, 361
- Machinery, electrical, negative damping, 355**
Machines, working life of, 3739
Magnesium silicate, luminescence of, 1143
Magnetic anisotropy, of cobalt single crystals, 869
— current in gases, 3408; in liquids, 3408
— delay of stainless steel, 2518
— fields, constant in space and time, production of, 2823
— flux, measurement, 3662; meter, 3340
— induction, for sinusoidal field strength, 1759
— materials, factory control, 1838; quenched copper-iron alloys, 878; standards for, 2517; steels for high-power magnets, 2138; test by c.r.o., 3664; for transformers, 1809; use of asymmetrical magnetisation, 2516
— moment, definition, 261; at h.f., 1176
— permeability, in factory control of raw materials, 1838
— storms. See Geomagnetic storms
— susceptibility. (See also Crystals, ferromagnetic); statistical computation, 874; of free electron gas, 557
- Magnetic variation, lunar variability, 10**
Magnetisation of alnico, 2828; near boundaries, 2829; in crystalline media, 872; definition, 261; effect of dislocations near saturation, 285; torque on Si-Fe crystal, 870
Magnetism. (See also Ferromagnetism; Iron)
demagnetising factors of rods, 3390
penetration of, 868
residual, due to current in iron bar, 2521, 3389
saturation of Ni-Sb and Ni-Ta alloys, 879
terrestrial. See Geomagnetism; Terrestrial magnetism
Magnetite, change in electric resistance due to magnetic field, 2522
Magneto-caloric effect, in ferromagnetic single crystal, 867
Magnetograph, induction, 955
Magnetometers, with astatic system in homogeneous field, 1761
Magnetophotophoresis. See Photophoresis
Magnetostriction, of alloys, 2140; of iron, 3391; quantum theory of, 869; survey, 2139; theory of nickel, 880
Magnetron, with concentric line, 1328
generation of powerful oscillations by, 2639
with grids, 677
modulation of, indirect, 1921; circuit for, 2988
multi-slit oscillation regions of, 675
oscillator, with split anode, theory, 2370
overtones in, 1970
with plane electrode, space charge relations, 1680
as receiver for centimetric waves, 1947
theory of, 107, 1354, 1681, 2328
whole-anode, long wave oscillations, 409
- Magnets, permanent, from alloys, 3133; of great pull, 3135; shielding from transient fields, 1177; thermal treatment of alloys for, 262**
Maintenance, power-unit, 3631
Manometers, dynamic-pressure meter, 1264; electrical capacitance diaphragm, 1879
Marine installations, statute of March 1642, 3403
Mars. (See also Planets); atmospheric disturbances, 2284
Mass production for precision equipment, 2354
Masts, book: Der Leitungsmast aus Holz, 1679; design of guys, 443; impregnation of wooden, 1678
Materials, alternatives, 251, 857, 1390
economy in brass, 2106; in war time, 3376
and manufactured products, quality control, 1835, 1836; X-raying of, 1841
properties of monel metal at low temperatures, 2136
testing, strain determination, 2260
used in electrical manufacture, 1540
various: alloys, organic, oils, 3374
- Mathematical instruments, book: Mathematik für Physiker und Ingenieure, Vol. I., 3423**
— tables, Bessel function $I_n(x)$, 21; books: Mathematical Tables, 898, Six-Place Tables, 1833
- Mathematics. (See also Differential equations; Equations, solution of; Matrix theory; Statistics; Tensors)**
applications of the multiharmonograph, 2173
books: The Calculus of Extension, 2162; Elliptic Cylinder and Spheroidal Wave Functions, 2269; Fluid Mechanics and Statistical Methods in Engineering, 2553; Fourier Series and Orthogonal Polynomials, 2546; Higher Mathematics for Engineers and Physicists: 2nd Ed., 2165; Introduction to Differential Geometry with use of Tensor Calculus, 2545; Laplace Transform, 3148; Practical Mathematics, 2175; Twin Marchant Calculating Machine and Application to Survey Problems, 2566
calculation of a.c. problems, 1638
constants of straight-line laws, 1198
derivation of frequency relation $E_{phot} = h\nu$, 2151
Dirichlet problem for hyperbolic case, 3150
experimental function represented by rational fraction, 1827, 2547
finding equations of curves, 1199
functions, Cauchy integrals, 897; elliptic and spheroidal wave, 1594; Fermi-Dirac, 1561; $H(m, a, x)$, 1560; hyperbolic, 3149; Lamé and Legendre, 896; transcendental, representation and solution, 2173
goodness of fit hypotheses, 1564
the imaginary in, 895
infinite harmonic series, summation, 2163
initial curvature of dynamical trajectories, 1824
Laplace's equation, approximate solution using dipoles, 1191
limits of difference table, 1197
non-linear direction displacements, 899
Polsson's distribution, limiting form, 1196
solution of eigenvalue problems by factorisation, 2164
- Mathieu functions, expansions of solutions, 1200**
stability of oscillations, 1646
- Matrix theory, applications, h.f. technique, 3225; network problems, 671, 3227; circuit theory, 3771; geometry of, 3151**
Measurements, book: Advanced Electrical Measurements, 790
linear, thickness gauge for aluminium propellers, 1265
using bolometric compensator, 1746
- Measuring devices, thermal, survey of skin-effect error of, 2016**

- Measuring technique**, magnetic saturation amplifiers for, 1134 ; photocell compensator in, 1133
- Mechanisms**, speed control for sector discs, 1544
- Medical applications**. (See also Diathermy; Heat treatment); electro-haemometer, 613; measurement of radiation, 3465 ; of sound waves, 3035 ; suppression of interference in, 3566 — research, electronic switching in, 2888
- Mercury arc**, book: Mercury-Arc Current Converters: 2nd Ed., 2811 — cathode. (See also Glow discharge; Ignitron); 2806 ; dielectric ignitors for, 2478 ; generation of discharge in, 2477 — diffusion pumps, 2800 — rectifiers, backfiring in, 2810
- Mercury-vapour discharge**, control of, 2678 ; h.f. probe measurements, 111 — lamp, of high luminous density, 3046
- Mesotrons**, estimating mass, 1602 ; positive excess in spectrum, 646 ; studies with dual telescope, 1887 ; variation with upper-air temperatures, 642
- Metal coatings**, book: Metallische Überzüge, 1538
- Metallisation**, electro-deposition of silver as basis for, 230
- Metallurgy**, application of microradiography, 2909 — electric furnaces in, 590
- Metals**, anisotropy of electronic work function, 1071 — book: Physical Examination of Metals: Vol. 2—Electrical Methods, 578 — casting of, 594 — electronic theory, 2153 — evaporation from hot filaments, 856 — grain structure, 2215 — penetration of inert gases, 812, survey, 3358 — supersonic waves in study of, 904 — underground, protective coatings for, 2105
- Meteorites**, detection of small, 2931
- Meteorology**. (See also Atmosphere; Clouds; Mist; Thunderstorms; Weather) — applications of photoelectric cells, 2295 — books: Dynamische Meteorologie: Physik der Atmosphäre, 3195 ; Einführung in die Physik der Atmosphäre, 3196 ; Einführung in die synoptische Wetteranalyse, 388 ; Introduction to Meteorology, 1896 ; Introduction to Study of Air Mass and Isentropic Analysis: 5th Ed., 387 ; Meteorological Instruments, 976 ; Visibility in Meteorology, 576, 976 ; Weather Analysis and Forecasting: Textbook on Synoptic Meteorology, 1626 — hurricane location by radio static, 22 — hydrodynamic conservation law, 3490 — observations, correlation coefficient in, 363 — radio applications and relations, 28, 3489
- Meteors**, detection and velocity by radiolocators, 3494 ; Doppler effect on entering ionosphere, 1607 ; temperature, and density of upper-atmosphere, 1606
- Meters**, a.c., frequency-compensation for, 2749 ; insulation-resistance, 2445 ; power, see Power meters ; speed control of, 219
- Mica**, electrical strength, 527 ; labour for treating, 3369 ; production, 2818 ; spotted, 2495
- Microfilm** copying, in libraries, 309, 1850 ; reader, 2927
- Micrometers**, e.m. induction, using metal rectifier, 3812
- Microphones**. (See also Broadcasting apparatus) — for broadcasting, in Germany, 1083 ; selective system, 2720 — calibration of, 461, 462, 3607 — condenser, for speech, 1704 — frequency-response curve tracer for, 136 — German patents, 134, 135 — moving-coil, 2696 — piezo-electric with Rochelle-salt element, 2393 — uniphase unidirectional, 133
- Microphotometer**, Knorr-Albers, 1862 — optical, technique of phase-contrast method, 798, 2066
- Mineral resources**, 3375
- Mirror**, parabolic, construction of, 3255
- Mist**, light diffused by, backwards, 379 ; forwards, 1899 — droplets, statistical evaluation of diameter, 1576
- Mixers**, for superheterodyne reception, 1690
- Mobile communication**, aerial for, 3256 ; public utility system 2726 kc/s., 3753 ; 112 Mc/s., transceiver, 3749 — reception. (See also under Aerial coupling; Aerials); police radio equipment, 1813 ; suitable method for, 3233
- Models**, in study of two-dimensional heat flow, 1977 ; three-dimensional wire, 932
- Modulation**, amplitude and frequency on 3,000 m., 2989 — anode, circuit for u.s.w., 3554 — applying the dynamic-shift principle, 69 — circuit, 2990 — economical in energy, 3234 — frequency, and amplitude on 3,000 m., 2989 ; for broadcasting, 271, 272, 1179 ; and circuit alignment, 1470 ; circuit for magnetrons, 2988 ; common channel interference, 1654 ; for communication, 1181 ; data sheets, 311 ; detection in receivers, 81 ; distortion in transmission, 80 ; exponential detector for, 416 ; generation and detection of waves, 2329 ; and homodyne, 3238 ; initiative in use of, 3398 ; and interference, 78 ; multiplex, 490 ; new system of, 62, 1940 ; non-linear distortion in, 31, 1917 ; and phase, 3233, 3553 ; phase distortion in, 1018 ; police-service tests, 3399 ; in railway signalling, 1182 ; receivers, 83, 1022, 1023 ; reception, 79, 274 ; side-bands in, 678, 1017 ; signal generator design, 179, 2432 ; stabilised system, 1644, 2330 ; station monitor, 1119 ; survey, 63, 2145 ; and telegraph lines, 1210 ; and television synchronising pulses, 2420 ; transmission unaffected by ionospheric storm, 417 ; transmitter problems 273 — of h.f. oscillation, 2991 — of high-pressure arc, 597 — higher, with diode, 2668 — of low pressure arc discharges, 410 — oscillation processes in periodic phase-manipulation, 679 — phase, and frequency, 3233, 3553 — using condensers of periodically varying capacitance, 1019, 1647 — velocity, tube for, 2398 ; use for u.s.w. : survey, 3552
- Modulators**, for carrier-frequency communication technique, 687 — for 56 Mc/s. transmitter, 67
- Molybdenum**, thermionic emission from, 116 — vapourising, V³¹ relation, 2681
- Monel metal**, properties at low temperatures, 2136
- Monitoring**, of signals in radio communication, 492
- Monitors**, for f.m. transmitters, 1119, 1546
- Monochromatic filters**, for solar research, 1291
- Montreux plan**, 282
- Morse code**, book: Learning Morse: 9th Ed., 686 ; key manipulation, 70 ; learning and technique, 3797 ; in post-war experimental transmitting, 571 ; Russian, 3796
- Motorcars**, u.s.w. equipment for, 1967, 2141
- Motor speed**, oscilloscope for checking, 2880
- Motors**, d.c., 0-005-0-2 h.p., 2381 — hysteresis-type, 1543 — induction, speed-regulated "resonance," 2837 — internal combustion, knock measurements, 3175 — with tuning-fork control, 3383
- Movements**, small, measurement of, 3174
- Moving element**, suspension, in measuring instruments, 2455
- Moving-iron instrument**, repulsion, design, 2454
- Multipier tube**. See Electron multiplier
- Multivibrator**, pulling in of, 495 ; as pulse generator, 2423
- Music**, aesthetics of, 2002, 3301 ; and colour, 3297 ; the comma in, 1423 ; edge tones, 3303 ; electrical devices in teaching, 1424 ; notation simplification, 2407, 3302 ; physical theory, 144 ; and science, 2003, 3299, 3300
- Musica** instruments, electro-acoustic, Solovox, 143, Sonovox, 724 ; electronic, 1420 ; electronic organ music, 1421 ; piano-forte string hammer, 2005 ; plucked instruments, 2006 ; soundboard and string vibration, 2004 ; tone quality, 762 — pitch, direct reading recorder, 753 ; measurement of orchestral, 754 ; perception of note, 1425
- Nail detector**, 3822
- Navigation**. (See also Aircraft) — electrical and acoustical means for aircraft, 1700 — marine, new unit for cargo vessels, 1816 ; radio-telephone, 548 — stratoscope for height and distance measurement, 3273
- Negative resistance**, differential, use in measurement, 2636 ; theory of, 2976 ; variability with frequency, 2637 ; voltage gain of i.f. amplifiers with, 2313
- Neon tubes**, photoelectric effects in, 2901
- Nerve conduction**, experiments on semiconductors, 2209 ; nerve fibre impedance, 2208 ; study of, 2207
- Networks**, communication. See under Communication — with electrical symmetry, 990 — four-terminal, 3226 ; analogy with crystal lattices, 3542 ; transient behaviour, 1312 — geometrical configurations and duality, 1305 — impedance matching, for unloaded cable, 2318 — iterative, calculation of, 1935 ; transformed, 1936 — linear, Laplace transformations in, 670 ; transient similarity and equivalence in n -mesh, 40 — matrices, tensors, or dyadics in study of, 671, 3227 — resistance, formulae for, in attenuators, 2320 — response to arbitrary driving force, 1918 ; in non-sinusoidal periodic waves, 986 — symposium on, 985 — two-terminal, algebra of, 1639
- Neutrons**, passage through magnetic fields, 267, 2538 — slow, velocity distribution, 2798
- Nickel**. (See also Alloys) ; preparation of stratified sheets with iron, 540
- Night sky**, light of, intensity, 944, 2275 ; connection with zodiacal light : survey, 3503 — radiations from, interpretation, 1608 ; radiation from bands in u.v., 1283, 1609 — spectrophotometry of, 1284

- spectrum of, emission bands in ozone, 640; forbidden rays, 1891
- Nitrogen**, active, 2289; effect of temperature on afterglow, 2610; in point-o-lite lamp, 2290
- forbidden doublet 'S-D' of neutral atom, 1890
- spectra of phosphorescence, 641
- peroxide, formation in destruction of ozone, 2288
- Noise**. (See also Aerial systems; Aerials; Acoustics; Interference; Shot effect; Signal to noise; Sound)
- acoustical, abatement of, 1713, 1714; in New York and Chicago, 1715; "noise reduction coefficient," 748
- in hospitals, 1417
- loss by atmospheric radiation, 1418
- measurement of American standard, 3620; in cities, 3295; levels, subjective and objective, 2404
- meter, the DIN, 1406, 1407, for sustained noises, 1089
- tremor, due to traffic, 350
- of Underground escalators, 3025
- and vibration of ball-bearings, 353
- electrical or valve, in amplifiers, photoelectric, 3041; wide-band, 1341
- background, in large s.w. transmitters, 413
- circuit, due to thermal agitation, data sheet, 2630
- generation for testing purposes, 1094
- hum, due to heater/cathode leakage, 1340
- meters, radio, transient behaviour, 2406
- random, in radio receivers, 2337
- in receiving aerial, 3584; definition, 2362
- in electron tubes, 2374; in manufacture, 2373
- in transformers, audio, 486; limitation, 1419
- of valve oscillators, 1067
- valve and resistance, 694
- thermal, of electrical resistances, 1636; of quadripole, 35
- Nomograms, for inductance of two parallel wires, 37
- Note oscillators, for air raid alarm signals, 2189
- source, a new standard, 1997
- Nuclear research, electrostatic generator for, 810
- Nuclei, condensation in atmosphere, 1624
- Null indicators, circuit for, 44; visual, 194
- Obituary notices: Sir W. H. Bragg, 1845; Sir Joseph Larmor, 2557; P. O. Pedersen, 1846
- Operational methods. See Calculus, operational
- Operators, men *versus* women, 2929
- Optical instruments with coated lens systems, 2414
- measurements, book: *Optische Messungen des Chemikers und des Mediziners*, 2211
- paths, of large aperture, 2926
- resolution as function of intensity, 2778
- systems, mathematical treatment, 3509
- Optics, error computation in systems of spherical surfaces, 1479
- Organ pipes, end corrections, 760; harmonic relations in partials, 1422; initial transients, 1422
- Organs, Silbermann, tone spectrum, 761
- Oscillating systems, energy relationships in, 705
- Oscillation coefficient of bridges, 2876
- Oscillations. (See also Vibrations)
- admittance method for obtaining natural frequencies, 585
- Barkhausen self-oscillation formula, 1020
- in coupled systems, 1648, 1930
- electrical, of conducting spheroid, 2662
- electron-plasma, theory, 1685
- electronic mechanism of, 1642
- harmonic, recording accuracy, 499
- non-linear dynamical systems, 1311
- of pendulum with periodic vertical movement, 663
- piezo-quartz-plate, investigation, 1451
- probabilities of maximum, 1563
- relaxation, general equations, 2161; survey, 1931
- stability of, 1646
- Oscillators. (See also Auto-oscillators)
- beat-frequency, portable, 154; 10 c/s. to 4 Mc/s., for television, 3638
- direct-reading interpolation, 1455
- with electric control of frequency, 411
- frequency-halving, 68
- locked, variable crystal frequency, 684
- low-C, electron-coupled, 683
- modulated, portable, 180
- negative resistance, use of small power pentodes as, 1944
- Pierce crystal, improvements, 1943
- push-pull, continuously variable i.f., 2025
- quartz. See under Quartz
- resistance-capacitance, 2769; Delaup's circuit, 3558; transistor, Delaup's circuit, 3557
- sine wave, for audio frequencies, 3024
- stable frequency, temperature control, 3652
- u.s.w., mechanical adjustment, 1448; type 757-A, 1113; using acorn valves, 3551
- valve, frequency deviations, 1649; noise in, 1067
- valve-driven tuning-fork, 2000
- variable-frequency ("Battleship"), 2645; bridge-stabilised, 1650; 50-10,000 c/s., 1999
- Oscillatory circuits, degenerate, 1629
- Oscillograph film, American standard dimensions, 1486
- Oscillographs. (See also Cathode-ray oscillographs; Recording) giant demonstration, 2051; the memory, 2052; for use in total darkness, 1140; for vibration analysis, 2261
- Oscilloscopes, for checking motor-speed, 2880; in resistance welding, 793; versatile, 2460; 10-Mc/s. with hard-valve sweep circuit, 1138
- Oxide mixtures, alkaline earth, crystallographic structure, 1694
- Oxygen, anode spots in, 242; behaviour of electrons in, 15; diffusion in copper, 255; position of $3p^4D$ term in O III, 2291
- Ozone, effect of temperature and humidity, 2952; emission bands, 640; formation of NO_2 in destruction, 2288; influence of temperature on absorption spectrum, 1888; light accompanying thermal decomposition, 17
- Panoramic radio spectroscopy, 2349, 3574
- reception, simultaneous with aural, 1702
- Paper, containing chlorinated impregnants, 847
- insulating, effects of contamination, 848
- Particle-size analysis, applications of, 1276
- Particles, motion of electric, 1601; solid, in gases, charge on, 888; theory of elementary, 1555; trajectories of, 1824
- Patents, and research workers, 306; terminology, 3792
- Pendulum, a.c. resonant, without iron, 2766; measurement of inclination, 1772; oscillations, 663; Satori electric drive, new design, 2033
- Periodic analysis. (See also Fourier analysis) harmonic analysers: survey, 3152; survey, 3152
- Permeability, for sinusoidal field strength, 1759
- Petroleum, knock rating by quartz indicator, 2262, 2263
- pH. (See also Hydrogen-ion concentration) measurements, d.c. amplifier for, 2884
- Phase adjusting circuits, 2760
- angle, automatic registration of large differences, 624; of electrical quantities, determination, 1129, 3677; measurement with c.r.o., 3326; meter, electronic, 3678
- compensation in pupinised lines, 2728
- cyclometer, for phase meter, 2440
- difference measurement, 3088; for circuit continuity testing, 2751
- distortion, in electroacoustic systems, 1378; in f.m. systems, 1018
- distribution, of electromagnetic field, 625
- manipulation, oscillation processes in, 679
- measurement, for position-finding, 1080
- meter, direct-reading, 1467, 1747
- reversal amplifier, automatic, 1332
- selection, in radio communication, 420; sharp, 627
- shifting, up to 360° , 2439
- structure, of electromagnetic field, 622
- Phosphorescence, applications, 332; centres, experiments on, 2068; decay law of alkali-halide and silicate phosphors, 1433; and scintillation spectra, 520; u.f., decay in NaCl crystals, 3087
- Phosphors, chromium, spectra of, 2473
- dielectric constant, 223
- fluorescence in the rare gases, 2069
- fusing medium for ZnS and CdS, 2472
- Lenard, properties, 203
- zinc oxide, electrical conductivity, 1485; modulation capability, 777
- ZnS crystal, photoconductivity, 804
- Photocathodes, composite, behaviour of foreign metal particles in, 1110
- microstructure, 3316
- Photoconductivity, of NaCl crystals in strong electric fields, 1741
- of semiconducting layers, 1111
- Photoconcurrent. (See Electron emission)
- Photoelasticity, three-dimensional, using scattered light, 330
- Photoelectric cells, barrier-layer, bibliography, 321; measurements on, 826
- compensator in measuring technique, 1133
- irregularities in functioning, 1737
- in meteorology, 2295
- quantum output, 2011
- recent developments, 483
- selenium, effect of X-rays, 3042
- selenium barrier layer, action of, 2013; drift, 323; formula, 1445, 3641; for precision photometry, 3450; repair, 3043; spectral sensitivity distribution, 2012
- spectral sensitivity, 778, 1738, 2012
- Photoelectric cell applications, colorimeter, 2894, 2895; control, of cooling, 2893, drinking fountain, 612, luminous flux, 1861, register, 2899, searchlight, 2232, street lighting, 2231; densitometer, 2897; dew-point recorder, 2892; high speed recorder, 3456, 3824; for ignition-delay measurements, 2265; industrial, 324, 1580; invisible

- fences, 1277; light recorder, 2891; membrane manometer, 2890; multi-colour printing, 1579; oil hole inspection, 2899; oxygen saturation of blood, 1278; packaging machinery, 326; paper mills, 611; pattern tracing, 1581; pen recording, 3179; photometry, 1739, 2230, 2896, 3453; protein in wheat, 325; reading matter for the blind, 316; safety coupling, 2898; shell explosion, 315, production, 2900; spectrum intensities, 3454; star counter, 1577; stroboscope, 2905; for temperature measurements in i.c. engines, 607, 3482; time measurement, 2903; turbidity comparator, 3451; in u.v. region, 2902, 3452; vitamin analysis, 603, 2894; width gauge, 1578, 1582, 3455
- Photoelectric effects on neon tubes, 2901**
— oscillation meter, 2876
- Photoelectricity, alloys of alkali metals, 172**
automatic recorder of spectral sensitivity, 778
barrier-layer effect, 173
control of spontaneous fluctuations in amplification, 484
of *d*-tartaric acid single crystals, 486
effect on dielectric constant of crystal phosphors, 1482
of Lenard phosphors, 203
properties of bismuth, 485, 1112
of semiconductors and resistances, 779
- Photoelectrons, energy distribution, 3039**
- Photo-emission.** See Electron emission
- Photographic exposure, computation of correct, 775**
— film, contraction errors in lattice-spacing measurements, 2063; for detecting weak X-rays, 1246; deterioration before development, 336; grain, resolving power and speed, 209, 500; sensitivity, 1109; transparency fluctuations, 602
— plates, in cosmic-ray investigation, 1254
— recording, of X-ray screen images, 1144
- Photography, book:** Kodak Data Books of Applied Photography, 2236; Photographic Emulsion Technique, 2235; Wall's Dictionary of Photography, and Reference Book for Amateur and Professional Photographers: 10th Ed., 1255
of c.r. tube traces, 2458
in detection and measurement of radiation, 2234
high-speed, characteristics of flash lamps, 1256
of infra-red region of spectrum, 334
latent images, optical and X-ray, 2906
of luminescent screens in u.v., 335
quanta required to form latent image, 208
stereoscopic effect, method of increasing, 2859
- Photometers, low brightness meter, 1275; physical, 317; for transparency fluctuations of photographic films, 602**
photoelectric, using barrier layer photocell, 604; rotating differential, 318, 1863; smoke meters, 1868
- Photometry, detecting pinholes in rubberised canvas, 1591; glossary, 2924; with photoelectric cells, 2230**
- Photons, frequency and energy of, 2151**
- Photophoresis, electric and magnetic ions of, 1889; and magnetic current, 18**
- Photo-telegraphy.** See under Telegraphy
- Phototubes.** See Photoelectric cells
- Physicists, post-war position, 1849**
- Physics, books:** Chemical Aspects of Light, 2923; Jüdische und deutsche Physik, 1821; Lehrbuch der Elektrizität und des Magnetismus, 3413; Practical Physics, 2175; Reports on Progress in Physics, Vol. 8, 2536; Reports on Recent Progress in Physics, Vol. 7, 558; Tables of Physical and Chemical Constants, and some Mathematical Functions, 2850
Loschmidt number, definition, 3415
nuclear, geological application of, 2930
X-ray absorption structure in, 2219
in 1941, survey, 2849
- Physiology, book:** Wetter und Gesundheit, 3467; effects of u.s.w. radiation, 339; muscular paralysis by l.f. currents up to 10 kc/s., 343
- Pianoforte string, dynamics, 2005; excitation, 2716; stringing scale, 756**
- Pick-up, moving coil, 3020**
- Piezoelectric vibrators.** See Filter circuits
- Piezoelectricity.** (See also Crystals; Quartz; Rochelle salt)
excitability of thickness vibration, 1123
indicators for ignition-delay measurements, 2265
investigations of oscillations by interference method, 1451
in knock rating measurements, 2262, 2263
propagation of sound in crystal, 3032
sensitivities of various substances, 3816
"sound cell" microphone, 2393
- Planets, thermocouples for radiometry of, 2435**
- Planimeter, 2853**
- Plasma.** (See also Conductivity); low-pressure mercury, 1976; non-stationary states of discharge, 488
- Plastic flow, from orifices, central, 1796; non-central, 837**
- Plastics, books:** 1942 Plastics Catalogue, 3734; High Polymeric Reactions: Their Theory and Practice, 1505
data and suppliers: survey, 3729, 3731, 3732; dielectric loss, 836; extrusion, 837; moulded, shear strength, 1509; in national defence, 224; non-ceramic, rubber free, temperatures for, 3730; non-electrical properties, 2122; in radio industry, 224, 1506, 2492, 2817; visible d.c. processes, 1510; welding, 3733; X-ray investigations, 1507
various: bakelite, 832; cellulose esters, 838, 1797; cellulose nitrate and methyl methacrylate, 1508; hydrocarbon polymers, 1504; karolith and lucite, 833; methyl silicone, 1799; neoprene, 844; polymers, 2488, survey, 3098; styrol, 835; thermoplastic, 834
- Plates, thin, bending of, 2709**
- Platinum, variation of specific resistance, 788**
- Point discharge, recorder for, 1914; in thunderstorms and showers, 1618**
- Point-o-lite lamp, active nitrogen in, 2290**
- Polar liquids, dispersion of u.s.w. in, 2599**
- Polarisation, of echoes from abnormal-E layer, 8**
electrons in doubly-scattered beam, 2149
of Rochelle-salt crystals at low voltages, 1379
- Polonium, extraction from active lead, 2098**
- Position finding.** (See also Blind landing; Direction finding; Radio range)
acoustic and electric methods, 1985
by phase-measurement method, 1080
- Potential dividers, resistance, testing and performance, 191**
- Potentiometer, angular sweep, 2879; in communications technique, 862**
- Power, future sources of, 1230**
measurement of small, a.c., 1132, 2744; with bolometer-bridge, 1745
— circuits, instruments for high a.f., 3619
— factor, correction calculator, 568; direct-reading meter, 1466; of rubber-CaCO₃, 2493
— meter, output, up to 100 watts, 3054; thermal, survey, 2745; for u.s.w., use of bolometer, 3048
— packs, d.c. stabilised voltage, 817; for emergency equipment, 1159; vibrators, and vibrator-operated, 1158
— supply, for interim emergency use, 217; regulated, 1929; for 56 Mc/s. transmitter, 67
— system governors, sensitive to frequency and load, 354
- Poynting vector, derivation of, 3259**
- Precision control, automatic, 3832**
- Pressure gauges, dynamic-pressure meter, 1264; to improve machine-tool performance, 1272**
— measurement, by piezometer, 3816; by electrical engine-indicator, 3817; by semi-conductors, 3815
- Probability, engineering applications, 1565; graph paper, 297**
- Production, book:** Modern Assembly Processes: Their Development and Control, 1223; commercial methods for metal parts, 1224; quality control charts, 3155; statistical control, 2562
- Projection, map, 900; square ruled paper, 2197, 3440**
- Propagation.** See Ionosphere; Sound; Transmission; Wave propagation
- Prospecting, electrical, discontinuities in soil, 3167; fissures in rocks, 2577; practical value, 347; subsoil, 2241, 2243, 3473**
influence of wave-source area on amplitude of soil vibrations, 1854
by penetrating radiations, for geological strata, 915
rational location of oil wells, 916
seismic, frequency standard for, 3334; oil-deposit location, 2244
- Proton accelerator, design and performance, 808**
- Publications in I.R.E.; 2566; of P.O.E.E.J., 2567**
scientific, advisory committee, 2180; correction of MSS, 1227
- Pulse generators for circuit testing, 3128; design of amplifier for, 1008; multivibrator, 2423; of regulable frequency, amplitude, and phase, 497; for television, 478**
— transmitter, using mixing process, 3555
- Pulses, d.c., amplification, 42**
h.f., transmission and reception, 1373, 3012
harmonic analysis of, 153
series of, displacement in time, 1734
synchronising. See Television synchronising pulses
- Push-pull power amplifiers.** See under Amplifiers
- Pyrometers, 322, 2596**
- Q, high, in hollow resonators and circuits, 1920**
raising value in valve circuits, 394
- Q-meter, extending range of, 1116**
- Quadrupoles, reactance, network matrix of, 1933, 1934; thermal noise, 35; transmission of energy through, 1306**
- Quantum output, of photoelectric cells, 2011**
— theory, interpretations, 1822, 3411; matter waves and electricity, 3412; new concepts of solid state, 3414; and theory of electric charge, 3410; thermodynamic functions for two dimensions, 1823
- Quartz, application to generation of electric waves, 2324; in communication technique: survey, 2973; longitudinal vibrations, 1757; X-ray reflection from, 556**

- Quartz, clocks, 2765, 3333**
— crystals, use for accelerometer, 3477; filters of variable bandwidth, 46; light modulation by, 1735, 1870; applied voltage and light intensity distribution, 1755; use of X-rays in production, 3053, 3059; vibrators, temperature coefficient, 1631, u.s.w., 1121
- glass, analysis, 3727; fused, drawing of tubes, 840; optical transparency, 2239
- oscillators, effect of liquid on damping at 4.3 Mc/s., 3331; properties at 300-5,000 kc/s., 3332; ultrasonic for irrigation problems, 1723
- resonators, with coupled liquid column, 1756; properties at 300-5,000 kc/s., 3332
- Radiating systems, energy relationships in, 705**
- Radiation, absorption and emission in atmosphere: survey, 3189**
corollary to the Ring hypothesis, 380
energy of dipole aerials, 1677
of feeble intensity, observation in neighbourhood of intense rays, 901
infra-red, measurement of, 3632
multipole nature of elementary sources, 19
photography in measurement of, 2234
pressure of, on moving absorbing surface, 938
solar. See Solar radiation
thermal, propagation equations, 3187; of water vapour, 3188
— resistance, of lines, 440, 2367; of s.w. aerial arrays, 2663
- Radio progress, during 1941, 1851**
— range. (See also Beacon; Blind landing; Direction finding) omnidirectional 6½ and 125 Mc/s., 2388
sharpness of guiding beam, 3011
— Research Board, activities, 3803
- Radioactivity, book: Radioaktivität, 3472; of rocks and ionisation-balance of atmosphere, 977; weak, 1857**
- Radiography, at high speed, 1243; industrial, 2907, 2908; micro, by reflection, 2909**
- Radiolocation for detection of meteors, 3494; German equipment, 3274; methods based on re-radiation principle, 719**
- Radiology, book: Radiologic Physics, 2583**
- Radiosonde, books: Aerologische Beobachtungen mit Radiosonden in Sommer 1937 in Spitzbergen und in Petsamo, 662, Der Strahlungsfehler der Finnischen Radiosonde, 662; casings of transparent plastics, 30; cosmic ray, 2305; integrating altimeter, 1872; interpretation of temperature measurements, 27; for instantaneous measurement of potential gradients, 1913; survey, 28, 29**
- Radiotelephony, Buenos-Aires/New York, 2530; circuit control terminal, 2532; coastal systems, 3402**
- Radium, deposit determination, 2220; detection in geophysics, 3165; protection of personnel, 1585**
- Radon, detection of, 2584**
- Raman effect, absence in optical and X-ray regions, 287**
- Rarefied air, ionisation by electron beam, 2771**
- Receivers, absolute sensitivity of, 1656, 2337**
addition of negative feedback to, 1952
aircraft ten-frequency, 1549
amplitude-, frequency-modulation, 83
book: Das grosse Kurzwellen- und Ultra-kurzwellen-Empfänger-Schaltungsbuch, 1948
broadcast, band spread in, 1961; book: Einhundert neuzzeitliche Rundfunk-Empfänger und Verstärker-Schaltungen, 432; German development, 2355; portable, design data, 3252; preselection, 86; tests, 1347, 1670; unwanted oscillation, 1034; valve and circuit problems, 3242; in wartime, 1673, 1674, 3251
circuits, for rectification of decimetric waves, 1333; s.w. spread-band, 1036
distortion in, 2655
the "Eddystone 358", 1349
effect of cabinet material on performance of, 1957
export requirements, 1960
French, technical details, 1964
frequency-modulation, 83; alignment equipment in factories, 1024; design, 1023, 2339; detection in, 81; diode amplitude-limiting circuits, 1334; i.f. values for, 1022; versus phase modulated, 2340; for u.h.f., 2338
German, 1037, 3253; in test aeroplane, 1953
Hallcrafters' system, production, 90
interference, reduction in, 1337, 2094
mobile, hiss-silencer for, 2649; police, for u.h.f., 2338; 30-40 Mc/s., 2648; 112 Mc/s., 2843
picture and teleprinter, filter arrangements, 50
portable, 431, 701, 1959
protection against lightning, 1911
selectivity of, 2343, 3243
superheterodyne. See under Superheterodyne
super-regenerative, 2993; resonance phenomena in, 1949; 112 and 224 Mc/s., 688
synthetic bass for, 2358
testing technique, 1471
for the tropics, 91, 1348
two-circuit straight, using steel valves, 1963
ultra-short-wave. (See also Ultra-high-frequency technique); multiple reception for, 2361; sensitivity of, 3240, 3241, 3564; signal-noise ratio, 1655, 2336; super-regenerative, 1026
universal, 3239
valve circuits using inductive-output currents, 1344
112 Mc/s., for emergency, 1025; experimental, 689; for motor-cars, 690; tuned-r.f., 688
- Reception. (See also Mobile reception)**
airport control console, 3759
book: Normas sobre Receptores de Radio, 429
broadcast interference in India, 1665
distribution system for flats, 1351
effect of atmospherics: survey, 3246
of frequency-modulation signals, 79, 1023
fidelity requirements, 698, 1343
of h.f. pulses, 1373
homodyne. See Homodyne reception
during magnetic storm and ionospheric disturbance, 1286
methods for maintaining constant phase relationships, 626
multicoupler aerial system for, 1968
panoramic. See under Panoramic
spurious signals in, 1029
short wave, N.B.C. listening post, 422
superheterodyne. See under Superheterodyne
ultra-short-wave devices, 419; heterodyne for, 78
- Recorders. (See also Counters; Gramophone; Sound)**
field-intensity, portable, 26-155 Mc/s., 3320
- Recording. (See also Gramophone; Sound)**
accuracy for harmonic oscillations, 499; attaining high speed, 501
discs, aluminium replaced by glass-base, 1390
microammeter, 1914
paper, dry conducting, 3318; for general use, 3071
pen, by photocell, 3179
simultaneous, of two galvanometers, 3449
unit, attached to tuning-condenser shaft, 94
- Records, reproduction, using paper negatives, 3799**
- Rectification, of amplitude-modulated carriers, filtering action, 1028; circuit for decimetric waves, 1333; sense in semi-conductors, 1783**
- Rectifier circuits, cause of h.v. surges in, 3362; full-wave voltage-doubling, 998; graphical solution, 33**
— units, dry, for battery charging, 250
- Rectifiers, arc-back, 2809**
barrier layer, effect of electron motion in crystals, 3123
battery-charging calculation, 820
boundary-layer, theory, 2092
contact converter, 1760
copper-oxide, breakdown voltage, 2503; effect of admixture of silver, 1152; high stability h.f., 421; production for laboratory, 249; temperature effects, 2093, 2502, 2504, 3122
dry-plate, effect of centrifugal force, 3140; space-charge theory, 532
grid-controlled, compounding of, 2080
hot-cathode, 823
ignitron, current and voltage characteristics, 1494; excitation circuits, 1496; ignition mechanism, 1495
low-power, V-connection, 244
mercury-vapour, 2479; control of, 241
metal, 248
selenium, characteristics, applications and design of, 248, 825, 3704; for closely regulated voltages, 247, 1781; measurements on, 826; for repeater stations, 3124; temperature effects, 533
for telecommunications, 2079; for telephone exchanges, 824; for voltage-multiplying, 1322
vacuum-tube, operating data, 1151
- Reflection reduction by films on glass. See under Glass**
of wave train by series of parallel layers, 935
- Reflectors, arrangement for u.s.w. relaying, 2360**
preparation of concave aluminium, 1539
- Refracting media, special relativity in, 553**
- Refraction, double, thermal effects in flowing liquids, 3463**
- Refractive indices, and Brewster angle, 651; of gases at u.h.f., 617**
- Refractories, kyanite for, 3115; siliciferous materials for, 3114**
- Regulating systems, stability of mechanical-electrical, 401**
- Regulation, automatic, Laplace transformation in, 670**
quick-response processes, theory of, 3830
using mercury rheostatic element, 1157, 3828
- Relativity paths by least action principle, 3139; special, in refracting media, 553; theory, of electromagnetism, 1556**
- Relaxation oscillations, egg-laying of ducks as enforced, 1233**
— oscillators, analysis of operation of two coupled, 1453
- Relay circuits with delayed armature release, 3223, 3549**
— stations, automatic, in forest fire-fighting, 543
— systems, automatic for frequencies above 500 Mc/s., 1725
— testing equipment, portable, 2453

- Relays, a.c. time-delay, 2129; for control of model aircraft, 2130, 2598; effect of mounting-plate vibration, 1542; electronic over-voltage, 2794; hydraulic, 3701; thermal-delay, in tube circuits, 2676; u.s.w., 2360; using current only, 2791
- Remote control, line-economising "co-ordinate connection," 1209 systems for receivers and transmitters, 73
- recording, of indicators for i.c. motors, 2264; measurement of inclination, 1772
- Repeater, type V42 of State Broadcasting Co., 1719
- Research, Anglo-American co-operation, 907; books: Industrial Research Laboratories of the United States, 307, Mitteilungen aus der Forschungsanstalt der Deutschen Reichspost: Band V, 910, Report on Industrial Research, 307, Research—A National Resource: II—Industrial Research, 573; in experimental physics, 909; industrial, in U.S.S.R. and Germany, 2184; library vs laboratory, 308; petroleum, electron tubes for, 328; workers, and patent system, 306
- Resin, with high melting point, 2120; water absorption of, 2121
- Resistance, capacitance effects, 1316; measurement of, 1131, 2763; specific variation in platinum, 788
- materials, with small Ni content, 2135; silver alloys, 2134; for standard resistances, 2034
- Resistances, equivalent, measurement of, 2636; fixed, for radio purposes, 1791; graphite on glass, 1790; high, stability of, 2497; in parallel, graphical determination, 1641; thermal noise, 1636
- Resistors, Koolohm, 1521; negative temperature coefficient, 2788; water-cooled for u.h.f., 222
- Resonance, conditions for, 3216, 3476; curve recording with c.r.o., 3530; electrical, history, 981; in super-regenerative receivers, 1949
- Resonators, cavity. See under Cavity quartz. See under Quartz rectangular, in u.h.f. technique, 65; as wavemeter, 176
- Retarding-field, circuit with free anode, 59
- electron-beam oscillator, 2640
- valves, for two-way u.s.w. communication, 3748; reduction of grid loading, 2325; special design, 2326
- Rheostat, 25 W. armoured power, 1522; for regulation and control, 1157, 3828
- Rhodium, for contacts in radio apparatus, 2131
- Rivets, "Rivnut" serving as anchor, 3388
- Rochelle salt crystals, development and applications, 351; dielectric constant, 1085; polarisation at low voltages, 1379
- plates, thickness vibration, 1123
- vibrators, absolute amplitude measurement, 1084
- Rubber. (See also Polymers); behaviour of sulphur in, 2819; brittle temperature, 2820; buna, for high-vacuum washers, 3096; conducting, for shielding flexible leads, 1161; hard, disfigurement in u.h.f. fields, 1793; statistical theory, 3097; synthetic, 2126, survey, 1795
- Russian for scientific workers, 2186
- Sabotage, control by electronic means, 2869
- Saw-tooth oscillations, excitation of cavity resonators by, 2641; generators for production of, 2422
- waves, graphical analysis, 3529
- Scales, 1382; frequency, for tuned circuit, 88
- Scanning, television. (See also Television); analysis, 1103, 1724; film for testing, 1444
- Scattering, of light by spherical molecules, 2958
- random, and long path transmission, 2272
- Schools, Signal Corps Radio, 302
- Schottky effect, 453, 826, 1976
- Science and culture, 3426; education, 3428, book: Science and Education, 3427; government, 569; international politics, 1567; mobilisation of, 2179; national defence, 908; proposed society for freedom in, 300; talent search in U.S.A., 2570, 3438; war, 1219, 2177, 3156, 3157, 3158, 3430, 3431, 3432, 3794; youth, 301
- Scientific papers, reading of, 2196, 2564, 2860
- research in the Empire, 2561; India, 3164
- studies, Stalin prize for, 2185
- Screening. (See also Shields); in concentric cables, 104; electrostatic, graphite coatings for, 1530, at u.h.f., 2104; for h.f. conductors, 3002; use of cupal sheet and foil, 3745
- Screens, luminescent, 2779
- Screw terminals, economy in brass, 2106
- Sealing, iron-glass, saving Ni and Co, 3352; mica to glass or metal, 3093; quartz to pyrex, 3094
- Seismology, attenuation of Rayleigh waves, 381; wave propagation in soil, 1297
- Selectivity, of systems with negative feedback, 1000
- Selenium. (See also under Photoelectric cells); glassy, 3642; liquid and colloidal, 2425; study of allotropes, 1740
- Semiconducting layers, photoconductivity of, 1111
- materials, survey of, 2091
- Semiconductors. (See also Conductivity); conference, 1517; electrical conductivity, 828; electrical contact theory, 2501; in electrophysiology, 2209; lead selenide, amphoteric behaviour, 246; resistance measurement, 3671
- temperature dependence, 3126; sense of rectification in, 1783; survey, 3844; in telecommunications, 2500
- Sensations of vision and touch, 2210
- Servicing, book: Radio Upkeep and Repairs for Amateurs, 5th Ed., 430; of broadcast apparatus, 2041; status of service-men, 1350; training for, 95
- Shielding, conducting rubber for, 1161; electrostatic, colloidal graphite for, 1978
- Shields, non-metal, with electronic applications, 3597
- Shims, laminated, 863
- Shock waves in air, 349
- Shot noise, data sheet, 2670; in saturated diode, 714
- Sidebands, theory in f.m., 678
- Signal-noise ratio, improvement in television, 163; readability of signals, 1030; in receivers, 1655, 1656, 2336
- Signal strength reports, interpretation of, 703
- Silica, vitreous, structure, 1513
- Silver, as a substitute for copper in wiring, 1532
- Simple harmonic motion recording apparatus, 3342
- Skin effect, in coaxial cables, 3488; in cylindrical conductors, 621, 1315, 2299; data sheets, 2621; and depth of penetration, 2298; in elliptic cross-section conductors, 2620; error of thermal measuring devices, 2016; formulae for u.h.f., 2619; in superconductors, 2154
- Skip, single and double, 2
- Sky radiation, extreme u.v., 1283; in high latitudes, 2605
- Slatis effect. (See also Dielectric constant), 3051, 3052
- Smoothing, by means of triode, 2353
- Sodium chloride crystals, photoconductivity of, 1741
- Soil, constants at broadcast and u.h.f., 374
- corrosion of lead alloys in, 1523
- determination of freezing points, 1855
- various, comparison of d.c. or power-frequency behaviour, 384
- wave propagation in, 1854; wave vibrations in, 1297
- Solar eclipse. See under Ionosphere
- magnetic field, radial limitation of, 372
- phenomena, book: Ergebnisse und Probleme der Sonnenforschung, 2604; bright eruptions, 2946, zodiacal light: survey, 3503, 28th Feb., 1942, 3502; effect on atmosphere of earth and Mars, 2284; and geomagnetism, 2277, 2278; and ionosphere, 7, 2277
- prominences, comparison of H and He radiation, 1895; evolution and concerted movements, 1290; space motions, 634; westward tilt, 1611
- radiation, atmospheric transmission of, 2949; book: Annals of Astrophysical Observatory of Smithsonian Institution, 3191; at different heights in the atmosphere, 633, 1610; in high latitudes, 2605; standard curves for engineering use, 331; and state of atmosphere, 1289, survey, 2951
- research, monochromatic filter suitable for, 1291
- spectrum, bands of CH molecule, 373; infra-red, 3190
- Solder, book: Tin Solders, 2842; conserving tin, 2511; flux for soft, 2109; multicore with ersin flux, 864; substitutes, 2841
- Soldering, of phosphor-bronze hair springs, 2110; tinless, for wire jointing, 2108
- irons, electric, re-tinning, 2107
- Solenoids, design charts, 187; inductance, 2032, 3536
- Solids, plastic deformation, 266; viscosity of dielectric relaxation, 2123
- Sound absorption, dielectrics, 3033; impedance of friction layers, 1414; materials, 468, 1411; at oblique incidence, 1415, 2403; strips, 469
- amplifying apparatus, for detecting trapped persons, 125
- attenuation in absorbing tubes, 3294
- colour in, 2001
- decrement in various woods, 757
- detection of infra-sonic waves, 744, 903
- directional distribution in a room, 1408
- dispersion and absorption, in clouds, 764
- distribution at spherical concave reflector, 891
- effect on tobacco-mosaic virus, 158
- emission, heat-conduction effects in, 770
- generated by vortices, 3618
- instrument for measuring sound-energy flow, 150
- intensity, power required, 2713
- lag calculator, for aircraft noise listening equipment, 1992
- lethal effects on bacteria of h.f., 159
- perception, 3626; of note pitch, 1425
- perturbation in irregular rooms, 3606
- propagation, in absorbent tubes, 1412; in the atmosphere, 129, 1432, 1711; in compressed gases, 768; in methyl methacrylate polymer, 1430; in piezo-electric crystal, 3032; temperature variation of velocity in liquids, 1431
- reflection and phase of, 747
- room for measurements of, 467
- from small sources, integration, 152
- thermoregeneration of, 1991
- translational dispersion in gases, 3630
- transmission loss of non-porous plate, 470
- films, book: Physik und Technik des Tonfilms, 725; lamp

- technique in, 1708 ; production of "Fantasia," 1399 ; stereophonic system, 127
- level, in transformers, 466 ; meters, performance, 149, power supply for, 2405
- radiators, conical, 130 ; directional properties of elliptical, 1988, spherical, 2391
- receiver, thermoregenerated tube as, 460, 2390
- recorders, compact magnetic, 1389 ; for pitch and intensity, 753
- recording, book : Schallaufzeichnung, 2692 ; crystal cutting head, 463, 2690 ; distortion for given static characteristics, 400 ; equipment testing, 1709 ; factors contributing to good, 1707 ; on film, distortion due to slant, 2698 ; glass-base discs to replace aluminium, 1390 ; laboratory, 1391 ; lateral, elastic deformation and vertical forces, 1398, 2691, stylus for, 1393, 1396, and vertical, 732 ; stereophonic reproduction, 2699 ; tracing distortion in, 1395
- reproduction, distortion in, scale, 1382, tracing, 730, 1395 ; high-fidelity, 1380, 1392 ; play-back unit, 1389 ; stylus for, 1393, 1396
- resonators, frequency distribution of normal modes, 749
- waves, medical applications, 3035 ; propagation in water, 3305
- Space-charge, control and modulation, 410 ; effect on potential and path of electron beams, 1684 ; in velocity modulated beams, 1643
- flow, between concentric cylinders, 1062 ; differential equations, 449
- limited currents, fluctuations in, 397
- in magnetron with plane electrodes, 1680
- wave propagation in rotating, 676
- Space diversity effect, photometric observations of, 1667
- reception, fading reduction in, 1666
- Spark discharge, book : Mechanism of Electric Spark, 968 ; combined gaps, 2088 ; leader velocities, 3201 ; and lightning, 3201 ; photoelectric effects, 1498 ; theories, 1301 ; threshold field studies of positive corona phenomena, 1909 ; time lag, 1497
- generator, electronic, 608
- mechanism, 3203
- quenching, in non-linear resistor circuits, 399, 534
- Sparking plugs, electrodes for, 2098
- Spectra. (See also Gases, rare) ; atmospheric, effect of earth's field, 1902 ; of aurorae at low latitudes, 1890 ; bands of Lyman system of nitrogen molecule, 1609 ; chart of, 1572 ; eigenfunctions applied to He states, 3141 ; green line source, 1292 ; by h.f. discharge, 2950 ; mobility spectrum of large atmospheric ions, 1915 ; of night sky, forbidden rays, 1891 ; of phosphorescence, 520, 641
- Spectrograph, beta-ray, introduction of successive targets, 207
- Spectrographic analysis, electronic spark generator for, 608
- Spectrometers, industrial infra-red, 605 ; for gas analysis, 2581, 3834, mass stabiliser for, 213 ; note-frequency, 1710, 1764
- Spectrophotometer, for measurement of optical filters, 319 ; quartz photoelectric, 1865 ; recording, 606, 1866
- Spectrophotometry of night sky, 1284
- Spectropolarimeter, wide range automatic recording, 1866
- Spectroscopy, beta-ray, magnetic field measurement, 3663
- Spectrum, band, of CH⁺ molecule, 2612
- analysis, determination of thickness of deposits by, 2258 ; interrupted arc with pulsating d.c., 2925
- Speech amplification, 3285 ; capacity for hearing, 1375 ; investigation of, 1710
- Speed control mechanism, for sector discs, 1544
- Splicing, of rubber-insulated wire, 1531
- Sputtering, in preparation of metal-coated mica condensers, 2112
- Standard cells, e.m.f. and deuterium oxide concentration, 1462
- Standard-frequency broadcasts, revised, 1996 ; generation 50 c/s.—5,000 kc/s., 2730
- Standards, DIN, for armed forces, 1742 ; of measurements, in U.S.A., 2036
- Static. (See also Atmospherics) ; and car radio, 697 ; interference with aircraft, 1662, 3510 ; tropical storm, 2301
- Stations, Cape Cod, 2148, 2533 ; CBS, s.w., to Latin America, 280 ; KCMO 5 kW transmitter, 279 ; transmitter control at Brentwood, 544 ; W2TY, 9 band transmitter, 884 ; W2XOY, 50 kW f.m. transmitter, 1180 ; W47NV Nashville, 1545 ; WSM, relay transmitter, 268
- Statistics. (See also Equations, solution of) ; of binary alloys, 875 ; in biology, 2213 ; bivariate distribution, 894 ; of committee decisions, 2166 ; control of, quality, 1835, 2168, repetition work, 2167, 2550 ; distribution in industry, 1834 ; earth's internal magnetic field, 958 ; e.m. interference, 1336 ; in engineering, 1837, 2551 ; of magnetic susceptibility, 873, 874 ; mist droplet diameter, 1576 ; research developments : survey, 3775 ; smoothing of series, 561 ; straight line through points, 563 ; tests, Pearson's χ^2 , 1564, significance, 3774
- books : Elements of Statistical Reasoning, 2170 ; Engineer's Manual of Statistical Methods, 1195 ; Fundamental Principles of Mathematical Statistics, 3425 ; Sampling Methods in Forestry and Range Management, 3425 ; Second Yearbook of Research and Statistical Methodology, 2171 ; Statistical Mechanics, 562 ; Statistical Methods for Research Workers, 2169 ; Statistical Procedures and Their Mathematical Bases, 1194 ; Technique of Quality Control, 1195 ; Variate Difference Method, 2172
- Steel, hardening, furnace moisture monitor, 3485 ; of high magnetic power, 2138 ; magneto-elastic properties, 264 ; Ni-Cr, included gases, 2257 ; non-magnetic, 866
- Stereophonic sound films, effects in "Fantasia," 723 ; symposium, 127 ; theory, 722
- Stratosphere. See Atmosphere
- Stroboscope, Conn chromatic, as a.f. meter, 1086 ; using thyratron, 2905
- Stroboscopy, apparatus for, 3178 ; of flash lamps, 1256 ; high-speed action, 599
- Studios, broadcasting, with convex surfaces, 1409, N.B.C., 2402, speech-input systems in, 1387 ; electroacoustical installations, 2722 ; practical construction, 1416
- Stylus, dulled lacquer-cutting, 1393 ; for lateral-cut records, 1396
- Styrene, use of, 530
- Sub-audible frequencies, analyser, 1587, 2727, 2875 ; superposed on broadcast, 2352
- Subharmonic currents, experimental investigation, 3546
- Subharmonics, generation of, 2450
- Sub-standards, laboratory, building up of, 2764
- Submarine cables, fuller utilisation of, 142
- Subsoil prospecting. See under Prospecting
- Sun, excitation temperature, 2947 ; gases in atmosphere, 371, 1611 ; heat of, 635, 3469 ; heat and power from, 3468 ; and ionosphere, 370 ; See also Ionosphere
- Sunspot cycle, maintaining s.w. communication throughout, 630
- Sunspots, and cosmic-ray intensities, 1888 ; distribution of faculae and, 1894 ; of Sept., 1941, 951, 1287, of Feb.—March, 1942, 1893 ; sudden reversal in magnetic polarity, 954 ; and tree rings, 1894
- Superconductivity, for measuring infra-red radiation, 3682 ; of metals, 889 ; survey, 3842, 3844 ; theory, 2155, 3843 ; transition processes in magnetic field, 2864
- Superconductors, current branching and skin effect in, 2154 ; with very high critical temperatures, 906
- Superheterodyne receivers, double-conversion, for 2½ m. waves, 2647 ; single-signal, conversion to general coverage, 3577 ; specious, 433 ; spectroscope adapter, 3574
- frequency converters and mixers, 1690
- tracking, charts, 87, 1669 ; solutions, 2653 ; 3-point-balance circuit, 3575
- Supersonic crystal radiator, isolation from conducting liquids, 2008
- fields, comparison of methods of studying, 2731
- sounds, effect on cochlea of bats, 3631
- waves, absorption in liquids, 765, 767 ; measurements, 2733, 2734 ; and viscosity, 2735
- and chemical reactions on copper, 771
- diffraction spectra caused by, 1755
- and gaseous jets, 1722
- generator for, 1097
- for outgassing metals, 3034
- modulation of light by, 487, 2729
- in liquids, 769 ; mixtures, 2732, 3306 ; polar, 2729 ; stationary, 487 ; velocity, 765, 766, 767
- and tempered steel, 904 ; and tobacco-mosaic virus, 158
- velocity of propagation, 1434, 2733 ; in carbon dioxide, 767
- Surface analyser, electronic, 3819
- phenomena, formation of gas layer on silver, 174
- structure investigated by electron microscope, 2471
- Surge characteristics, of porcelain insulators, 529 ; of tower impedances, 384 ; of two-winding transformers, 3507
- currents, measurement by low inductance resistances and c.r.o., 2050
- propagation, 1293, 1903, 2300
- protection for telephone installations, 2963
- recording, by klydonograph, 385
- square wave, effect on potential in transformer winding, 2317
- Surgery, "metal-seeker" for, 2582
- Surges, distortion by impedance, 2614 ; initial processes in Lichtenberg figures, 656 ; along lines, demonstration, 3073 ; protection of transmitting installations, 660
- Switches, construction of new devices, 3827 ; electronic, acoustic experiments with, 1575 ; hot-wire vacuum, 2790 ; pedal operated oscillographs, 2057 ; vibrometer for testing, 2597
- Switching, a.c., thyratron, control of, 3129
- Synchronising signals. (See also Pulses) ; 1 kc/s., generation and distribution, 2449
- Synthetic materials, dielectric losses in, 2124
- Tantalum, effect of d.c. heating, 3271 ; thermionics, 2682
- Tape, adhesive, fibre-glass, 229
- Telecommunication equipment, protection against h.v., 973 ; rectifiers for, 2079
- Telegraph lines, f.m. applied to, 1210
- multi-, automatic circuit for determining load characteristics, 740
- Telegraphy, carrier. (See also Carrier systems) ; peak voltages in, 581
- diplex, 1819

- modulated, and band width, 2331
 morse, automatic keying, 2332; secrets of good, 415
 photo, in air reconnaissance, 170; and duplex transmission of sound, 490; facsimile, design chart, 169, transmission, 3036, recording paper for, 3318; by submarine cable, 167, 3633; with variable width lines, 491
 varioplex, 298, 3781
- Telemetering**, for remote control of transformer stations, 2250
- Telephone amplifier for power company circuits**, 3622
 apparatus, transmission equivalents in, 1987
 cable, calculation of electric field and capacitance, 155
 circuits, quality of: survey, 3023
 exchanges, rectifier for small, 824
 line amplifiers, development in manufacture, 1720
 lines, carrier-frequency multiple-utilisation, 1386; effect of radio transmission on transposed, 582
 poles, wood, burying depth, 3003
 set, piezo-electric, 3253
 systems, multi-channel, use of negative feedback amplifiers, 395
- Telephony, a.f.**, long distance signalling, 3780
 multi-channel carrier, 1009, 2248
 optical, modulation of light sources, 2729, 2870
 problems of railway-train, 1185; transatlantic, 1995
- Teletypewriter, error-proof**, 3760; Siemens-Hell recorder, 1551
- Telescopes**, heat-radiation, 333
- Television**. (See also Oscillators); for aircraft, 3307; for amateurs, use of iconoscope, 2413; asymmetric-sideband application, 475; and audio and video on single carrier, 161; coaxial cable experiments, 1437; colour and stereoscopic relief, 774; commercial development, 160; distortion investigation, 3637; equipment, portable, 1108, 1727, 1728; in France, 1099; performance of electron guns in tubes, 1731; picture storage, 1439, 2738; problems in sound, 1388; spectrophotometer for optical filters, 319; teaching by, 1435, 1726, in national defence, 3635
 — apparatus, aerials, 1040; amplifiers, German: survey, 3313; generator for testing tubes, 2418; pre-amplifier, 163; pulse generator, 478; receivers, F.C.C. standards, 2416; square-wave response of, 1104; transmitter, output stage, 2411
 — broadcasts, programme aspects, 1099; transmitting equipment, 2412, 3311, 3312
 — images, automatic background control, 1440; errors in, 1732; photographic analysis, 162; theory of projection, 1736, 2410, 3308
 — reception, lighting and acoustic problems, 3310; sensitivity of pick-up tubes, 1109; technical features, 476, 1100
 — scanning. (See also Scanning); 1103, 1724; linearity, 2417
 — synchronising pulses, slope and duration, 1106, 2421; with f.n., 2420
 — transmission, film scanner for testing, 1444; increasing depth of field, 2739; over lines, 3634; picture edges, 3309; technical features, 476, 1100
- Temperature**, automatic control, 2251; book: Temperature Measurement and Control, 2254; changes, detection with Anderson bridge, 3327; characteristics in L.C. engines: survey, 607, 3482; coefficient of quartz crystal vibrators, 1631; compensation of copper-oxide rectifiers, 2093; measurement, of mercury-arc by X-rays, 243, optical, of h.f. torch discharge, 236, thermochrome crayons for, 2023; nature of, 2540; probe and radiation receiver, 2746; rise, of solid insulating materials at u.h.f., 1792
- Tensors**, in electrical networks, 671
- Terminology**, scientific, in India, 3437
- Terrestrial magnetism**. (See also Geomagnetism) and ionospheric and solar disturbances, 2277
 long periodic variations and air temperature, 957
 statistical analysis of internal field, 958
 work of Carnegie Institution, 2274
- Test panel, a.c. instrument**, 783
- Testing**, of broadcast receivers, 1670
 equipment. (See also under Insulation and under relevant components or materials); for electrolytic condensers, 3670; h.f. h.t. 20-40 kw., 2047; in receiver repair workshop, 2041; in transmitting-valve manufacture, 121; for wattmeter, 3820
 of materials, counter tube in destructionless, 591; determination of static and dynamic constants, 905, 1839
 of receiver coils in production, 1749
- Thermionic emission**. See Electron emission
 — properties of iron group, 1534, 2683; of tantalum, 2682
- Thermocouples**, action of bimetallic strip, 2436; book: Metallische Werkstoffe für Thermo-elemente, 789; for insertion into small gaps, 2434; for planetary radiometry, 2435
- Thermoelectricity**, of thin bismuth films, 2017
- Thermo-elements**, compensation for, 2748
- Thermo-junctions**, vacuum, input impedances at u.h.f., 2433
- Thermostats**, bimetallic sheet and strip for, 1788; bridge-controlled thyatron, 2253; employing external control, 1208; precision control, 858
- Thickness gauges**, for aluminium propellers, 1265
 — measurement, by spectrum analysis, 2258
- Thunderstorms**. (See also Atmospheric electricity); distribution of electricity in clouds, 1907; point discharge in, 1618; potential drops during, 1619
- Thyatrions**, control of a.c. switching, 3129; as h.f. switch, 1146; generator synchronisation, 479; phase of arc-back, 2082; for testing car magnets, 3318; time-base circuit, 2784; use of hot-wire vacuum switch, 2790
- Tilt nut**, and electrical applications, 2512
- Time-bases**, circuits, linear, 2785, thyatron, 2784; development, 1145; generator for oscillography, 2055; hard valve, 2783; linear for c.r.o., new methods, 3344, methods of generating potentials, 3074; survey, 3691; synchronised voltage for bioelectric research, 340
- Time, measurement of**, milliseconds: survey, 2768; seconds, 2767, 3336; small intervals, 1589, 2256
 by phototube, 2903
- Titanium dioxide**, electrical conductivity of, 1516
- Tone control**, with bridge circuit, 1342
 by negative feedback, 699
- Toroids**, design charts for, 187
- Torsional vibrations**, book: Practical Solution of Torsional Vibration Problems, 3478; matrix theory, 3419; measurement of, 3479
- Tourmalin**, for absolute sound-pressure measurements, 151
- Towers**, surge characteristics of, 384
- Tracking**, superheterodyne. See Superheterodyne tracking
- Traffic control** by u.h.f., 3746
- Training**, of engineers, 812, 570, 1848; post-war problems, 304, 2181; sets for, 3795
- Trajectories of monoenergetic electrons**, 1767
- Transformers**, audio-frequency, distortion in, 3288, 3289; audio noise of, 466, 3617; coupling relations, 3538; electrostatic, 1488; fault correction, 999; i.f., design and construction, 1032; leakage in, 2638; magnetic materials for, 1809; output, data charts of ratios, 3610, non-linear-distortion factor, 1383; potential in windings, 2317; power, protection from lightning surges, 3518; reducing phase shift, 1924; two-winding, surge characteristic, 3507; variable-phase, as interference eliminator, 665; voltage-theory with Möllinger-Gewecke diagram, 2971
- Transients**, book: Transients in Electric Circuits, 1201; cathode-ray recording of, 1139, 1476; circuit for calculation, 1442; in circuits with non-linear resistors, 399, 534; instrument for analysing, 2053; in non-uniform lines, 2615; problems with relaxed initial conditions, 41
- Transit-time generator**, with one cavity resonator, 406
 — oscillations, 3229
 — phenomena, in electronic tubes, 1355
- Transit times**, graphical determination, 109
- Transmission**. (See also Ionosphere; Wave propagation) energy problem in communication, 2245
 frequency modulated, effect of ionospheric storm, 417
 of h.f. pulses, 1373
 and magnetic conditions, 365, 949
 predictions for 1941 discussed, 952
 sky-wave, and ionospheric measurements, 358
 — lines. (See also under Lines; Towers)
 amplitude relations, 1743
 capacity loaded, resonant length, 1314, 1923
 characteristic impedance of, 185, 1314
 concentric, impedance-matching in, 1922; resonant, 991
 used as filter, 3560
 data sheets, 311; graphs, 2616
 eccentric, impedance determination, 2617
 at Empire State Television Station, 99
 with exponential characteristic impedance, 620
 multiconductor steady-state analysis, 618
 non-uniform, theory of, 930, 3200; transients in, 2615
 operational treatment of waves in, 619
 parallel-wire, a.c. resistance, 2298; interaction, 994
 physics of, 933; vector models of, 932
 radiation resistance of, 440, 2367
 shielding, 3512
 — problems, application of Fourier analysis, 2408
- Transmitter-receivers**, duplex 25-watt radio-telephone, 277; marine radio unit, 2845; mobile emergency networks, 2844; ultra-short-wave, 1811, 2524, 2525, 2526; 112 Mc/s., 2843
- Transmitters**. (See also under Pulse; Wire broadcasting); 3555
 aircraft ten-frequency, 1549
 amateur, power tuning for, 3562
 amplifier for, 1021
 broadcast, aircooled 5 kW., 1651; commercial 50k W. f.m., 1180; push-button switching for, 278
 emergency, 112 Mc/s., 681, 883, 1014; 300 Mc/s. link from studio, 268
 equipment on 112 Mc/s. for defence, 2143
 frequency-modulated, 1016, 2991; amplifier for, 3232; and amplitude-modulated, 2642; frequency-deviation, 1329;

- measurements on, 178; operational problems, 273; over-modulation monitor for, 1546; R.C.A., 10 kW., 1445 maintenance at WOR, 3236
noise from, 1954
portable or mobile, for Army use, 885; cutting bias supply, 685; emergency, 74; German, 2644; 2½ m., 632; 56 Mc/s., 12 watt, 405; 75 m., 10 watt, 1331
short-wave, back-ground noise, 413; formation of electric discharge, 1330; 30 kW. for S. America, 2334
smoothing filters for, 1945
various: Dutch 125 kW., 1946; KCMO 5 kW., 279; in life-boats, regulations, 3561; unit-type multifrequency 5 kW., 72; 1.75-400 Mc/s. at W2TY, 884
56 Mc/s., modulator and power supply, 67
- Transmitting stations**, protection against surges, 660; water-cooling system for, 414
- Travelling-wave coefficient**, direct measurements in feeders, 1046
- Triode**, amplification factor formulae, 2377
circuits, self-excitation of u.s.w., 408
pentode, substitution by heptode, 115
power, for u.h.f. circuits, 2867
smoothing condenser in mains unit, 2353
- Tropics**, u.s.w. telephone equipment for, 2523
- Troposphere**. See Atmosphere
- Tubes**, gaseous, treatment of, 2677
- Tuned-anode shunt loaded circuit**, and data sheets, 2631
- Tungsten**, electro-thermal production of, 1981, 2099
- Tuning**, eddy current, 2348
inductive, h.f., 75, 1317
saving of aluminium by permeability, 92
- forks, electrostatic maintenance of vibrations, 465; theory of vibration mechanism, 3335; valve-maintained, adjustment, 1093
- indicators, c.r., increasing sensitivity of, 1464
- note generator, for standard, 440 c/s., 755
- Turbulence**, correlation coefficient of, 2977
- Ultra-high-frequency**. (See also Aerial coupling unit; Ultra-short-wave; Waves, electromagnentic)
circuits, power triode for, 2667
generation by electron beams, 2368
meter, special hot wire design, 2431
technique: survey, 3776
- Ultra-microscope**, slit, apparatus for counting particles, 3083
- Ultra-short-wave**. (See also Polar liquids; Ultra-high-frequency; Waves, electromagnentic)
current and voltage meter (Schlieren principle), 2430
telephone equipment for tropics, 2523
- Ultrasonic**. See Supersonic
- Units**, electric and magnetic, 791, 792, 1474, 3070, 3145, 3146, 3767
- Vacuum**, bridge for measurement of, 2755; cathode phenomena in, 2424; washers for, 3096
— gauge, for 10⁻³ mm Hg., 1150
— pumps, duo-seal, 3095; fractional, 1487
— technique, alloys for seals, 1148; Kovar for seals, 2071; quick-acting lock for, 207; vapour trap for, 1150
- Valve characteristics**, effect of contact potential, 1070; equivalent, in feedback circuits, 393; measurement of, 1364; recording by c.r.o., 3267; tracing on c.r.o., 119
- circuits. (See also Circle diagrams); equivalent, and limitations, 2673, 3594; inductive-output currents, 482, 1344
— regulator, for d.c. voltage equipments, 511
- Valves**. (See also Diode; Noise; Pentode; Space-charge, Triode)
adsorption properties of metallic zirconium, 1696
alternative, 717
amplifier, coupling of, 2994; distortion of, 716, 1366; with double cathode connections, 2666; for modern technical amplifiers, 1691; for stabilisation of d.c. voltages, 2077
books: Amerikanische Röhren, 3596; Elektronenröhren als Schwingungserzeuger und Gleichrichter, 3263; Grundlagen der Röhrentechnik, 3264; Philips Bücherreihe über Elektronenröhren, 1982; Valve Replacement Manual, 717
cold-cathode, current rating and life, 1153, 3702
as condenser in wide-band amplifiers, 2419
conservation of, 1980
cooling by forced air, 715
development by use of electron paths recorder, 2379
duo-pentode, experimental, 114
electron-beam, detection in, 1972
excitation of the anode effect, 1388
gas control, 112
glass for, die-pressed, 3261; stem, 1073
heat/cathode leakage as a source of hum, 1340
heptode as substitute for triode-pentode, 115
hexode, in controlled-saturated connection, 1764; as input in mixing amplifier, 2401
h.f. phenomena in, 1059, 1688
high-vacuum, 807
life in aircraft, 2381
lock-in, for range above 200 Mc/s., 1058
manufacture of, 120, 1695
models in air, 1576
modulator, selection of, 1069
negative-grid, 1356
orbital-beam multiplier, 446
pentode, checking r.f. distortion in, 1365; miniature, 1358
as negative resistance oscillator, 1944
pentode-heptode, overcoming input loss in, 1357
power, performance of class B and C, 1068
receiving, in France: survey, 3265; type names and distinguishing properties, 1983
reduction of warming up period, 3591
and resistance noise, 694
resistance variation with frequency, 1687
space current in diodes and triodes, data sheet, 2670
steel, in two-circuit straight receivers, 1963
tetrode, hot-cathode for power control, 112; beam, secondary electron problems, 2869
transmitting, beam tetrode HY 1269, 1971; discharge phenomena in, 3266; production testing of, 121; selection of, 1069
transverse control, with longitudinal field, 2986
triode, contact potential and initial current, 1367
types discontinued during war, 3595
u.h.f., acorn as generator, 3231; electrons in, 1920; miniature, in a converter, 110; receiving and transmitting, 1060, 1682; survey, 3521; triodes, 1061
velocity-modulated, transit-time as generator, 406; theory of, 407
- Vector computations**, 2548
— potential of systems with varying permeability, 3209
- Vibration meter**, general purpose, 352
- Vibrations**. (See also Oscillations)
damped, mechanical impedance, 586
determination of constants by response curves, 905
extension by rhythmic sublimation, 1095
longitudinal, of square quartz plates, 1757
low frequency analyser, 1267
mechanical, elastic materials for insulation of, 2874
new problems in, 584
and noise of ball bearings, 353
operational analysis of non-linear dynamical systems, 1311
transverse, of triangular membranes, 1706
of twisted strings, 2007
- Vibrato control**, electronic, for amplifiers, 2712
- Vibrator power packs**, 1158; for mobile use, 816; for 300 v. 100 mA. output, 1159
- Vibrators**, non-interfering, 1958, 2094; quartz crystal, see under Quartz; superiority of unsplit reeds, 1492
- Vibratory systems**, discussion of, 587
- Vibrometers**. See Switches
- Violins**, frequency characteristic curves, 3298; properties of wood for, 758; technique in study, 759
- Viscosity**, of colloidal solutions, 1503; plastic flow, 1796; of solutions and properties of polymers, 2488
- Vision**, sensitivity of eye, 1109, 3459; and phases of the moon, 1239; in visual reception, 1030
unit quantity of, 2210
- Voice**, radiation pattern of, 3283
- Voltage**, high d.c., production by h.f. generator, 3353
control, of d.c. generators by flux-diversion, 2078
divider, h.t. for c.r.o., 2781, 2782, 3689; matched, 2319
integration, 2887
measurement, absolute, in decimetric-wave region, 493; very high, 2046; of very small a.c., 2018
multiplier circuits, 34
multiplying rectifiers, h.v. without transformer, 1322
regulation, corona "triode" for, 2085; for d.c. equipment, 511; for magnetic electron microscope, 2073; using amplifier valves, 2077; using mercury rheostat, 1157, 3711
regulators, automatic, 818, 1490; barretters as, 2793; d.c. regulating circuit, 3062; for densitometer lamp, 2076; insensitive to load power-factor, 3710
stabilisation for Geiger counters, 3090, 3091; valve-voltmeter relay, 1155
stabiliser, automatic, 1489; circuit for, 1156; for d.c. generator, 2795; electromagnetic, 1154; electronic for 1-50 kV., 1489; magnetic, extension of range, 1776; mains, 214; for mass spectrometer, 213
- Voltmeter unit** for transformer core investigations, 2760
- Voltmeters**. (See also Instruments, measuring)
d.c., to read 300 kV., 3066
electrostatic, progress in design, 3338
feedback, 3674
for h.f., 1117
of high sensitivity, 498
logarithmic recording, 1404

- peak, diode slide-back, 2044; recording, for commercial a.c.-d.c., 2045
 rotating, for high voltages, 3067, 3672
 for transient peaks, 3064
 u.s.w., exploring-head, 1118
 vacuum type, for field use, 3673
 valve, 782, 786; book: Die Elektronenröhre als physikalisches Messgerät, 3339; for dielectric loss measurements, 2814; for high voltages, 2442; single-stage for d.c. and a.c., 1128; wide frequency range, 3065
- Volume control, contact-less, 2714**
Vortex sound spectra due to rotating bodies, 3616
- War.** (See also Education; Engineering; Geophysics; Science); and broadcasting, 3786; civilian radio, 1673; education, 3428; engineers, 3159; prisoners, scientific literature for, 3801; radio, 2562, post-war planning, 3162; research, 3161, 3429; scientific workers, 3793; world communications in, 2862
- Water, propagation of light in, 3508**
 refractive index of, treated with polarized dielectrics, 2202
 cooling system, for transmitting stations, 414
 diving, 1234, 3168
 vapour, in atmosphere, condensation, 2294; thermal radiation, 637, 3188
- Watherood, atmospheric-electric results, 26; ionosphere at, 14**
Wattmeters, direct-reading r.f., 1744; thermal, high-speed, 3675; thermionic: survey, 3053
- Wave analyser, extending range, 1087; for l.f. vibrations, 1267**
 — analysis, cathode-ray method of, 1249, 3686
 — equations, forces on an electron, 1554
 — filters, with predetermined performance, 1934; temperature coefficient of quartz crystal, 1631
 — form. See under Cathode-ray tubes; Sub-harmonics
 — guides. (See also Cavity resonators and under Electromagnetic theory); absorption in, 3181; book: Wave Guides, 3183; and cavity resonators, 927, 1920; e.m. waves in rectangular cross-section metal tubes, 356, 926, 1592; extension to fan-shaped tubes, 1593; hollow pipes of relatively small dimensions, 96; with liquid dielectric, 1880; metal tubes and parallel plates as, 2268, 2932, 3182; separate reception of several waves, 3563; survey, 2935
- Wavelength allocation, 282, 1820**
Wave mechanics. (See also Quantum theory); and corpuscular mechanics, 887
Wavemeters, for decimetric and centimetric waves, 176; direct-reading, 1449
- Wave motion, book: Waves: Mathematical Account of Common Types of Wave Motion, 653; damping by surface-active substance, 2961; in ideal gases with friction and heat conduction, 20; interference phenomena with moving medium, 1295; in non-homogeneous media, 156; numerical solution of $\tan x = x f(x)$, 890; reflection of longitudinal waves in liquids, 649; theory in frictionless gases and liquids, 1613, 1712**
- Wave propagation, elastic, from a point in an isotropic heterogeneous sphere, 1989**
 — electromagnetic. (See also Ionosphere; Transmission; Wave guide); angle of arrival in s.w. band, 1280
 effect of earth's curvature on ground-wave, 1596, 1598
 of monochromatic waves in dielectric media, 357
 phase velocity of s.w. over ground of finite conductivity, 1281
 of radiation in scattering and absorbing media, 936, 1279
 reflection at inhomogeneous layer, 5; from series of parallel layers, 935
 relationship between s.w. and magnetic activity, 956
 in soil, 1354
 in a space charge rotating in magnetic field, 676
 of surface waves over stratified and uneven ground, 964
 theory of least action applied to, 3496
 ultra-short-wave. (See also under Retarding field valves); height-gain factor, and phase relations, 623; and meteorology, 3489
 velocity of, 622, 945, 1885, 2271, 3495, 3803
 wave paths, 2; ranges, 952
 Zenneck rotating field, 357, 2954, 3001
 light, under water, 3508
- Wave transmission, and ionosphere, 1605**
 along lines of varying characteristic impedance, 620
 by row of equidistant similar plates, 934
 theory, 925
 of train of finite length, 935
 along two parallel wires, 619
- Waves, electromagnetic-hydrodynamic, existence in sun, 3501**
 — ultra-short. (See also Cables; Modulation)
 amplification, 1356
 applications: survey, 2935
 diffraction, 623, 3184
 generation of, 1011, 1356, 2323, 2324; by acorn valves, 3231; by c.r. tube circuit, 58; by diode-gap and velocity modulated valves, 3229; by frequency-multiplication, 1012; by ultra-audio circuit, 2327
 generators for. See under Generators
 measurements on dipoles, 435
 modulation of magnetron generator, 1939, 1970
 omnidirectional radiator for, 3578
 physiological effects of, 339, 920, 2014
 power meter for, 3048
 propagation along dielectric line, 1880
 reception, 2323; with magnetron, 1947
 resonators for, 3206
 rotation of polarisation of revolving beam, 3579
 voltage measurement in, 493, 781
- Wave-trap, mathematical study of, 54**
Weather, prediction, medium-range, 1897; and u.h.f., 3
Welding, resistance, recorder, 1273; use of oscilloscope, 793
Wilson cloud chamber, 3172
Wind instruments, brass, scale of, 2719; vibrations and acoustics of, 2718
 — power installations in U.S.S.R. and U.S.A., 2832
- Winding, automatic, of coils, 1524; coil-turns measuring equipment, 2102; of small toroidal inductances, 2101**
 — density, of circular section coil for given magnetic field, 2058
- Wire in cable joints, identification, 2836; copper, cleaning of fine, 2100; enamelled, investigations on, 846; fusing currents for copper and aluminium, 1533; h.f. properties, 2321; insulated, analysis of requirements, 2835; passive iron, activation waves along, 2207; rubber-insulated, splicing, 1531; silver as substitute for copper, 1532**
 — broadcasting, new c.r.o. for, 1187; Eckersley plan, 1547, 2146; over electric supply networks, 545, 1211; h.f. transmitter for, 3556; mutual interference in, 1956; reconstruction and development in towns, 1186; supervision, 1548; survey, 3400
- Wood, internal friction in, 757**
Work function, bismuth, 1112; electronic, of metals, 1071
- X-ray, absorption structure, as a tool in physics and chemistry, 2219**
 diagnosis, use of electron-optics to improve, 1244
 diffraction, from a curved lattice, 554
 equipment, panoramic, 1840
 intensity data, absolute and relative, 3484; measurements, 2917
 investigation of oxide cathodes, 1694
 microscope, 2218
 photographic paper, 2916
 photography, recording of screen images, 1144; showing three dimensions, 2911
 spectrograph for chemical analyses, 2914
 technique, industrial, 2913
 tubes, beryllium windows for, 2912; book: Elektronengeräte, Principien und Systematik, 800; electron radiators for, 1771; grid-controlled, 2915; industrial, 1242; and h.v. multiplication, 1841
- X-rays. (See also Quartz)**
 detection of weak, 1246
 industrial applications, 338
 new compounds fluorescent to, 521
 protection against in industry, 1241
 reflection with change of frequency, 3763; from quartz, 556
 in study of selenium allotropes, 1740; binary alloys, 876
 plastic materials, 1507, 1797
- Zenneck field inclination, theory of, 37, 357, 2954, 3001**
Zinc oxide, electrical conductivity, 1485
 — silicate, yellow fluorescent form, 2070
- Zirconium, adsorption properties of, 1696**
- Errata in "Abstracts and References" throughout the year.
- | | | |
|--------------|------|--|
| Abstract No. | 622 | Al'pert, Ya.L. should read Al'pert, Ya.A. |
| " " | 903 | Esclagon should read Esclançon. |
| " " | 2194 | Henny should read Henney. |
| " " | 3377 | Frölich should read Fröhlich. |
| " " | 3537 | Compressed-powder Coils should read Compressed-powder Cores. |



FERRIS

40-A—An Ultra-High-Frequency Standard Signal Generator of the highest grade covering the range 20-250 megacycles. Provision for infinitely variable modulation up to 100 per cent. from internal or external sources. Continuously variable output up to 1 volt.

18-C—A precision Ultra-High-Frequency Micro-volter covering the range 3-175 megacycles. Provision for internal or external modulation. Output variable up to 100,000 microvolts.

16-C—A standard Signal Generator of the highest grade covering the range 50 kilohertz to 25 megacycles. Output variable up to 2 volts. Variable modulation up to 100 per cent. from internal or external source.

22-A—A compact high-grade general purpose Signal Generator covering the range 85 kilohertz to 25 megacycles. Modulation variable up to 50 per cent. from internal or external source, with direct reading percentage modulation meter. Continuously variable output up to 1 volt.

20-A—An inexpensive Microvolter designed for production testing. Provides a choice of eighteen frequencies in the range 150-20,000 kilocycles. Internal modulation at 400 cycles. Output variable up to 100,000 microvolts.

33-A—A compact portable mains operated crystal-controlled Calibrator for frequencies up to 250 megacycles.

32-A—The first compact, portable and accurate Radio Noise and Field Strength Meter. Operates from mains or batteries. Range 150-20,000 kilocycles.

CLOUGH-BRENGLE

79-D—A Beat Frequency Audio Oscillator covering the range 5-15,000 cycles.

180-A—A Precision Beat Frequency Oscillator covering 25 to 31,000 cycles.

110-B—A Signal Generator providing up to 100,000 microvolts in the range 100 kilohertz to 32 megacycles. Directly calibrated.

199-B—A Standard Signal Generator covering the range 100 kilocycles to 32 megacycles with calibrated output attenuator providing 1 microvolt to 1 volt.

126-A—A Portable Cathode Ray Oscilloscope with 3 inch tube, having internal time base and amplifiers.

207-H—A Transmission Measuring Set.

185-B—A Multi-range Analyser of 2,000 ohms per volt, with provision for measurement of resistance, inductance and capacity.

220-B—A Multi-range Analyser of 20,000 ohms per volt, measuring up to 10,000 volts.

230—An A.C. Bridge for capacity and resistance measurements, with unique electrolytic leakage indicator.

BOONTON

160-A—The original Q-Meter for direct measurement of Q at frequencies from 1 kilohertz to 75 megacycles.

170-A—A Q-Meter with extended range providing for measurements at frequencies up to 200 megacycles.

110-A—The QX-Checker for production testing of Q and inductance or capacity simultaneously.

140-A—A precision, wide-range Beat Frequency Generator covering the range 5 cycles to 5 megacycles, with calibrated output up to 32 volts.

150-A—A Frequency Modulated Generator covering 41 megacycles to 50 megacycles (other and 1 megacycle to 10 megacycles (other ranges to order) with amplitude or frequency modulation. FM deviation up to ± 125 kilocycles.

BALLANTINE

300—A Sensitive Electronic A.C. Voltmeter covering the range 1 millivolt to 100 volts r.m.s. at frequencies between 10 and 150,000 cycles. Auxiliary scale direct calibrated in decibels.

220—A Decade Amplifier for use with Model

300—Voltmeter for accurate measurements down to 30 microvolts.

402—Two Multipliers (Models A and B) for extending the range of Model 300 Voltmeter to 1,000 and 10,000 volts respectively.

HEWLETT-PACKARD

200—A range of five resistance tuned Audio Frequency Oscillators covering, between them, 7 to 200,000 cycles.

205—An Audio Signal Generator covering the range 20 to 20,000 cycles (two models, one with complete gain set).

300—A portable Harmonic Wave Analyser, 30 to 16,000 cycles.

320—A Distortion Analyser. Two models cover 20 to 10,000 cycles.

210—A Square Wave Generator covering 20 to 10,000 cycles.

400—A Vacuum Tube Voltmeter for frequencies between 10 cycles and 1 megacycle. Range 1 millivolt to 300 volts.

The instruments listed here are a selection from our range, to which additions are constantly being made. Engineers are invited to write for full specifications.

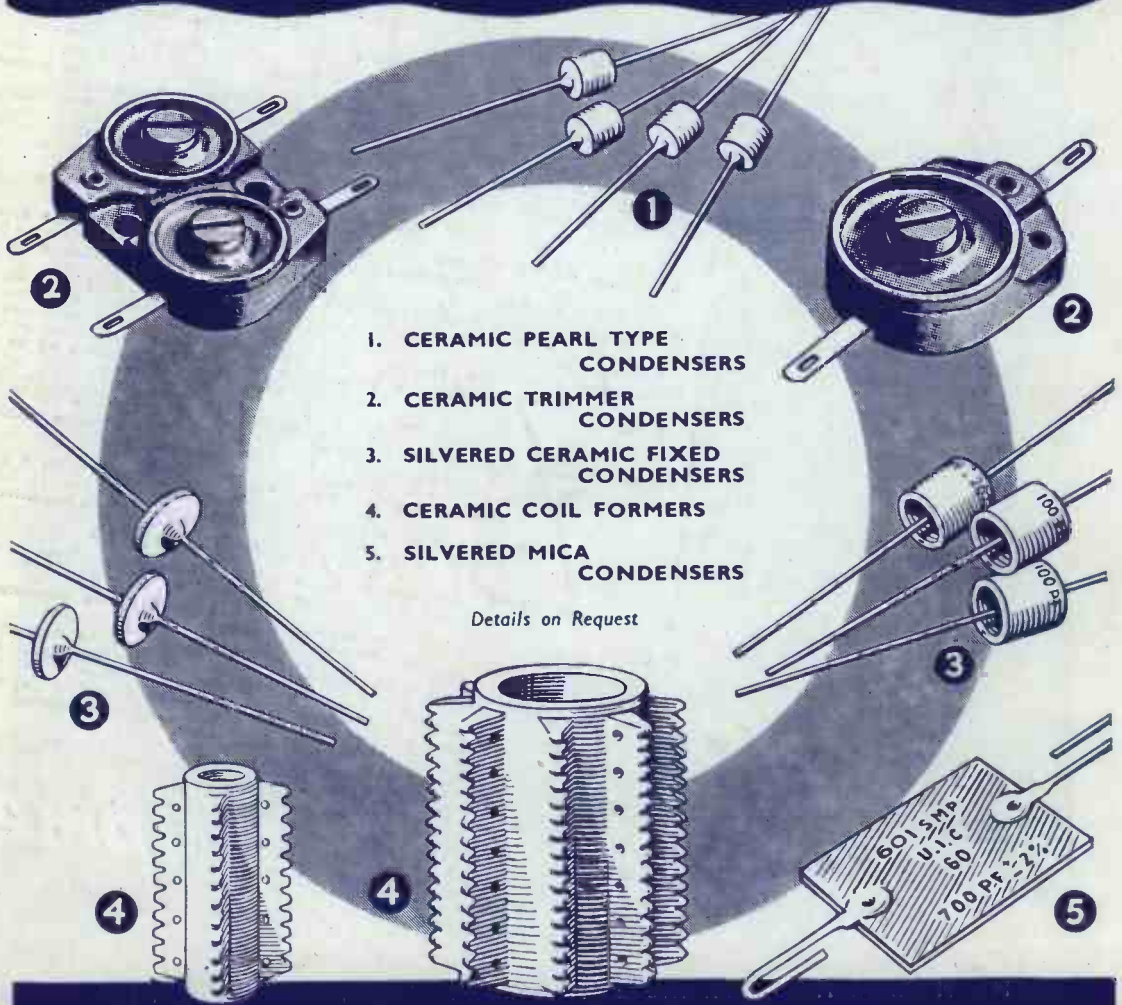
Leland

for all your Test Equipment

LELAND INSTRUMENTS, LTD., 21, John Street, Bedford Row, London, W.C.1. Tel.: CHAncery 876.

CONDENSERS & COMPONENTS

For Modern Radio Technique



1. CERAMIC PEARL TYPE CONDENSERS
2. CERAMIC TRIMMER CONDENSERS
3. SILVERED CERAMIC FIXED CONDENSERS
4. CERAMIC COIL FORMERS
5. SILVERED MICA CONDENSERS

Details on Request

UNITED INSULATOR CO LTD

The Pioneers of Low Loss Ceramics

12-20 LAYSTALL STREET
LONDON. E.C.1

Tel: TERMINUS 7383

Grams: CALANEL, SMITH, LONDON

INDEX

VOL. XIX.

Wireless Engineer

1942

	PAGE		PAGE
A BSTRACTS AND REFERENCES (see special Index published separately, priced 2s. 8d., including postage)		Components, Testing Radio, Philip R. Coursey... (Correspondence)	201, 255
ABSTRACTS AND REFERENCES, Errata for 1941	359	Condenser Aerial Coupling, Shunt, S. W. Amos	549
Aerial Coupling, Shunt Condenser, S. W. Amos	549	Condensers, The Temperature Compensation of, W. H. F. Griffiths	101, 148
Aerial Systems, Extended, E. Green	195	(Correspondence)	199, 253, 308
(Editorial)	198	Conductor-Guided Electromagnetic Waves (Editorial)	1, 93
Ageing and Humidity Tests for Radio Components, Tropical, Philip R. Coursey	96	Current Distribution Along a Straight Wire in a Uniform Field (Editorial)	495
(Correspondence)	201, 255	Current Induced in an External Circuit by Electrons Moving Between Two Plane Electrodes, Rudolf Kompfner	52
Air-Cored Inductances, Recent Improvements in, W. H. F. Griffiths	8, 36	(Correspondence)	100
Attenuation of 300 Megacycles per Second, Measurement of Cable (Editorial)	47	D .F. Loop in German Aircraft, Iron-Cored (Illustration and Short Description)	350
Audio-Frequency Transformers, Harmonic distortion in, Norman Partridge	394, 451, 503	Decimal Classification and British Standards Institution, Universal	555
B and Width in F. M. Receivers. Reduction of, D. A. Bell	497	Dipole Antennae, Radiation Energy and Earth Absorption for, A. Sommerfeld and F. Renner	351, 409, 457
Books:		Distortion in Audio-Frequency Transformers, Harmonic, Norman Partridge	394, 451, 503
Alternating Current Electrical Engineering, Philip Kemp (Review)	303	Distribution Along a Straight Wire in a Uniform Field, Current (Editorial)	495
Automatic Record Changers and Recorders, John F. Rider	209	E arth Absorption for Dipole Antennae, Radiation Energy, and, A. Sommerfeld and F. Renner	351, 409, 457
Bell System Technical Journal	400	Eddy Current Tuning, C. C. Eaglesfield	202
D/F Handbook for Wireless Operators (Review), W. E. Crook	257	Electromagnetic Waves in Rectangular Metal Tubes (Editorial)	93
Electrical Counting with Special References to Counting Alpha and Beta Particles, W. B. Lewis (Review)	515	Electronic Tubes, Transit-Time Phenomena in, Rudolf Kompfner	2
Handbook of Technical Instruction for Wireless Telegraphists, H. M. Dowsett and L. E. Q. Walker	161	Electrons Moving Between Two Plane Electrodes, Current Induced in an External Circuit by, Rudolf Kompfner	52
Introducing Radio Receiver Servicing, E. M. Squire	19	(Correspondence)	100
Introduction to Valves, F. F. Henderson	408	Equivalence of Parallel Wire and Square Mesh Grids, The, C. C. Eaglesfield	447
Modern Radio Operator's Guide, H. E. Chamberlain	554	(Editorial)	443
RCA Review	563	Extended Aerial Systems, E. Green	195
Radio Navigation, W. J. D. Allan	63	(Editorial)	193
Radio Troubleshooter's Handbook, Alfred A. Ghirardi	161	External Circuit by Electrons Moving Between Two Plane Electrodes, Current Induced in an, Rudolf Kompfner	52
Reference Data for Radio Engineers, Standard Telephones and Cables Ltd.	462	(Correspondence)	100
Short-Wave Radio, J. H. Reyner (Review)	302	F .M. Modulated Signals, Response of Reactive Networks to, J. D. Weston	251
Short-Wave Wireless Communication, A. E. Ladner and C. R. Stoner (Review)	407	F. M. Receivers, Reduction of Band Width in, D. A. Bell	497
Teach Yourself Radio Communication, E. M. Reid	554	Field, Current Distribution Along a Straight Wire in a Uniform (Editorial)	495
The Behaviour of Slow Electrons in Gases, R. H. Healey and J. W. Reed (Review)	302	Field Oscillator, The Retarding, Wm. Alexander	143
The Cathode Ray Tube and its Applications, G. Parr (Review)	256	Frequency-Modulated Receivers, Reduction of Band Width in, D. A. Bell	497
Thermionic Valve Circuits, Emrys Williams (Review)	256	Frequency-Modulated Signals, Response of Reactive Networks to, J. D. Weston	251
Thermionic Valves in Modern Radio Receivers, A. T. Witts	63	Frequency Spectrum, The (Editorial)	194
The Story of Electromagnetism, Sir William Bragg	63	(Correspondence)	200, 309, 360
Wave Guides, H. R. L. Lamont (Review)	514	G erman Aircraft, Iron-Cored D.F. Loop in (Illustration and Short Description)	350
Wireless Terms Explained, "Decibel"	554	Grids, Velocity Modulating, Rudolf Kompfner	158
British Institution of Radio Engineers...	111, 147, 201, 408	Harmonic Distortion in Audio-Frequency Transformers, Norman Partridge	394, 451, 503
British Standards Institution	19	Henry, Joseph (Editorial)	547
British Standards Institution and Universal Decimal Classification	555	High-Frequency Apparatus: Relaxation of Control Order	400
British Standards Specifications: No. 219 "Composition of Soft Solders" (Revision)	303	Honours List: Butterworth, S., Browne, R. P., Chapman, Brigadier F. T., Darwin, C. G., Ogilvie, F. W., Watson Watt, R. A.	289
No. 271-1941 "Rating, Dimensions and Colour Coding of Condensers"	19	Humidity and Ageing Tests for Radio Components, Tropical, Philip R. Coursey	96
No. 441 "Grade of Solders Used in Cored Solders" Amended by War Emergency Revision Slip No. P.D. 21 Specifying the Necessity to Conform with War Emergency British Standards Specification No. 219	465	(Correspondence)	201, 255
Broadcasting, Post-War: Wire or Wireless? (Editorial)	1	I nductances, Recent Improvements in Air-Cored, W. H. F. Griffiths	8, 56
C able Attenuation at 300 Megacycles per second, Measurement of (Editorial)	47	I NDUSTRY, THE:—	
Cathode Follower, Signal/Noise Ratio of the (Correspondence)	360, 450	British Insulated Cables Ltd.:	
Cathode-Ray Oscillograph, Tracing Valve Characteristics with the, Geoffrey Bocking	556	Leaflet Dealing with Flux Solder	51
Charts, Superheterodyne Tracking,		Leaflet Dealing with Oil-Resisting Insulating Materials	100
A. L. Green, I	243	Leaflet Dealing with Special "BI-Glass" Insulated Wire	359
Ruby Payne-Scott and A. L. Green, II	280	British Radio Valve Manufacturers' Association	346
(Editorial)	141	G.E.C.:	
C lass C Telegraphy: The Graphical Determination of Optimum Operating Conditions for Transmitting Valves, D. G. Prinz and R. G. Mitchell	401	Dr. C. C. Paterson appointed a Director	400
Co-Axial Cable Attenuation at 300 Megacycles per second, Measurement of (Editorial)	47		
Colour Television, Stereoscopic (Illustration)	55		

	PAGE		PAGE
Industry, The— <i>continued.</i>		Signal/Noise Ratio of the Cathode Follower (<i>Correspondence</i>)...	360, 450
Hammans Industries Ltd.:		Spectrum, The Frequency (<i>Editorial</i>)	194
Details of Insulated Sleeving	51	(<i>Correspondence</i>)	200, 309, 360
Engineering Bulletin No. H101 Comparing Non-Ferrous		Square Mesh Grids, Calculating the Amplification Factor of	
and Laminated Material for Certain Purposes	51	Triodes with, C. C. Eaglesfield	447
Leaflet Dealing with Engraved Dials and Nameplates ...	51	(<i>Editorial</i>)	443
Leaflet Dealing with "Hamofil" Heat-Resisting Rubber		Standards and Standardisation (<i>Editorial</i>)	339
Insulation	100	Stereoscopic Colour Television (<i>Illustration</i>)	55
Londex Ltd.:		Superheterodyne Receiver Tracking:	
Pamphlet Dealing with Synchronous Time Delay Relay...	157	A. L. Green, I	243
Muirhead and Co., Ltd.:		Ruby Payne-Scott and A. L. Green, II	290
Pamphlet Dealing with Instrument Dials and Control-		(<i>Editorial</i>)	141
Knobs	157	Telegraphy, The Graphical Determination of Optimum	
Multicore Solders Ltd.:		Operating Conditions for Valves in Class C, D. G. Prinz	
Reference Sheet No. 2 Dealing with Lead-Rich Solders...	408	and R. G. Mitchell	401
Runbaken Electrical Products Ltd.:		Television, Stereoscopic Colour (<i>Illustration</i>)	55
Particulars of Twelve-Volt Soldering Iron	359	Temperature Compensation of Condensers, The, W. H. F.	
Standard Telephones and Cables Ltd.:		Griffiths	101, 148
Pamphlet Dealing with Type E.S.L. Long and Short		(<i>Correspondence</i>)	199, 253, 308
Wave Transmitter... ..	359	Testing Radio Components, Philip R. Coursey... ..	96
Taylor Electrical Instruments Ltd.:		(<i>Correspondence</i>)	201, 255
Revised Price-List	100	Tracing Valve Characteristics with the C.R. Oscillograph,	
Telegraph Construction and Maintenance Co., Ltd.:		Geoffrey Bocking	556
Particulars of "Telcon" Metal Alloys	359	Tracking Charts, Superheterodyne, A. L. Green, I	243
Institute of Physics	55, 361	Ruby Payne-Scott and A. L. Green, II	290
Institution of Electrical Engineers:		(<i>Editorial</i>)	141
Wireless Section Chairman's Inaugural Address	515	Tracking Circuits, Notes on, A. Bloch	508
Other I.E.E. News 111, 147, 201, 257, 359, 408, 465, 514,	516, 563	Transformed Networks, H. J. Griese	463
Insulation Resistance Meter, An, T. J. Rehfish	49	Transformers, Harmonic Distortion in Audio-Frequency,	
Iron-Cored D.F. Loop in German Aircraft (<i>Illustration and</i>		Norman Partridge	394, 451, 503
<i>Short Description</i>)	350	Transit-Time Phenomena in Electronic Tubes, Rudolf	
Joseph Henry (<i>Editorial</i>)	547	Kompfner	2
Magnetic Fallacies, More (<i>Editorial</i>)	239	Transmitting Valves in Class C Telegraphy, The Graphical	
Magnets, Permanent (<i>Editorial</i>)	287	Determination of Optimum Operating Conditions for,	
Measurement of Cable Attenuation at 300 Megacycles per		D. G. Prinz and R. G. Mitchell	401
Second (<i>Editorial</i>)	47	Triodes with Square Mesh Grids, Calculating the Amplification	
Medical Apparatus, High-Frequency: Relaxation of Control		Factor of, C. C. Eaglesfield	447
Order	400	(<i>Editorial</i>)	443
Metal Tubes, Electromagnetic Waves in Rectangular		Tropical Climate and Telecommunication Technique	304
(<i>Editorial</i>)	93	Tropical Humidity Tests for Radio Components, Philip R.	
Meter, An Insulation Resistance, T. J. Rehfish	49	Coursey	96
Negative and Positive Resistance, D. Martineau Tombs ...	341	(<i>Correspondence</i>)	201, 255
Networks, Transformed, H. J. Griese	463	Tuning, Eddy Current, C. C. Eaglesfield	202
Notes on Tracking Circuits, A. Bloch	508	Uniform Field, Current Distribution Along a Straight Wire	
Obligatory Notices:		in a (<i>Editorial</i>)	495
Bragg, Sir William	142	Universal Decimal Classification and British Standards	
Browne, C. O.	289	Institution	555
Shaughnessy, E. H.	303	Valve Characteristics with the C.R. Oscillograph, Tracing,	
Turner, P. K.	201	Geoffrey Bocking	556
Oscillograph, Tracing Valve Characteristics with the C.R.,		Valves in Class C Telegraphy, The Graphical Determination	
Geoffrey Bocking	556	of Optimum Operating Conditions for Transmitting,	
Omegance, Pulsatance, Rotatance or Velocitance? (<i>Editorial</i>)		D. G. Prinz and R. G. Mitchell	401
(<i>Correspondence</i>)	309, 361, 514	Valve Voltmeter Relay, A Sensitive, S. S. Orlov and A. A.	
Oscillator, The Retarding Field, Wm. Alexander	143	Pirogov	347
Permanent Magnets (<i>Editorial</i>)	287	Velocitance, Pulsatance or Rotatance? (<i>Editorial</i>)	242
Plane Electrodes, Current Induced in an External Circuit by		(<i>Correspondence</i>)	309, 361, 514
Electrons Moving Between two Plane Electrodes, Rudolf		Velocity Modulating Grids, Rudolf Kompfner	158
Kompfner	52	War Office Signals Office (<i>Illustration</i>)	555
(<i>Correspondence</i>)	100	Wired Wireless (<i>Editorial</i>)	1, 93
Polar Diagram of a Simple Broadside Array, The, E. Green ...	195	Wire or Wireless? Post-War Broadcasting (<i>Editorial</i>)	1
(<i>Editorial</i>)	193		
Post-War Broadcasting: Wire or Wireless? (<i>Editorial</i>)	1		
Pulsatance, Rotatance or Velocitance? (<i>Editorial</i>)	242		
(<i>Correspondence</i>)	309, 361, 514		
Radiation Energy and Earth Absorption for Dipole Antennae,			
A. Sommerfeld and F. Renner	351, 409, 457		
Reactive Networks to Frequency-Modulated Signals,			
Response of, J. D. Weston	251		
Recent Improvements in Air-Cored Inductances, W. H. F.			
Griffiths	8, 56		
Rectangular Metal Tubes, Electromagnetic Waves in			
(<i>Editorial</i>)	93		
Reduction of Band Width in F. M. Receivers, D. A. Bell			
Relay, A Sensitive Valve Voltmeter, S. S. Orlov and A. A.			
Pirogov	347		
Research and Research Workers (<i>Editorial</i>)	391		
Resistance Meter, An Insulation, T. J. Rehfish	49		
Resistance, Neagive and Positive, D. Martineau Tombs ...	341		
Response of Reactive Networks to Frequency-Modulated			
Signals, J. D. Weston	251		
Retarding Field Oscillator, The, Wm. Alexander	143		
Rotatance, Velocitance or Pulsatance? (<i>Editorial</i>)	242		
(<i>Correspondence</i>)	309, 361, 514		
Royal Society of Arts: Prize Offered for Invention	346		
Sensitive Valve Voltmeter Relay, A, S. S. Orlov and A. A.			
Pirogov	347		
Shunt Condenser Aerial Coupling, S. W. Amos	549		

INDEX TO AUTHORS

ALEXANDER, WM....	143
AMOS, S. W.	549
BELL, D. A.	497
BLOCH, A.	508
BOCKING, GEOFFREY	556
COURSEY, PHILIP R.	96
EAGLESFIELD, C. C.	202, 447
GREEN, A. L.	243
GREEN, A. L., and PAYNE-SCOTT, RUBY	290
GREEN, E.	195
GRIESE, H. J.	463
GRIFFITHS, W. H. F.	8, 56, 101, 148
KOMPFFNER, RUDOLF	2, 52, 158
MITCHELL, R. G. and PRINZ, D. G.	401
ORLOV, S.S., and PIROGOV, A. A.	347
PARTRIDGE, NORMAN	394, 451, 503
PAYNE-SCOTT, RUBY, and GREEN, A. L.	290
PIROGOV, A. A., and ORLOV, S. S.	347
PRINZ, D. G., and MITCHELL, R. G.	401
REHFSCH, T. J.	49
RENNER, F., and SOMMERFELD, A.	351, 409, 457
SOMMERFELD, A., and RENNER, F.	351, 409, 457
TOMBS, D. MARTINEAU	341
WESTON, J. D.	251