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FIELD STRENGTH ATLAS FOR MEDIUM AND LONG WAVES

A Field Strength Atlas by Doctor Ernst Prokott which contains field strength curves for a wave band from 100 to 20,000 meters, has been submitted to us for review.

Papers written by A. Sommerfeld and B. van der Pol and H. Bremmer were the basis for plotting the curves. Their numerical evaluations have been published for propagation on land with the dielectric constant $\epsilon = 4$ for a ground conductivity of $\sigma = 10^{-13}$ e.m.u. In the present atlas these computations are used and the field strength curves for the ground conductivities between $\sigma = 10^{-14}$ to 10^{-13} generally existing in Central Europe are included.

The curves were plotted for 11 distinct σ and 13 wave lengths up to distances of 1,000 kilometers for constant $\epsilon = 4$ so that it will be possible to find the field strength for each wavelength and each σ within the above mentioned range; if they cannot be found directly, they can be found by interpolation. For the sake of clarity two sheets were drawn for each σ , one for short distances up to 500 kilometers, the other for distances up to 1,600 kilometers.

The computations of the curves within a range of about 100 to 200 kilometers from the transmitter were carried out in accordance with Sommerfeld's formula similar to the method which van der Pol applied for numerical computations. For distances larger than that the curves are evaluated by means of series developments as shown by van der Pol and Bremmer. The curves plotted in the atlas in a way constitute the graphic result of the interpolation of these two methods which are valid in their specific applications.

This valuable graphic information can be used in various fields such as planning, investigation of transmitting conditions, etc. and is handy to the user.

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REPORT ON THE HAGUE CONFERENCE ON RADIO TELEPHONE
SERVICE FOR RHINE NAVIGATION

By invitation of the Dutch Postal and Telegraph Administration an international conference to discuss the establishment of a radio telephone service for Rhine navigation took place at the Hague from 29 March to 1 April 1949. This meeting which may be considered a short meeting when compared to the big international conferences e.g. of the World News Association or of the CCI merits specific mention here for two reasons: In the first place it marked the beginning of the establishment of a new mobile radio service in Europe, and secondly, it was the first time since the end of the war that representatives of the German Postal Administration could participate and cooperate in an international conference.

The telecommunication agencies of the countries interested in Rhine navigation, namely Belgium, France, the Netherlands, Switzerland and the Western Zones, as well as the Central Commission for Rhine Navigation were represented. The German Postal Administration of the Combined Economic Area was represented by two delegates of the chief administration headed by the Bipartite Control Office.

The establishment of radio service to vessels traveling on the Rhine river by means of shore transmitters, similar to the Maritime Radio Service by means of coastal stations had already been considered before the Second World War. Preliminary tests with promising results were made at an early date. It was, however, not until 1948 that the German Postal Administration carried out systematic experiments, at first in the mountain ranges along the Rhine because this stretch of land was to be considered of decisive importance especially for the selection of frequencies to be used.

The experiments of which a report has been published elsewhere (Footnote: Cf. Kronjaeger and Mohr in FTZ, report in preparation) are based on the experience gathered by the German Postal Administration in the radiophone service for icebreakers on the Elbe river. This service was established by the German Postal Administration as early as 1946 and operates over a wave range from 1500 - 3800 kilocycles. The Dutch and Swiss Postal Administrations carried out experiments on the Rhine, too; their aim, unlike ours, was to maintain permanent radio communication with their respective ships over the entire length of the Rhine from their home ports.

The test results were to be exchanged among the participating countries and this was in fact initiated. However, the establishment of the contemplated service was encouraged in a more effective and quicker way by the initiative of the Dutch Administration which sent out invitations for this conference where all technical and operational problems of the Rhine Radiophone Service were to be discussed.

The conference was opened on 29 March 1952 by the head of the Dutch Postal and Telegraph Administration and was presided by Director Supervisor, v.d. Toorn, the chief of the Division for Telecommunication. Procedural questions (agenda, languages) were disposed of quickly. The following four items were put on the agenda: (1) Method of operation; (2) Frequencies; (3) Rates; and (4) Organization.

1. Method of Operation

After discussing the two possible methods of operation for which the above mentioned experiments aimed, the following was considered

feasible: Shore radio stations along the Rhine river are to be set up. The vessel equipped with a transmitter and receiver keeps contact with that shore station in whose region it happens to be located. The shore station which, as the case may be, is connected to other local receiving centers makes the connection to the desired party via public telephone system. The entire connection thus consists of a two-way radio communication between the vessel and the shore station and a regular telephone connection between the shore station and the telephone subscriber in the same or in a foreign country. Both the vessel and the telephone subscriber can place the calls. Furthermore, a telegram service is being contemplated with the shore station acting as the telegraph service center for the vessels located within its radius of operation. Telegrams to the vessel are sent to the shore station on land in the ordinary way (though specially marked); from there they are radiophoned to the vessel by means of the two-way radiophone system. Telegrams from the vessel are phoned to the shore station from where they are relayed as telegrams in the ordinary way.

Seven shore stations are contemplated. Their exact location is to be established in consideration of the propagation of the wavelengths to be used and with a view to best accessibility to the public telephone system. One shore station will probably be set up in Switzerland, one in France; three in the Western Zones, one in Belgium and one in Holland.

The radiophone service will be operative only in the daytime and is not available to vessels moored in a port (Footnote: Negotiations on this subject are still pending). Radio communication

between the vessels themselves is permissible only by way of the shore station. Moreover, contact should be made only through that station in whose region the vessel is located.

2. Frequencies

The planned service will be termed Mobile Shore Radio Service in accordance with the General Radio Regulations established in Atlantic City in 1947. There was, however, a consensus of opinion that frequencies within the band allocated to the general Mobile Radio Service should also be used, especially frequencies below 3000 kilocycle if possible. The individual administrations are to investigate the use of the band width from 1900 to 2000 kilocycles in consideration of the frequency of 1950 kilocycles used for the Loran system.

The advantage of the selection of these frequency bands is the fact that the total number of necessary frequencies (only day waves) can be kept to a minimum by allocating the same frequencies to several shore stations in faraway districts; furthermore, the propagation of these waves is well known and has been investigated especially along the a mountain range of the Rhine river, and it appears that the operating equipment can be obtained easily.

The total number of frequencies was established at 12 working frequencies and 2 call frequencies. The calling frequency from vessel to shore and the calling frequency from shore to vessel is the same for all shore station districts. A special working frequency vessel-shore, and a special shore-vessel working frequency is assigned to each shore station district, the frequencies for the 7th and the 1st district being the same.

The transmission power of the shore station shall not exceed 200 Watts while the vessel station should be no more than 50 Watts. According to tests made by the German Postal Administration these values represent optimum peak values. The receiving field strengths should be at least 20 μ V if at all possible with a signal-to-noise ratio of 15 db.

In order to work out all problems regarding frequency allocation and all related technical aspects a technical subcommittee was formed in which all countries and districts were represented.

3. Rates

For calls and telegrams the rate is computed by combining

- (a) the normal telephone or telegram rate between the shore station and domestic or foreign subscribers, and
- (b) a communication fee to be established by each administration not in excess of 3gr.

A special shipboard fee, as is customary in marine radio communications, was not considered, since the traffic at this time is almost exclusively among shipping agencies.

For calls and telegrams between ships which can be relayed through one shore station only the radio fee is charged; if two shore stations are involved, a double radio fee and the phone and telegram rate between the two shore stations are charged.

In international traffic the clearing among the administrations is handled in the customary way.

4. Organization

The organization of this service will probably be different in the individual countries. The shore stations are ordinarily operated and administered by the postal authorities. The shipboard stations, on the other hand, depending on their country of origin are operated either by the owner, the postal authorities or as the property of a service operator.

An important aspect in choosing the form of organization which is peculiar to this kind of service is the fact that ships passing along the entire length of the Rhine are in a foreign country most of the time. Hence the shipboard station is beyond the reach of its own service personnel and administration and depends on foreign aid in case of emergency.

It is for this reason that a specific regulation provides for mutual compensation for servicing and international clearing whenever a shipboard station is serviced by a foreign administration.

It remains to be discussed whether and to what extent shipboard station repairs should and can be made in order to avoid delay, how the service crew is to be called, etc.

In order to work out suggestions made at the conference for establishing a Rhine Communication Service, a committee was elected in which representatives of all participating countries and radio districts were represented. These "suggestions" submitted by the committee to the conference were discussed on the last day of the conference and will be sent by the Dutch Postal and Telegraph Administration to the participating countries and districts. A first

draft was signed by the representatives of the countries and districts at the end of the meeting. The Dutch administration will be in charge of the paperwork in the international exchange of communications in preparation of the Rhine Radio Service; it will receive comments by the administrations on the decisions of the Hague conference and will convey them to the other administrations.

Owing to the satisfactory organization and the experienced guidance of the Dutch Administration, this first Rhine Radio Conference which was conducted in a spirit of commendable objectivity, could be closed successfully after the four days set as a time limit. A dinner given by the Dutch Administration on the occasion of the conference provided an opportunity for the participants to become acquainted with each other in private conversations.

In the meantime the experiments by the German Postal Authority had been brought to a conclusion so that the service could be demonstrated to the press and the shipping line on 4 May 1949 on a test ride, and to the participating countries and districts on 17 May 1949.

NEW PATENT LAW

The legislation of the Economic Council on patent rights in industry (patent law, working model laws, and trade-mark laws) initiated by the law for the establishment of Reception Bureaus for Patent, ~~Working Model~~ ^{Registered Designs} and Trade-Mark ~~Registrations~~ ^{Applications} dated 5 July 1948 (WIGEL. Page 65), or briefly by the "Annahmenstellengesetz" ⁽¹⁾ [Law for the Establishment of Reception Bureaus], as well as by the Law for the Protection of Inventions, ~~Patents~~ ^{Registered Designs} and Trade-Marks in Exhibitions dated 8 July 1949 (WIGEL. Page 13), has been brought to a temporary conclusion by the First and Second Law Modifications of Patent Rights in Industry and Provisional Regulations dated 8 July 1949 and 2 July 1949 respectively. ⁽²⁾

(1) Cf. Nahrung: Patent Reception Bureaus in the Combined Economic Area. PTZ 48, Page 137.

In the Russian zone an order dated 5 July 1948 has meanwhile been issued by the German Economic Commission on the Establishment of a Bureau of Reception for Patents, ~~Working Models~~ ^{Registered Designs} and Trade-Marks within the Patent Office (Official Gazette of the DMK [German Economic Commission] 1948 No 47, Page 491); however a reciprocity, as provided in Article 5 of the law of 5 July 1948, is not granted. In the French Zone and in Greater Berlin the Order on the Establishment of Reception Bureaus has not been carried out due to the opposition of the Military Government (Patent applications with the Berlin Bureau of Reception are effective only for the Combined Economic Area). This state of affairs necessitates separate filing for a priority of an invention for the Combined Economic Area and for the Russian Zone, while for the French Zone and Greater Berlin there is no guarantee of invention priority at this time.

(2) The Law for the Establishment of a German Patent Office which was passed by the Economic Council on 17 December 1949, has been recently approved by the Military Government, but had not been promulgated when this article was published.

While the Law on the Establishment of Reception Bureaus was limited to making it possible for the inventor to apply for a patent and thus secure his priority, the first provisional law goes one step further by laying down the conditions -- in part deviation from the existing regulations -- necessary for the granting of new rights and the continued protection of rights already granted. (The second Provisional Law deals exclusively with the rights of patent attorneys. Whenever reference is made to the Provisional Law in the following, the First Provisional Law will be meant.)

As the name implies, the First Provisional Law does not basically amend the existing laws, such as the Patent Law, ^{Revised} ~~Working~~ ^{Design} ~~Model~~ and Trade-Mark Laws, all dated 5 May 1938. Its scope is limited to the elimination of certain regulations of military or national-socialist nature. Another object of this law is to make preparations for a general review of "early" rights i.e. applications filed and patents granted prior to 8 May 1945; furthermore, the law provides for a speedy survey and examination of all back applications and their priority rights, as the Patent Office was closed for more than four years. The Provisional Law has no effect on the protection of artistic designs (which from a legal point of view is part of the copyright), dated 11 January 1876, and on the patent rights of an employed person as stated in the regulations on the treatment of inventions made by employees, dated 12 December 1942, and in the executive order dated 30 March 1943 [References illegible].

There was no objection against retaining the protective laws of 1913 since their essential parts were drafted in 1913, and therefore no Nazi infiltration was possible. Article 7, Section 2 of the German Patent Law which was added in 1936 and which granted the German Government and the Reich Boards of Transportations more advantageous priority rights was dropped. (A stop-gap regulation in lieu of the dropped Article 7 is found in Article 5 of the provisional law according to which the supplemented priority remains valid for applications made before 1 January 1950 and for the respective patents granted.)

The change in the regulations on the granting of compulsory licenses may be of general interest (Article 15, Patent Law). Henceforth the commencement of action will no longer depend on a statement of the Government to the effect that it would be permissible in order to safeguard the interests of the nation. This statement which was binding for the annulment division, was eliminated because such a limitation of judicial powers is considered irreconcilable with the concept of constitutional government. Finally the revision of Article 8 of the Patent Law may be mentioned in this connection. This paragraph states that a patent right is ineffective if the Economic Council of the Combined Economic Area rules that the invention is to be used in the interest of public welfare. In this case, the patentee, however, is entitled to an adequate compensation. This is as far as the essential amendments of the Patent Laws go.

As far as the early Patent Laws are concerned, i.e. the patents, trade-marks, and ^{registered designs} ~~working models~~, granted by the Reichspatentamt (Reich Patent Office) prior to 8 May 1945, and which

are still effective, it will be necessary to renew them before 30 June 1950 with the future Patent Office in order to prevent their expiration. For patents so renewed the annual fees that were due after 30 June 1948 and those becoming due are two thirds [illegible] of the rates established in the law on patent fees dated 5 May 1936 (Reichsgesetzblatt [Official Gazette] II, page 142).

Special provisions have been made for those patent rights which were extended for an indefinite time because of the fact that they were not utilized during the war, this extension being in accordance with a decree issued on 10 January 1942 on extraordinary regulations in patent and working model rights (Reichsgesetzblatt II, page 81 [?]). On the basis of these regulations numerous patents are being protected far in excess of the maximum period of protection of 18 years. In order to eliminate the resulting retardation in industrial development, the provisional law as of 31 December 1949 terminates the validity of protective rights that have been in effect for more than 18 years and revokes the decree dated 10 January 1942. Early applications for protection, i.e. applications for patents and trade-marks which were filed with the Reich Patent Office prior to 8 May 1945 but which had not been disposed of, will be processed provided an application for their continuance is made before 30 June 1950. The application fee must be accompanied by a new registration fee. Early applications for working models are no longer processed. The reason for this is the fact that the Working Model Division of the former RPA (Reichspatentamt -- Reich Patent Office) was almost completely destroyed during the war and, therefore no records of these applications are available.

Articles 2, 8, and 10 of the provisional law provide for the continued processing of applications for patents, trade-marks, and working models filed in Darmstadt and Berlin in accordance with the Annahmestellengesetz (Law on the Establishment of Reception Bureaus). The registration fee is to be paid within a period of three months after the Patent Office has been opened. Credit will be given for fees already paid to the bureau of reception. Article 3 of the provisional law constitutes a radical change compared to the 1936 Patent Law.

Until further notice a new simplified method of examination is in effect according to which the announcement of the granting of a patent (Article 30 of the Patent Law) is made without verifying its novelty or priority rights, in contrast to Articles 2 and 4 of the Patent Law. This examination may be made during protest proceedings. The time for filing a protest has been extended to four months (formerly three months). An examination of the novelty of a patent or priority rights thus depends solely on the fact whether or not a protest is filed. If no protest is filed within four months, the patent is granted; however, the examiner may at any time during patent proceedings, bring printed material to the applicant's notice which might be detrimental to his novelty claim. However, without a protest, the Patent Office is not in a position to reject the application on the strength of such material.

The reason for this regulation which is so contrary to the proven method of novelty checking is that even before 1 March 1949 about 40,000 patent applications were filed in Darmstadt and Berlin in addition to an estimated number of 180,000 earlier applications which could not be processed any more by the RPA (Reich Patent Office).

Although a considerable portion of the last mentioned applications will not be retained, the number of applications to be processed by the new Patent Office is so large that the justified demand for announcement of pending patents at the earliest possible moment can only be satisfied by dropping the official time-consuming novelty examination for this period of transition.

The regulations of the Provisional Law on the rights of the original inventor during the period of transition, i.e. at the time when there was no possibility of making an application, are particularly complicated.

Article 4 of the Provisional Law contains exceptions from the principles of the patent law; Section 1 of Article 4 deals with actions detrimental to the novelty claim during the time of transition, similar to Article 3, Section 2 of the Annahmestellengesetz (Law on the Establishment of Reception Bureaus) and Article 2, Section 2 of the Patent Law. Article 4, Section 2 determines the priority status contrary to Article 3, page 3 of the Patent Law.

As to the question of actions detrimental to the novelty claim, Article 4, Section 1 establishes the rule that there is no objection against granting of patents for inventions completed in this country before 1 October 1948 (when the application divisions in Darmstadt and Berlin were opened) and published so that their use by other experts appears possible, if afterwards it is obvious that the invention has been used.

On the question of priority, the Provisional Law takes into account the following considerations:

Article 3, Section 3 of the Patent Law says that if several persons have made the same invention independently of each other, the patent right is granted to whoever filed the application first. This rule cancels this principle of patent filing for a limited period of transition. It had to cancel it, because for many years -- up to 1 October 1948 -- there was no possibility of filing an application, and the adherence to this principle would have impaired the rights of the original inventor seriously. Applications are replaced by "other forms of filing" which, however, are not explained in detail. From the explanations it is clear that in order to claim priority in the transition period for inventions completed between 1 July 1944 and 1 October 1948 the filing of the invention in written form or as a drawing or as a model should be decisive so that its use by other experts appears possible. (For official explanation see page 41).

Either case, similar to the relinquishment of novelty examination, is temporary and even limited in time by the law, since it is the express intention of the legislation that the exception of Article 4 of the Provisional Law does not apply to all those applications which are filed one month after the opening of the Patent Office even if inventions are involved which were completed between 1 July 1944 and 1 October 1948. Starting one month after the opening of the Patent Office every applicant can be sure that only applications filed prior to his application may interfere with his patent. Furthermore, inventions which were filed with the Reich Patent Office prior to 8 May 1948 are not affected by the provisional regulations. These inventions enjoy the priority established by the date of application. The official explanations to Article 4 of the

Provisional Law rightfully state that "these regulations cannot guarantee a fair treatment of all cases and the Patent Office faces a difficult and tremendous problem in enforcing them".

The significance of the Provisional Law consists in that a uniform legislation for industrial patent laws is established -- at least for the Combined Economic Area -- and that "tools have been provided for the German Patent Office to resume its work for the benefit of German economic life and the German people" (Quoting Doctor Strauss in a speech before the Economic Council on 4 May 1949 (Blatt fur Patent Muster und Zeichenwesen, 1949, page 145.)).

DIPL. ING. HANS SCHUBERTH (DIPL. ING. EQUIVALENT TO GRADUATE ENGINEER)
FEDERAL MINISTER FOR POSTAL AFFAIRS AND TELECOMMUNICATION

Hans Schubert was born in Schwabach near Nurnberg on 5 April 1897. In 1914 he left school for war duty and was severely wounded in 1915. In 1916 he went to Munich Technical College where he graduated in 1920. After several years of professional experience he joined the German Reichspost as a candidate for an advanced position in the division of telecommunication. He took part in the customary training course and in 1931 passed the comprehensive state examination for the position as a Postassessor [Assistant Secretary]. In 1931 he accepted a teaching position in high frequency engineering at the State Technical College (Staatstechnikum) in Karlsruhe where he had been transferred.

With a safe political instinct and a clear outlook on life he thoroughly saw through National Socialism. Since he expressed his opinion openly he became known as an opponent. Only his severe injuries from the First World War -- the visible mark of the loss of his left leg -- saved him from serious consequences. In 1945 he was appointed president of the Regensburg Main Post Administration and on 1 January 1947, he became Bavarian State Secretary of the Postal and Communication Administration. This marked the beginning of his activities in big politics. In August 1947, the Economic Council elected him president of the Chief Administration of Postal Affairs and Communication of the Combined Economic Area. The Chief Administration had been in existence for but a few months. A tremendous job had to be done. Starting from scratch without having grown organically, without a filing system and but scanty records this highest executive Reich agency with a staff of over

200,000 had to do a job. With the utmost of energy and forcefulness and with a commendable cooperation, Schuberth got to work and succeeded in dragging along his colleagues. Prewar conditions have been gradually reestablished, except where there is a lack of technical equipment. The success of his efforts may have been one of the reasons why Schuberth has now become a minister.

The postal staff is well satisfied to see a man from their own ranks at the top, and they know that their minister with his sense of social responsibility will stand behind them. We, in the communication field, are happy to see a colleague in such an important place.

In the midst of a distressed nation the cabinet faces immensely difficult problems and will have a very troublesome time. Our congratulations to Hans Schuberth, for his appointment at the same time we wish to express our hope and desire for a successful and propitious administration.

DIPL. ING. KARL HERZ, PRESIDENT OF THE VDE

Karl Herz, born on 28 November 1898, attended college in Darmstadt after he had been a soldier in the First World War. In August 1922 he graduated after taking the Diplom Hauptprüfung [Examination toward the engineering diploma]. After having been employed in industry for a considerable length of time he joined the German Reich Post, passed the comprehensive state examination upon completion of the specified training course, and was appointed Postrat [Postal Counselor] on 1 January 1931. He soon became known in the postal administration and related industry for his broad technical knowledge, for his ability to organize and his talent for completing a job efficiently and with a definite aim in mind. When in 1931 the Urugayan government asked the German Reich Postal Ministry for the services of an expert from among German postal officials in order to modernize their communication system, Karl Herz was offered this job as a consulting engineer. For about 4 years, from 1931-1934, Herz held this position. His work was greatly appreciated and high tribute was paid him. Once again he was entrusted with a special mission. One of the two directors of the Deutsche Fernkabelgesellschaft [DFKG - German Trunk Cable Company] was to be appointed by the Reich Postal Administration. In March 1936 Herz was entrusted with the task of enlarging the trunk cable system; however, shortly after the outbreak of the Second World War he was made a secretary [Ministerialrat] in the Postal Ministry, and in 1942 to 1943 he was at the same time in charge of the Reichspostoberdirection [Chief Reich Postal Administration] (EZRPO) for the British zone. After the unification of the two zones he remained

chief engineer for telecommunication upon decision of the then
Postal Administration Council. At present he is in charge of the
Fernmeldetechnisches Zentralamt [Central Office for Tele^{communications} En-
gineering]. We wish Karl Herz the best of luck for the honorable
post, and we congratulate the VDE for their choice of a man of his
personality as their head.

BOOK AND MAGAZINE REVIEWS

Radio Repair Manual. Werner W. Diefenbach. 1949: 8-10,000. 507 pages, Dictionary size with 618 illustrations, mostly circuit diagrams. In half-linen and protective wrapper: DM 48.00 Franck'sche Verlagsbuchhandlung, Stuttgart.

The publisher is the chief editor of the "Funkschau" [Radio Review] who has been well known in the trade for a long time as radio journalist and technical writer. His radio repair manual is a comprehensive and clearly laid-out aid and reference work for technicians in the field. (The book should be called to the attention of all those employed in radio repair shops and interference elimination service of the DP).

At the beginning of the manual a thorough description is given of measuring and test equipment used in radio repair shops, including auxiliary equipment and accessories, as well as instructions for measurements on radio sets, including measurements with cathode ray oscillographs. Furthermore, the manual describes preliminary tests which greatly facilitate the repair of radio sets; these are tests of component parts, such as tubes, condensers, resistors, etc. The section on systematic trouble shooting merits special mention. With the aid of trouble shooting tables and sections of standardized circuit diagrams ways are shown for locating trouble spots and methods are given for recognizing the defects. The potential defects are numbered consecutively and listed by groups for the individual receiver stages. The same numbers are used for the potential trouble spot in the circuit diagram and are marked at the margin of the explanatory comments which

deal with the possible cause of trouble, suggest the necessary tests or measurements, and show steps to eliminate the trouble. This greatly facilitates and speeds up the location of trouble centers. Furthermore, defects occurring on parts (resistors, condensers, transformers high frequency coils, wave switches, tubes, loudspeakers, tuning dials, band width regulators, shields and cabinets) are mentioned and steps for eliminating them are suggested. Among other things the reclaiming of radio tubes is discussed. Furthermore, the question of replacing damaged parts in radio sets is treated in detail. A very perspicuous table lists the changes to be made if substitute tubes are used in the absence of regular replacements. To facilitate repairs of sets of foreign origin, circuits of foreign sets different from those of German models are discussed by means of repair examples. This section is concluded with a table showing the applications of the most common American receiving tubes, a comprehensive table comparing American with German receiver tubes, a listing of color codes of American parts and a table comparing Russian with German receiver tubes. The manual also includes a thorough discussion of the correct matching of straight receivers and superhets, proven suggestions for modernizing outdated sets, the repair of amplifiers and special apparatus (such as output stages, automobile and portable sets, record-players and converters, the repair of antennas and ground connections. This recommendable manual for radio technicians finally contains a comprehensive table with tube characteristics and socket connections, for over 40 tubes including instructions for interchanging similar types and the necessary changes; furthermore winding data for power transformers for industrial apparatus and important tables for the radio technician are included

Budischin

Telecommunication Engineering at the Telefonbau und Normalzeit GmbH
 [Telephone Design and Standard Time, Inc.] By Karl Scheibe and
 Heinz Wolffhardt. Published by Telefonbau und Normalzeit G. M. B.H.,
 Frankfurt on the Main. 454 pages. Price: DM 15.00

On the occasion of the 50th anniversary of the Telefonbau und Normalzeit, G.m.b.H the company published a book which in essence deals with telecommunication engineering in connection with telephone equipment and accessories manufactured and distributed by the company. The book contains 5 sections. In the first the most important theoretical fundamentals are explained in a way easy to understand. The following section is devoted to auxiliary equipment such as relays, acoustic and optical signal apparatus, switches, etc. The third section comprises general telephone engineering and deals mainly with the various systems employed for substations. A good deal of information deals with the drop-selector system. The fourth section is a detailed treatment of substation engineering. Various circuits which in part are quite involved, are thoroughly explained. The last section gives a survey of the sources of power supply customary for substation installations. A subject index concludes the book which has a good deal of eye appeal for its numerous and well selected illustrations and circuit diagrams. The prime purpose of the book is to provide a guide for the technical training of the employees of the Telefonbau und Normalzeit, G.m.b.H. At the same time the book will be quite useful to all those who are concerned with substation installations of the company.

Wegener

Telephone Sets and their Circuits. Part 1: Simple subscriber phones. By e. Pezold and P. Pfahler. Published by Frans Westphal, Wolfshagen-Scharbeutz. 4th Edition, 1949. DIN A 5. 56 pages with 30 illustrations. Price: DM 2.70 bound.

In this revised edition by Peter Pfahler a brief and very simple description is given of telephones as they are in use today. After an introductory explanation of the differences between OB and ZB communication, manual and automatic operation, main exchange and substations, the components of a phone installation are clearly explained in terms of their structure and operation. OB and ZB phones (wall and table models) as well as pay phones are thoroughly discussed in the chronological sequence of their development stages. The 24 circuits, including the circuits for Sp-phones are especially valuable for conveying information on the telephone development in view of the lack of sufficient source material. Finally, some information is given on switch boxes and the applicability and connections of extra accessories to subscriber phones. Unfortunately, the symbols used are not uniform.

Pausch

Manual for Telecommunication Technicians. Part 1. By H. W. Goetsch. 11th completely revised edition; published by A. Ott, Leibnitz Verlag Munich 1948, formerly R. Oldenbourg Verlag. DIN A 5, 249 pages and 392 illustrations.

The continuous progress in the field of telecommunication necessitates a more comprehensive manual and thus a dividing-up into several volumes. The first part just published comprises fundamental theories, power supplies, individual equipment, circuit

designs and [the following word is illegible]. It is fortunate that Goetsch's proven methods have not changed. Both student and experienced engineer will readily find information in diverse fields of telecommunication, owing to the admirably brief, clear and easily comprehensible presentation. The book will therefore make many new friends in addition to the old ones.

The Radio Builder. By Herbert G. Mende. Published by Allgemeine Radio-Technik (General Radio Engineering) - Bielefeld - 287 pages.

The Radio Builder by Herbert G. Mende is written for amateur radio builders, giving them exact circuit diagrams and valuable hints for building more than 50 types of receivers. The book goes far beyond the scope of simple building instructions; the causes of many troubles occurring in the building of receivers are explained and steps are discussed for proper operation of the circuits. The book assumes an elementary knowledge of radio fundamentals and is therefore of interest even to the experienced amateur, especially since the physical aspects of receiver operation are often discussed. The book is divided into three parts. The first part contains a general review of the various kinds of receivers, general principles of circuits, and the operational principle of shielding and decoupling; furthermore, a number of peculiarities of industrial equipment is mentioned by means of wiring diagrams.

The second part gives a clear presentation of modern circuits from the simplest crystal set to the ultra-short wave and television receiver. Several pocket sets with the smallest possible dimensions are discussed as thoroughly as a large number of straight receivers and supersets both with a.c. and a.c.-d.c.

operation. It is gratifying to note that in view of the present situation in the supply of tubes, the employment of Army tubes is hardly ever recommended. In a special chapter the problems of selectivity increase, automatic sharp tuning, band spread, tuning indication, negative feedback and volume control are discussed and hints are given for additional receiving conveniences, such as remote control, etc.

In the third part which contains many formulas and tables for receiver design special emphasis is laid on the building of coil units. The author has done an unprecedented amount of detail work in computing the exact number of windings for about 40 coil constants of the standard coil forms and iron cores for all r. f. coils employed in the circuits. Thus the dreams of all those amateurs who have encountered unsurmountable obstacles in building h. f. and i. f. coils due to the impossibility of proper balancing, have become a reality.

Schule des Funktechnikern [The Radio Technician's Guide] By Hanns Gunther und Heinz Richter. 7th edition. Franckh'sche Verlagshandlung. Stuttgart. 1949/50. 4 volumes. 1400 pages, 1700 illustrations.

For the first time since the war the "Schule des Funktechnikern" has been published as a revised 7th edition. As before, the book is written for a large number of readers (university students, trade students, technicians and non-technicians); its main purpose is to prepare the radio technician for his Meisterprüfung [examination for licensed technician]. Of the four planned volumes which are to be published in 15 issues of 96 pages each, the first issue

is now available. This first issue essentially comprises the first and second part of the first volume (Part 1: Radio Engineering as a Profession - Part 2: Introduction to Mathematics for Radio Technicians) Part 1 discusses training possibilities, and other practical aspects, as well as training fees. The prospects of finding jobs for technicians and theoreticians in radio engineering are investigated in great detail.

Part 2 deals with mathematical aids and mathematical methods, which does not mean that a complete course in mathematics for radio technicians is given. The largest portion of Part 2 is allocated to the section or Characteristic Curves, where the graphic representation of functions and electrical engineering problems are discussed in a way that they may be understood even by a layman. The subdivision Symbols, Notations, Numerical Values contains a useful tabulation of 37 tables of numerical values encountered in practice.

In Mathematical Methods a condensed outline is given of the fundamental operations, trigonometry and infinitesimals with theorems and formulas which are frequently applied.

A conclusive comment on this work will not be possible until the announced four volumes are available in revised form. The review of the first issue which is only a fraction of the first volume leads to the conclusion that the author has mastered a difficult task adeptly, and that he is creating a useful book for students.

Telecommunication Circuits. By Dr. (eng.) Fritz Kahn. 2 Volumes.
Published by Hachmeister ± Thal, Leipzig. 272 and 248 pages. DM 5.00 each.

The two pocket size volumes contain circuits (diagrams and descriptions) of the most important types of telecommunication equipment. The first volume contains all types of signal, alarm and long distance monitoring apparatus, the second volume telephone, telegraph, and power supply equipment. The clear presentation of the subject matter as well as the large number of enclosures merits specific mention. The section on telephone equipment, for example, contains descriptions of the large and small automatic exchanges, a great number of substation circuits and special circuits, amplifier circuits for telephone traffic, high frequency wire radio communication, etc. The more recent telegraph systems, in addition to the old ones, are also incorporated in the book. The section on power supply equipment comprises 21 circuit diagrams. For all those in the field this manual should be of invaluable aid.

Tables for the Electrician. By Friedrich Schaub and Voltz. Published by F. Dummler's Verlag, Bonn. 300 pages, price DM 3.80

This book which is intended for trade school courses contains a multitude of illustrations, tables, and formulae arranged within an extremely compact space. A quarter of the book comprises mathematical tables, elementary formulas, properties and tables of industrial materials and fundamentals of a general nature. The main portion deals mainly with power supplies. Only about one tenth of the entire volume is devoted to communications engineering, but includes a table of tubes besides elementary circuit diagrams. The main value of the book lies therefore in the multitude of compiled material and thus renders this low priced book a useful reference book.

Elektrische Messgerate und Messeinrichtungen [Electrical Measuring Instruments and Equipment] By Albert Palm. Published by Springer Verlag. 284 pages and 232 illustrations. Price: DM 21.00. 3rd Revised edition.

Part 1 of this work contains a comprehensive description of measuring instruments with regard to construction, materials, electrical ratings and applications. This is followed by Part 2 with the following chapters: Precision Measuring Resistances, Inductance and Capacity, Measuring Bridges (e. g. Wheatstone, Thomson, Maxwell, Wagner, Schering,), Potentiometers, Measuring Equipment using Electron Tubes (Vacuum Tube Voltmeter), High Voltage Measurements, Indicating Resistance Measuring Equipment, Magnetic Measuring Equipment, Temperature Measuring Equipment, Radar Equipment, Miscellaneous. [Part of the following sentence is illegible]. The presentation is clear and intelligible. As can be seen from the brief table of contents, special apparatus and equipment for the field of telecommunication are not included.

NOTES

K. W. Wagner appointed trustee of the P.T.A.

Prof. Dr. Ing [illegible] (doctor of engineering) K. W. Wagner was appointed member of the newly formed board of trustees of the Physikalische Technische Anstalt (Institute of Physics and Technology by the Federal Minister of Economic Affairs). K. W. Wagner used to belong to the board of trustees of the former Physikalische Technische Reichsanstalt (Reich Institute of Physics and Technology) until it was dissolved in 1934.

T. H. Darmstadt (Technische Hochschule Darmstadt - Darmstadt Poly-
technic Institute)

Dr. Ing F. W. Gundlach, hitherto instructor in high frequency techniques at the Karlsruhe Technische Hochschule (Polytechnic Institute) has been appointed associate professor at the Darmstadt Technische Hochschule (Darmstadt Polytechnic Institute) and put in charge of the Institute of Telecommunication Equipment and Installations. This institute coexists with the Institute of General Telecommunication Engineering headed by Dr. H. Busch.

Information Service for Inventors

The Berlin Patent Office on 15 October 1949 established an information service for inquiries about the state of progress in the field of engineering. This information service aids all inventors who intend to file an application for a patent or working model, in ascertaining what has already become common knowledge in a specific field of engineering. The information may thus be used as a basis for a patent or working model application, or for protests and nullity litigations. It is understood that all inquiries are treated confidentially.

An instruction sheet with the heading "Information Service for Inquiries about the Present State of Engineering" which can be obtained from the Berlin Patent Office, Gitschiner Strasse 97/103, Berlin SW 61 explains the points to be observed when making an inquiry in order to obtain quick and pertinent information. The inquiry is to be made in writing and a self-addressed stamped postal card has to be included for acknowledgement of receipt. Any inquiry must refer to only one concisely defined object (contrivance, product, process). The object must be identified beyond doubt by

a description, or if necessary by a model or sample. At the end of the description the characteristic feature of the object about which information is desired should be stated.

In reply a bibliography relative to the object will be given and copies of German patents as well as photostats of other literature may be obtained. A special leaflet for ordering patent specifications and photostats gives further particulars.