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NEW HAMPSHIRE HEALTH NEWS

"For a Clean State and a Healthy People"



Issued monthly by the
**STATE DEPARTMENT
OF HEALTH**
Concord, N. H.

JOHN SAMUEL WHEELER, M.D.
State Health Officer

H. SHIRLEY DWYER, D.D.S., *Editor*

Vol. 25 MARCH, 1947 No. 3

CONTENTS

- Sanitary Survey of Fairs — Gilman K. Crowell.
- Tooth of the Month — H. Shirley Dwyer.
- Cheap Sun Glasses — Percy E. Holbrook.
- Careless Use of Solvents.
- Industrial Health Meetings.
- Effect of Smoking Cigarettes.
- Spring Tonic — Helen E. Hinman.
- New England Health Institute.
- Book Review.
- Recent Books — Mildred McKay.

Entered as second class matter, February 26, 1937, at the Post Office, Concord, N. H., under the Act of August 24, 1912.

Sanitary Survey of New Hampshire Fair Grounds

BY GILMAN K. CROWELL

Director of Food and Chemistry

—o—

In past years this department has received numerous complaints relative to the insanitary conditions existing on our fair grounds. In order that these complaints be properly evaluated this department instituted a sanitary survey covering their last two years of operation.

While we cannot expect sanitary facilities at these fair grounds to be on a par with our homes, there is no reason why the basic fundamentals of sanitation should be violated.

In our way of life we demand an adequate supply of potable drinking water, sanitary toilet facilities, also proper facilities for the disposal of sewage, garbage and other waste matter. These facilities are not available at the present time at most of our fair grounds. It is on these subjects that this report will dwell since they are the bases of complaints received.

Water Supplies. From the accompanying chart we find that five out of the ten fairs have drinking water originating from a public supply. These supplies are tested periodically by this department and can be considered satisfactory. The remaining five fairs obtain their water from wells or springs located on or nearby the fair grounds. Where the supply is a well the latter should be tested annually, just prior to the opening of the fair. Special attention should be given to the construction of the wells so as to assure proper protection from contamination. In those cases where sources of water originate from springs the faucets piping this water should be conspicuously marked so as to inform all patrons that this water should not be drunk, inasmuch as it originates from a questionable source. The mere tagging of faucets is not satisfactory, as a thirsty individual will drink regardless of the origin of the supply. Thus, potable drinking water should be available at all times and so piped as to be accessible to all patrons.

In many cases it would not be economical to pipe public drinking water to the grounds. In the case of the Hopkinton and Plymouth Fairs where public water is available within one-quarter and three-quarter miles respectively, the cost of laying pipe of sufficient size so as to afford fire protection as well would cost approximately \$1,600 for Hopkinton and

\$4,800 for Plymouth. This cost does not seem excessive when considering benefits received.

Where public supply water exists, pipes carrying this should not be interconnected with pipes carrying water originating from a non-potable source.

Water under pressure should be available on all fair grounds so as to offer some protection in case of fire. The old time bucket brigade is outdated and should not be relied upon. The logical recourse is the installation of a standpipe or to have a fire engine available near the grounds during the period in which the fair is in operation.

It would seem that the first objective on the part of any betterment committee would be to provide an adequate supply of potable drinking water easily available to all patrons of fairs.

Toilet Facilities. The toilet facilities at the majority of our fair grounds are inadequate, improperly constructed and very poorly cared for. Most of these facilities are of the privy type consisting of a shallow trench with seats located only a short distance over the trench. The seats are not equipped with self-closing covers, thus the flies are as thick as smoke. Toilet paper was found to be at a premium and not a drop of water was available for one to wash his hands. The great number of men's urinals were inadequate in length to handle the average daily attendance. They were poorly constructed and drained into an open fly-infested pit at the end of the building.

It was gratifying to note that during the 1946 season many of the fairs had attendants in charge of their toilets. This service is sorely needed and should be continued, also extended to include all fairs.

We must concede that any attempt to arrive at figures stating the number of toilet facilities needed is difficult. This could only be accomplished by accurately knowing the daily peak attendance and applying a formula to meet that number. It would also be necessary to know how this attendance divides as to the number of males and females present. After careful consideration we believe that for every ten thousand in attendance fifty toilets seats should be provided for women, fifteen toilets for men with seventy feet of additional urinal space. These are minimum figures and should be increased when possible.

Upon reviewing our tabulations it is apparent that the number of women's toilets is in most cases inadequate. With few exceptions there are sufficient

men's toilets. The length of urinal space available should in all cases be increased.

When increasing toilet facilities the first thought should of course be given as to the adequacy in number. Following this one should consider proper construction and location. Toilets should be located away from food stands and so constructed as to be fly-tight and in such a manner as to offer easy access to removal of wastes. Toilets should be strategically located about the grounds and not grouped in one specific space. Attendants should be located at each toilet room and paper should be available. Faucets or, better still, lavatory facilities in some form should be provided, with soap and paper towels available, so that patrons can wash their hands after visits to the toilet. We are sure that patrons would be willing to absorb the cost of these necessities.

Some form of fly control at toilet rooms should be practiced. This we believe could easily and economically be accomplished by the spraying of walls, ceilings and floors of all toilet rooms prior to fair time with aqueous suspension of DDT. Accumulated sewage disposal and urinal pits should also be sprayed prior to and during opening periods.

It was gratifying to note that during the last two years many new and approved toilets have been constructed.

Disposal of Wastes. In order that all fair grounds be kept in good sanitary condition it is mandatory that some provision be made for the collection of accumulated garbage. This may be accomplished in numerous ways. Arrangement may be made with some local dealer in swine to collect all garbage daily. An alternate method would be to dispose of the garbage in some remote section on the grounds, covering it daily with some form of sanitary fill and spraying repeatedly with DDT. In either case metal-covered barrels should be available at all vending stands.

All human excreta accumulating at the privy-type toilets should be continually covered with lime and the surrounding grounds frequently sprayed with aqueous suspensions of DDT solutions.

In general, conditions have improved throughout the years. We are still a long way from providing adequate facilities. These will cost money and take years to obtain. Where materials were difficult to obtain during the war years they are now becoming available. It is believed that during the next few years considerable improvement will be made. These will be heartily welcomed by those of us who enjoy our country fairs.

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FAIR	Days in operation*	Total paid attendance	Average daily attendance	DRINKING WATER		TOILET FACILITIES							
				Public system available	Is water available?	No. seats available for women	Recommended minimum no. for women	No. seats available for men	Recommended minimum no. for men	Combined length in ft. of urinal troughs	Recommended minimum length in ft. of urinal troughs	Attendant present at toilets	Is garbage collection available?
Cheshire	3	11,126	3,800	yes	yes	16	19	15	6	18	27	yes	yes
Deerfield	3	13,089	4,400	no	yes (well)	10	22	18	7	6	31	yes	yes
Hopkinton	3	18,605	6,300	yes**	yes	18	32	11	10	20	44	yes	yes
Lancaster	4	32,655	8,200	yes	yes	8	41	4	12	22	58	no	no
Mascoma	3	7,858	2,700	no	yes (well & spring)	7	14	4	4	6	19	no	no
Pittsfield	5	12,585	2,600	yes	yes	4	12	4	4	10	19	yes	yes
Plymouth	4	32,076	8,100	no***	yes (spring)	46	41	18	12	19	57	yes	yes
Rochester	7	49,680	7,200	yes	yes	30	36	22	11	10	51	yes	yes
Sandwich	1	11,484	11,500	no	no	20	58	14	17	15	80	no	no

* Based on 1946 schedule.
 ** Obtained from hose connected to hydrant 1/4 mile away.
 *** Public supply available 1/4 mile from grounds.

28

Tooth of the Month

BY H. SHIRLEY DWYER, D.D.S.

Dental Director

—o—
Good gravey, but I'm tired this mornin'. Went to the piano concert last night with Doc Revere. Feller with a long Russian name it was that was playin'. Come to find out he was born in Hoboken, N. J. Guess they have to have long hair and a foreign name to git an audience. Funny how us Americans alluz look to furriners for our music.

Well sir, he sure could make his fingers fly over them keys. Can't say as I knew too much about what was happenin' and the seats got powerful hard before the evenin' was over but everybody else said he was good so I just looked owly an' wished I wuz home in bed. 'Peared to me, personally, like the feller worked awful hard to produce the kind of noises he did. I tried readin' the descriptions on the programmy, thinkin' mebbe I cud get to know what it was all about. Thought I'd be all set then to listen after he got done warmin' up. Shucks, them program notes was like an artist that went goofy about the "dynamic symmetry" of my old cow shed that I've been agoin' to pull down fer the past six years. By the time I got done readin', the piano feller was done warmin' up and folks started to clap. Doc says he want warmin' up at all — he was playin' the thing I was readin' about. Too much fer me, so I jest set back an' looked interested the rest of the evenin'.

On the way home, Doc, he got talkin' about the pianner an' how them ivory keys worked, an' sech. First thing I know Doc, he slaps his knee and starts a laffin'.

"By gosh," sez Doc, "if that there pianner aint like a patient's mouth, I aint no dentist." I couldnt quite get the connection exceptin' I've seen some folks as had mouths most as big as a key-board. Then Doc started expoundin' on his idee.

The way he put it was something like this. If we was to play "Mary had a little lamb" on the piano — and one or two keys was missing we'd sound pretty funny. Might go kinder — "Mary . . . a little lamb, a . . . lamb." Now get me right folks, I aint talkin' nutrition, we're jest singin' with a couple of notes silent. Jest try it yourself some time. Doc and me was sittin' in the train hummin'. Every time we'd come to a silent note — we stop an' nod our heads instead of singing. Bet we looked like a couple of old geese doin' it.

Now that's jest the way it is if we try chewin' our food with a couple of important teeth missin'. It's funny to leave out a couple of notes in a song, but 'taint funny when you're tryin' to chew your food. Doc says that if we have even one six year molar missin', we lose one third of our chewing ability. That sounds like a powerful lot of chew missin' for one tooth. As Doc explains it, it aint jest that one tooth that gets out of kilter, but the teeth above and each side of the missin' one too. They move out of line and don't hit right. Sort of like tryin' to drive a single hoss on a team hitch up. That missin' hoss makes the other one gee off to one side 'cause he aint balanced.

Sounds logical, so I guess we better all get our teeth hitched up right so we can really do a job on some of these tough old beef creatures that missed the shoe-leather industry by getting into the butcher store.

—○— Cheap Sun Glasses —○—

In the January issue of *Health News*, there was an article on "Cheap Eye Glasses." Although the statements did not seem correct to the Editor, it was published because it came from the *Journal of the American Medical Association*. This article has aroused considerable comment from the opticians. In keeping with our policy of giving only authentic information, we are happy to publish the following correspondence. We are deeply grateful to those who have called this to our attention. — *Editor*.

January 23, 1947.

Dr. H. Shirley Dwyer
N. H. State Dept. of Health
State House
Concord, N. H.

Dear Dr. Dwyer:

The January issue of the *New Hampshire Health News* contains a quotation from an excerpt taken from *The Journal of the American Medical Association* stating that "The average sun glasses obtained in drug and ten cent stores, if sufficiently dark, are as a rule comforting to the eyes of the average wearer on an average bright day, etc."

It would appear that this statement came from one who is not familiar with the effect of colored or tinted lenses which are not *ground* and polished. Lenses which are moulded only, and polished, as in the cheaper glasses bought in drug or variety stores,

cause discomfort through aberration and distortion, the effect of which can easily be demonstrated by projecting letters on a screen, as with a Bausch & Lomb Clason, and superimposing the glasses to be tested. With a ground and polished lens, as Ray Ban, Calobar, Filtray, and others, the letters are clear and distinct, while with moulded and polished lenses they are blurred and at times no more than a smudge on the screen. We have used this method of checking tinted lenses for years and it is quite startling to the uninitiated.

Sincerely,

Percy E. Holbrook, Opt.D.

PEH:WC

January 27, 1947.

Dr. Percy E. Holbrook
8 North State Street
Concord, New Hampshire

Dear Doctor Holbrook:

I received your letter yesterday. Thank you for calling my attention to the quotation in the January issue of New Hampshire "Health News." I agree with you that it seems to disagree with all findings that I have heard in regard to cheap sun glasses. I shall publish your letter in the March issue of "Health News," if you will give me permission to do so. I would be happy to give it suitable captioning and editorial comment. Further, I would greatly appreciate an article on this subject refuting this mis-statement that appeared in the *Journal of the American Medical Association*, that I may publish it in "Health News."

It has been my editorial policy to publish only such statements as could be accepted as authentic. Naturally, something appearing in the *Journal of the American Medical Association* carries the approval of that organization and therefore, would seem authentic. Our "Health News" attempts at all times to carry to the public the best, newest, and most authentic health material which we can secure. The public should receive only such material. Thus, in the interest of the welfare of our people, I would greatly appreciate any authentic material which you can send me on this subject.

Sincerely yours,

H. Shirley Dwyer, D.D.S.,
Editor.

HSD:ch

Careless Use of Solvents

SAFETY RESEARCH INSTITUTE, INC.

CONTRIBUTED BY FREDERICK J. VINTINNER

Director Industrial Hygiene

—o—

In most plants, regular solvent operations are kept safe through proper ventilating systems and other controls. However, even in "safe" plants, employees may take it upon themselves to employ solvents for improper purposes, thus opening the way for fire or illness.

Control of solvent distribution within the plant can help to prevent unauthorized use of solvents. Such use, or rather misuse, of solvents is not only wasteful but it sometimes results in serious accidents which give rise to unwarranted fears of properly regulated solvent-using operations.

One fairly widespread example of unauthorized employment of solvents is their use for cleaning hands or clothing at the end of the work day. When brought into frequent direct contact with the skin in this way, most solvents will cause drying, cracking, and infection. Improper handling of solvents in this manner may also result in inhalation of unsafe quantities of solvent vapor and, in addition, may create a fire hazard.

An unfortunate misuse of solvent occurred in one plant when an overly conscientious workman decided to clean the greasy floor around his work bench. For this purpose he employed a solvent which seemed to be doing an excellent job in a nearby degreasing machine. He did not realize, however, that the engineering apparatus which controlled the solvent vapor in the degreaser was not designed to provide protection for operations like his self-elected floor cleaning job. He spent several days at home recuperating from solvent vapor illness.

Taking solvents home for household use has also been the cause of a number of accidents. In one instance, an employee took home a large quantity which his wife used to clean a rug. Having no experience with or knowledge of the proper use of solvents, the housewife cleaned the entire carpet with the solvent, without opening any window. The inhalation of concentrated solvent vapor resulted in her death several days later.

In other cases, flammable solvents have been taken home to do dry cleaning. Fire safety procedures, which are taken for granted in the plant, are often

ignored in the home, with occasionally disastrous results.

Elimination of unauthorized solvent use is thus important to both management and employee, and should be a permanent part of the safety program.

Industrial Health Meetings

A conclave of combined professional personnel in industrial health work over the entire nation will take place at the Hotel Statler, Buffalo, N. Y., April 26 through May 4, 1947.

These meetings will represent the 32nd annual gathering of the *American Association of Industrial Physicians and Surgeons*; the 9th annual conference of the *American Conference of Governmental Industrial Hygienists*; the 8th annual meeting of the *American Industrial Hygiene Association*; the 5th annual conference of the *American Association of Industrial Nurses*, and the 4th annual meeting of the *American Association of Industrial Dentists*.

The sessions will be replete with many new subjects of interest, including among others, round table discussions for chemists, engineers, physicians and nurses; a symposium on new problems in the developments of industrial hygiene; a discussion of state codes and industrial hygiene administration; conferences on environmental control, on particle size, and analytical procedures; clinics on fractures and traumatic surgery, including a symposium on back problems; hazards incident to the use of the atomic bomb; reports on the Bikini experiments with motion pictures; tracer chemistry in toxicological research and experience with range finding tests; progress in the teaching of industrial medicine in American medical schools; the development and administration of industrial dental clinics in various industrial groups; a panel discussion on new preventive measures in industry; a panel discussion on in-service education of the nurse in industry, and many other subjects which can be found by consulting the preliminary program.

Prominent speakers on important subjects will be featured at dinner sessions, including other events such as the Cummings Memorial Lecture and the presentation of the Knudsen Award for the Most Outstanding Contribution to Industrial Medicine during the past year.

Further details and a copy of the preliminary program may be secured by writing to Dr. Edward C. Holmblad, Managing Director of the American Asso-

ciation of Industrial Physicians and Surgeons, 28 East Jackson Blvd., Chicago 4, Ill.

All hotel reservations are made by the Housing Bureau, Buffalo Convention and Tourist Bureau, Inc., 602 Genesee Bldg., Buffalo, N. Y.

Farrar Joins Staff

During December, Prescott S. Farrar of Henniker, New Hampshire, joined the staff of the State Department of Health as a dairy specialist. Graduating from the University of New Hampshire in 1941, he later received his Master of Science degree from the Department of Dairy Technology at Ohio State University. He is a member of the American Dairy Science Association.

Mr. Farrar will in the near future have complete charge of the milk processing plants, slaughter houses and cold storage warehouses in the western part of our state.

The department welcomes a man of his wide training and interests in this specialized field.

Dental Hygiene Consultant Appointed

The State Department of Health announces the appointment of a Dental Hygiene Consultant to the staff of the Division of Dental Services.

Mrs. Dorothy Powers, who has been acting in this capacity for several months and has an excellent background in dental hygiene, was appointed as of February the first.

The Effect of Smoking Cigarettes

From the Journal of the American Medical Ass'n

The effect of the smoking of tobacco on the circulation of man has been the subject of many excellent papers. Sixty-six observations were made on 4 male physicians and 2 female technicians. All were habitual smokers and inhaled during smoking. As they were accustomed to the procedures in the psychometric room, psychic stimulation was at a minimum.

Standard brands of cigarettes bought on the open market were used. As a control, cigarettes made of corn silk were smoked. Comparative studies were made with standard cigarette paper and French ashless cigarette paper. Also a popular filter holder was used with the standard cigarettes.

When the subjects were resting in a supine position after smoking 2 standard cigarettes or those made of the French ashless paper, with or without a filter holder, the cutaneous temperatures of the extremities of all the subjects decreased. When the subjects were sitting or engaged in slow walking the temperatures of the extremities decreased to the same degree. These changes were not noted when corn silk cigarettes were used.

An increase of the basal metabolic rate occurred after smoking of 2 standard cigarettes, whereas the rate decreased after the smoking of 2 corn silk cigarettes. There was an increase of blood pressure and pulse rate after either the smoking of 2 standard cigarettes or the intravenous injection of 2 mg. of nicotine. After the smoking of 2 corn silk cigarettes there was little or no change of blood pressure and pulse rate.

Spring Tonic

HELEN E. HINMAN

Nutrition Consultant

Do you feel tired?

Check your diet. Have you been having enough variety in your foods during the winter months? Sometimes in the winter people in New Hampshire depend on only two or three favorite vegetables instead of the usual variety. A large part of the vitamins and minerals we need to keep the human machine in good condition comes from fruits and vegetables. Just by way of a reminder here is a partial list of fruits and vegetables available in New Hampshire during the winter months:

Oranges, tangerines, grapefruits, bananas, grapes, dried fruits, including raisins, canned fruits, including grapefruit juice and orange juice, cabbage, carrots, lettuce, spinach, sweet and white potatoes, onions, squash, pumpkins, and beets. All these vegetables can be cooked or eaten raw. To keep good health one should choose from this list of vegetables one green leafy vegetable and one other besides potato, also one serving of grapefruit, orange, or tomato and one other serving of fruit.

Eat the following foods daily and you probably will not feel the need of a spring tonic because you will be getting the food essentials necessary for good health:

Milk — 1 pint to 1 quart.

Fruits — 2 or more. One a citrus fruit or tomato or other good source of vitamin C.

Vegetables — 2 or more servings.

Potato.

Egg — 1 daily if possible. On days when not used beans, peanuts, cheese, or more milk or meat should be used instead.

Meat — 1 or more servings.

Cereal and breads — Whole grain, and enriched.

Other foods as needed to complete the meal.

Water — 4 to 8 glasses.

New England Health Institute

This year New Hampshire will be host to the New England Health Institute. The meeting will be held in the University of New Hampshire at Durham. The dates are June 16, 17, and 18. This is the first Institute to be held since prior to the war.

The New England Health Institute is, as its name indicates, an all New England conference. Health problems relating to Education and Welfare as well as matters more closely tied up with Health Departments will be discussed.

One of the features of this year's meeting will be a special section for local Health Officers. Mutual discussion of common problems and advice and planning for their solution will be a major feature of this section. Speakers from our own and neighboring states will bring their experience and knowledge to bear on our local health problems. This meeting is a *must* for all local health officers in all the New England states.

A very complete program is being arranged. Included will be many of the outstanding health and education authorities in the country. Every effort is being made by the program committee to secure the best speakers available. Arrangements are being made to have some of the programs broadcast. Special attention is being given to the timing of the different sections so that similar subjects will not overlap.

The facilities of the University will be at the disposal of those attending. Rooms will cost from \$1.00 to \$1.50 per day. Special provisions have been made for married couples. The school dormitories will be conducted on a hotel basis. Meals will be served in the Dining Halls at an approximate rate of \$1.50 to \$1.75 per day. In addition, there will be a banquet Tuesday evening. One of the Nation's leading Public Health authorities and a dynamic speaker, will

give the address of the evening. This is *not* going to be one of those banquets that cures insomnia!

The tennis courts and swimming pool will help you keep fit for the work of the scientific sections, so bring your bathing suits and tennis rackets. Use whichever your age and figure will permit.

If you are a camera fan — Portsmouth, with its historic doorways and modern navy yard, is just a few miles away. While the schedule of lectures and section meetings is really heavy, there will be some time between events for relaxation and the stimulation of meeting with others trying to meet the same problems that you are.

Even if you do not agree with a single word a speaker utters — you benefit by stimulating your own thinking faculties in disagreeing with him. Even if you have been “agin” every new advancement for the past hundred years — come to Durham in June and see how many more things you can be “agin.”

As a large attendance is expected, plan to register early. A more detailed program will appear in a later issue of this Journal.

Remember our slogan — BETTER HEALTH THROUGH GREATER KNOWLEDGE.

H. Shirley Dwyer, D.D.S.,
*Public Relations Chairman,
New England Health Institute.*

New Book

RADIO — HOW, WHEN AND WHY TO USE IT
by Beatrice K. Tolleris. Price: \$1.00 per copy.
Progressively reduced rates for orders of 10 or more copies. Publisher: National Publicity Council, 130 E. 22nd Street, New York 10, N. Y.

Radio — How, When and Why to Use It

Radio — How, When and Why to Use It, published by the National Publicity Council, is the only manual on non-commercial broadcasting which analyzes the factors that determine *when* a community agency should take to the air to gain understanding and win support.

In this new how-to-do-it Beatrice Tolleris, Chief Consultant for the Publicity Council, shows how your message, listening audience, and production facilities decide the value of spending the time and money essential for effective broadcasting. Once you are certain that radio is the medium through which to tell your story, you'll want to keep in mind four

factors in choosing your program format. This manual tells you when to use and how to develop such formats as the radio talk, interview, round table, dramatization, transcription, and on-the-spot broadcast.

Written for the busy agency executive and health educator, RADIO gives practical advice on rehearsals, working with the writer and director, checking equipment, and even testing the all-important "voice levels." Since program promotion is part and parcel of successful broadcasting, Mrs. Tollerier suggests devices for building a listening audience through newspapers, other agencies, and your broadcast itself.

Time on the air represents cold cash, so chances are you'll have to "sell" your agency and your program to the station manager or sponsor. *Radio — How, When and Why to Use It* outlines four steps for getting sustaining time and includes a checklist of hints for good station relations that will save you time, money, and disappointment.

Recent Books

Available for borrowing through your local library or the State Library, Concord.

As the child grows by H. B. Pryor. Silver, Burdett Co., 1943.

"In order to understand the child as a whole, it is desirable first to gain an understanding of certain fundamental aspects and principles of growth, and then to see how the forces of growth function at each age level. Part One of this book is, therefore, concerned with these general aspects, and Part Two with age-level studies."

The control of venereal disease by R. A. Vonderlefr and J. R. Heller. Reynal & Hitchcock, 1946.

Dr. Parran in the foreword writes of this book "Its major contribution, . . . is the projection of the wartime effort into a peacetime program. It describes the dramatic discoveries which revolutionized the medical aspect of control . . . it explains the constant factors — case finding and prompt treatment . . . and the immediate and long-range problems of the postwar drive to liquidate venereal disease."

The rights of infants by Margaret A. Ribble. Columbia University Press, 1943.

"The more we study human nature with its capacity for personal and human relationships

the clearer we come to understand that a wealth of natural energy is in our possession which goes to waste or makes trouble because it is unchanneled and undirected . . . Parents have to remind themselves constantly that human personality is a continuous development, and healthy emotions as well as a free creative intelligence are rooted in early infant experiences." The ideas in this book are the result of studies of parents and their children and the resulting conclusions of the author should be helpful to parents of young babies.

Your hair, its health, beauty and growth by Herman Goodman. Blue Ribbon Books, 1943.

A physician has tried in this book to answer the many queries regarding the hair asked of barbers, hairdressers and physicians. His topics should appeal to all: What is Hair, Dandruff, Shampoo, Baldness, Permanent Waving, Common diseases of the Scalp and many other topics relating to a subject that concerns everyone.

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Public Health Reports

VOLUME 62 JANUARY 24, 1947 NUMBER 4

IN THIS ISSUE

Services and Visits in a Children's Dental Clinic

A List of Public Health Service Publications



Public Health
Reports

CONTENTS

	Page
Services and visits in a children's dental clinic. Isidore Altman.....	113
Public Health Service publications. A list of publications issued during the period January-June 1946.....	131
Incidence of communicable diseases in the United States, December 1-28, 1946.....	136

INCIDENCE OF DISEASE

United States:	
Reports from States for week ended January 4, 1947, and comparison with former years.....	140
Weekly reports from cities:	
City reports for week ended December 28, 1946.....	144
Rates, by geographic divisions, for a group of selected cities.....	146
Deaths during week ended December 28, 1946.....	146
Foreign reports:	
Canada—Provinces—Communicable diseases—Week ended December 14, 1946.....	147
Jamaica—Notifiable diseases—4 weeks ended December 14, 1946.....	147
Japan—Notifiable diseases—4 weeks ended November 16, 1946, and for the year to date.....	147
New Zealand—Notifiable diseases—4 weeks ended November 30, 1946.....	148
Reports of cholera, plague, smallpox, typhus fever, and yellow fever received during the current week:	
Cholera.....	148
Smallpox.....	148
Yellow fever.....	148



Public Health Reports

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of the Joint Committee on Printing

SERVICES AND VISITS IN A CHILDREN'S DENTAL CLINIC

By ISIDORE ALTMAN, *Statistician, United States Public Health Service*¹

This is the second paper presenting data on children's dental services provided by a philanthropic organization in a large urban center. The first report (1) was concerned with the description of a time study of routine treatment—the number of dentist minutes per filling, per extraction, and the like—as provided in the various clinics of the organization. The present paper is concerned with the volume of dental services required and received by the children who come to the largest of the clinics.

It is now widely agreed that the best approach to meeting the problems of dental health is through early and continued care of children's teeth (2, 3); yet sufficient data upon which to base general action appear to be lacking. Although there have been numerous surveys of dental conditions among children, few studies have dealt with the statistics of actual treatment under varying methods of furnishing care. It is hoped that this paper will provide material in that direction. Specifically, and as stated, it presents the experience of a privately financed dental clinic: the number of services and visits entailed in providing treatment, and the periodic increment in defects found. Also covered is the continuity in seeking treatment, as measured by the proportion of children who visit the clinic a sufficient number of times to receive all the treatment they need and the proportion who return periodically for reexamination and treatment.

THE CLINICS OF THE PHILADELPHIA MOUTH HYGIENE ASSOCIATION

The information was collected from the case records of the Philadelphia Mouth Hygiene Association, a social agency which operates

¹ From the Division of Public Health Methods.

January 24, 1947

six dental clinics² strategically located throughout the city, for children in low economic circumstance. The clinics vary in size from two chairs to six, in accordance with the demand in each area served. They are staffed largely by dentists employed on a full-time salaried basis, and by hygienist-interns who usually perform the prophylaxes and manage the administrative details of the clinics. Experienced hygienists are employed in the two largest clinics to supervise and instruct the hygienist-interns. The children who come to the clinics pay 50 cents per visit for routine treatment, and comparably low fees are charged for prosthetic appliances and orthodontic services.

The first visit of the patient is customarily devoted to a prophylaxis by the hygienist. At this time, the latter makes an oral examination, charting previous fillings and extractions and indicating the necessary treatment to be given. The examination results are subject to change and modification by the dentists when they do the operative work. If the hygienist finds no cavities or teeth to be extracted, her findings must be verified by a dentist. Examinations are made with explorer and mirror.

COMPOSITION OF THE GROUP OF CHILDREN STUDIED

For this statistical study, the subjects chosen were all the children who came for the first time to the Central City Clinic of the association in 1942 or 1943. There were 1,402 new cases in these 2 years, exclusive of emergency patients and patients who proved to be ineligible. Of this number, 1,169 were tabulated; the remaining 233 could not be traced or had been transferred to other clinics, either because the family had moved or the clinics were more easily accessible. A sample of these transfers showed that as a group they did not differ in characteristics from the nontransfers.

The distribution of the children by color, sex, and age (at first visit) is shown in table 1. Since these were new patients and since

TABLE 1.—Number of children, by color, sex, and age groups, who first came to Central City Clinic of the Philadelphia Mouth Hygiene Association in 1942-43

Color and sex	Average age (years)	Age in years												
		All ages	5 or less	6	7	8	9	10	11	12	13	14	15	16 and over
All children.....	10.8	1,169	102	68	82	75	109	83	97	96	114	132	126	85
White:														
Boys.....	10.4	356	31	29	29	26	34	32	31	30	27	36	27	24
Girls.....	9.9	444	41	24	26	28	41	35	34	40	44	43	63	25
Other: ¹														
Boys.....	11.3	154	15	4	10	11	10	6	15	12	16	25	18	12
Girls.....	11.2	215	15	11	17	10	24	10	17	14	27	28	18	24

¹ Includes six children of Filipino origin.

² The number has varied. Present plans (Nov. 1, 1946) are to add two new clinics. The association's largest clinic, from which these materials were obtained, has been closed awaiting the completion of new quarters.

referrals come frequently from school nurses, it might have been expected that the group would be weighted with 6- and 7-year-olds—the first and second graders. Instead, there is a fairly even distribution by age, with the mean age at a little less than 11 years. This age distribution is quite similar to that of all American school children (1940 census) and the average age is the same (table 2). In this

TABLE 2.—Percentage distribution of school children in the United States and attending the Central City Clinic of the Philadelphia Mouth Hygiene Association

Age group (years)	All children		White children	
	United States ¹	Dental clinic	United States ¹	Dental clinic
5-6.....	15.6	² 14.5	15.3	² 15.6
7-9.....	22.7	22.7	22.6	23.0
10-13.....	33.1	33.4	33.0	34.1
14-15.....	16.1	22.1	16.3	21.2
16-17.....	12.5	² 7.3	12.8	² 6.1
Total.....	100.0	100.0	100.0	100.0
Average age (years).....	10.9	10.8	10.9	10.1

¹ Sixteenth Census of the United States, 1940: Population, Second Series, Characteristics of the Population, United States Summary, table 11. For the 5- to 6- year old group, the total number of children were used, whether attending school or not.

² Includes a small number of children under 5 years.

³ Includes a small number of 18-year-olds.

respect at least, the group can be accepted as representative of the general population, within the ages shown in the table.

Negro children were, on the average, a year older than the white children when they first came to the clinic. What significance there is in the total number of white and Negro children cannot be measured since the extent of coverage by the clinics of the Philadelphia Mouth Hygiene Association was not explored. For the most part, the data shown in the body of the text combine white and Negro children. There is included as an appendix a corresponding set of tables for white children only.

It should be pointed out that the children are not necessarily a representative group from the viewpoint of dental need or treatment required. Attendance at the clinic is voluntary; hence, some factor of selection is present, both in the character of these children and in their caries susceptibility. The findings given here are to be interpreted in that light.

PREVIOUS DENTAL TREATMENT

Dental treatment previously received is marked on the clinical chart and this provides some index of the number of children who had been to a dentist in the past. However, prior care of deciduous teeth was not tabulated in this study since there was no way of telling

January 24, 1947

whether deciduous teeth which were indicated as missing had been extracted by a dentist or had ever received any other attention.

In the entire group of 1,169 children, 526, or 45 percent, had had some previous dental work on their permanent teeth—13 percent had had permanent teeth filled and extracted, 21 percent fillings only, and 11 percent extractions only. An additional number may have been to dentists who found nothing wrong with their teeth. More girls than boys had been to the dentist, 48 percent as against 42 percent; more white children than Negro children, 50 percent as against 34 percent.

COMPLETIONS

In planning programs of children's dental care, in which attendance is voluntary, a serious problem arises regarding the failure of many children to return for all necessary treatment during a series of treatments, or to come back periodically for check-up and maintenance care. Such defections, when they are extensive, have an appreciable effect upon the volume of services which the program will provide and upon the effectiveness of treatment. They indicate that the program must include a plan of education and of follow-up that will reduce failures to a minimum.

Table 3 describes the status of the 1,169 records under study with

TABLE 3.—Treatment history of 1,169 children who first came to the clinic of the Philadelphia Mouth Hygiene Association in 1942-43, by color and sex

Treatment history	Number of children					Percentage of children				
	All	White boys	White girls	Other boys	Other girls	All	White boys	White girls	Other boys	Other girls
Initial treatment complete:										
Treatment up to date.....	139	44	63	16	16	11.9	12.4	14.2	10.4	7.4
Response after second recall but treatment not up to date.....	19	7	8	1	3	1.6	2.0	1.8	.7	1.4
No response after completed second recall.....	25	9	10	3	3	2.1	2.5	2.2	1.9	1.4
Second recall incomplete.....	10	4	2	3	1	.9	1.1	.5	1.9	.5
No response after completed first recall.....	93	40	39	4	10	8.0	11.2	8.8	2.6	4.6
First recall incomplete.....	50	17	17	9	7	4.3	4.8	3.8	5.9	3.3
No response to first recall.....	290	86	119	32	53	24.8	24.1	26.8	20.8	24.7
Total.....	626	207	258	68	93	53.6	58.1	58.1	44.2	43.3
Initial treatment incomplete:										
No further response.....	497	137	177	80	103	42.5	38.5	39.9	51.9	47.9
Child returned at later date.....	46	12	9	6	19	3.9	3.4	2.0	3.9	8.8
Total.....	543	149	186	86	122	46.4	41.9	41.9	55.8	56.7
All histories.....	1,169	356	444	154	215	100.0	100.0	100.0	100.0	100.0

respect to completion of the initial series and of succeeding recalls, the term "recall" being applied to all series following the initial one. The data are arranged in order of currency of treatment, beginning with the children whose dental care was considered to be up to date;

that is, they were, as of November 1, 1945, coming to the clinic or had completed their most recent recall within 6 months of this date. Two main divisions have been made on the basis of whether or not the child completed the initial series of treatments. As the table and figure 1 show, 46 percent of the original group failed to receive all the necessary initial treatments. About a fifth of these paid only a single visit to the clinic.

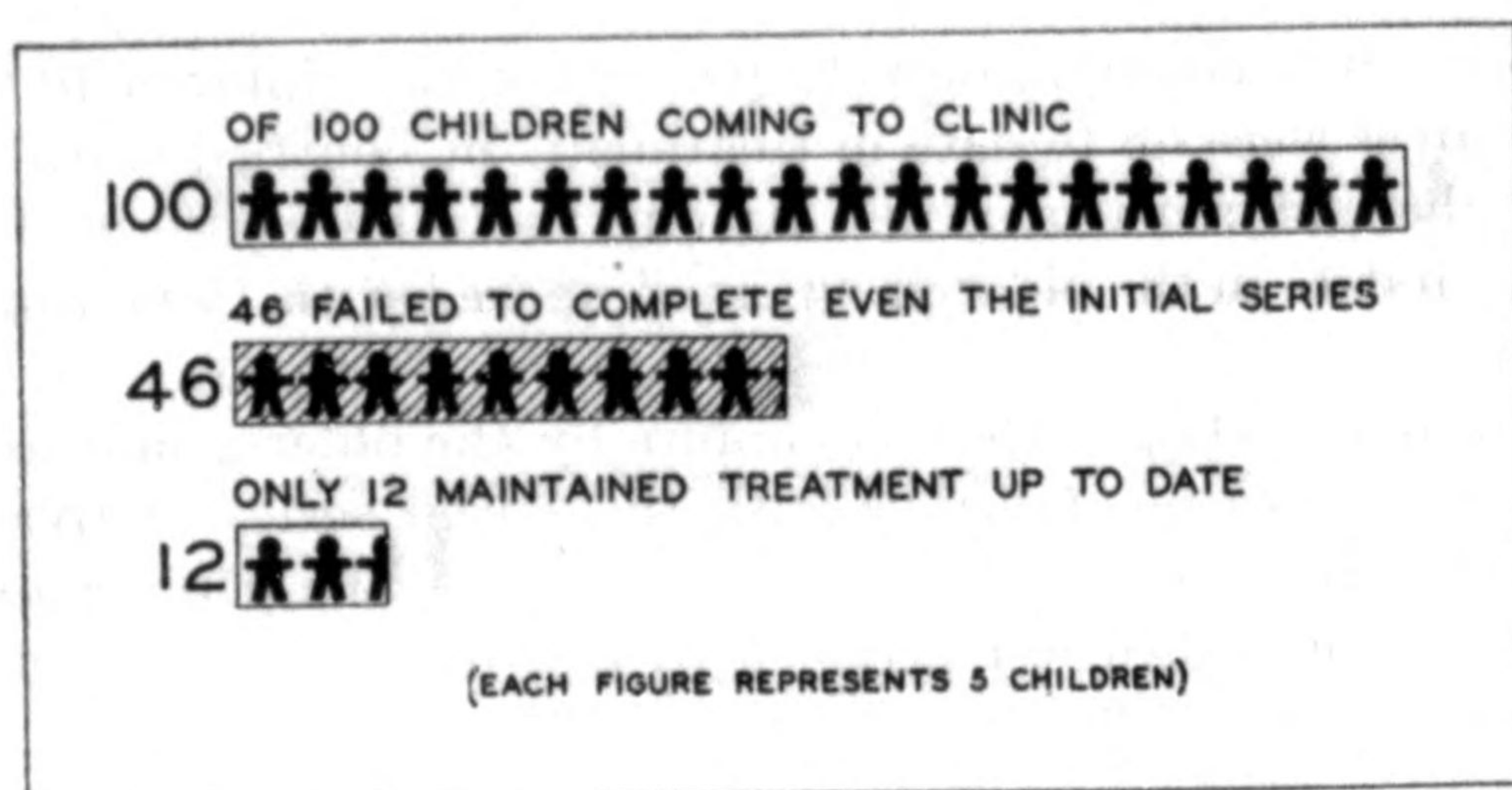


FIGURE 1.—Completion experience of patients. Philadelphia Mouth Hygiene Association.

Twenty-five percent carried their initial series through to completion but failed to return for treatment when recalled 6 months afterward. Another 17 percent had come back when first recalled but had dropped out since. Twelve percent of the children were up to date in their dental care (fig. 1).

There are color and age differences with regard to completions, but no differences to speak of in this respect between the sexes. A statistically significant difference occurs between white and Negro children; 58 percent of the former completed the initial series of treatments as compared with 44 percent of the latter. This difference shows no association with the volume of work required as shown by the original examinations of the two groups. The average number of extractions and fillings needed, both deciduous and permanent, was the same for each group.

Examination of the status of the case records according to age of the children reveals two findings that may be important. The first is that a marked difference exists between older and younger children in the proportion with current records. The extent of the difference is shown in the table below. The 15- and 16-year-olds have been eliminated because some of them may have left school since 1942 or 1943 and become ineligible for continued treatment.

January 24, 1947

Record history	Percentage of children in age group			
	White children		Other children	
	Under 10 years	10-14 years	Under 10 years	10-14 years
Treatment up to date.....	19.4	12.5	18.9	4.7
Initial series incomplete.....	37.5	40.6	51.2	58.8

Among white children, only 12 percent of the children 10 years of age and over were up to date in treatment, in contrast with 19 percent of the children under 10. Among the other children, 5 percent were up to date in the older group as compared with 19 percent in the younger.

The second finding is that the failure by the older group to receive all necessary treatment begins with the initial series of treatments. For, as the lower line of the above table shows, the percentage in the older group that failed to receive all treatment is greater than that in the younger. The differences, however, are not great.

SERVICES RECEIVED ON INITIAL SERIES BY CHILDREN WHO COMPLETED THIS SERIES OF VISITS

The routine services received by the 626 children who completed the initial series of treatments, and the number of visits in which these services were provided are summarized in table 4.

TABLE 4.—Services and visits on initial series of treatments for 626 children who completed this series. Philadelphia Mouth Hygiene Association

Service	Children receiving specified service		Number of teeth		Number of visits		
	Number	Percentage	Per child in group	Per child treated	Per child in group	Per child treated	Per tooth treated
Prophylaxis.....	565	90.3			0.9	1.0	
Fillings:							
Deciduous teeth.....	234	37.4	1.1	3.0	1.1	2.9	0.98
Permanent teeth.....	506	80.8	4.2	5.1	4.9	6.1	1.18
Extractions:							
Deciduous teeth.....	217	34.7	.9	2.5	.7	2.0	.79
Permanent teeth.....	230	36.7	.7	1.9	.7	1.9	.98
Polishing.....	452	72.2			.7	1.8	
X-ray.....	65	10.4					
Total services and visits..	626	100.0	6.9		9.1	9.1	

¹ Per child who had one or more teeth filled.
² Includes a small number of visits for zinc oxide and eugenol treatment and treatment with silver nitrate.

Services.—Services are only briefly discussed because the time over which dental decay accrued in these children is not known, nor can the factor of selection previously mentioned be accounted for.

As the table shows, these children, the first time they visited this clinic, had an average of 5.3 teeth requiring fillings, both deciduous and permanent, and 1.6 teeth indicated for extraction. Of the entire group of 626 children, only 26 had no cavities to be filled. Four-fifths of the children had cavities in the permanent teeth, with an average of more than five teeth per child affected. A third required the extraction of a permanent tooth, but among these children 1.9 teeth were extracted per child. A small number of additional extractions which had to be done under gas anesthesia were referred to hospital out-patient departments.

A prophylaxis at the beginning of a series and a polishing at the last visit, when there had been fillings, were fairly routine. There were a few cases in which the only missing item of treatment was the polishing; these cases were still defined as completions. X-rays were taken when the dentist considered them necessary—in 10 percent of the cases who completed the initial series of treatments.

Visits.—The data on visits are considered to be among the most important of these findings. Such data are fundamental in planning dental programs, for they provide a good part of the information needed to determine dental-manpower requirements to meet children's needs.

Charges in this clinic, it was pointed out earlier, are made on a visit basis. In general, an operation such as a filling or an extraction constituted a visit, although the deviations from unity in the last column of table 4 indicate that the dentist found it expedient to vary somewhat the work done per visit. For example, the ratio of 0.79 visit per deciduous tooth extracted shows that two or more deciduous teeth were quite frequently extracted at the same time. Similarly, the ratio of 1.18 visits per filling of a permanent tooth is evidence that it frequently took more than one visit to fill a permanent tooth. One cavity or surface may have been taken care of at a time or the filling completed in two stages.

A prophylactic treatment per series of treatments is accepted practice. One visit ordinarily sufficed, but a few children required more than one visit to get their teeth satisfactorily cleaned; as a result, the number of visits per child for this purpose was 1.02.

To meet the needs indicated for this group took an average of nine visits. Eighteen children of the 626 required but one visit to the clinic for a prophylaxis, 21 required 2 visits, and 25 came 3 times. At the other extreme, there were 16 children for whom 20 or more visits were recorded, including 2 who made 31 visits.

January 24, 1947

SERVICES RECEIVED BY CHILDREN WHO FAILED TO COMPLETE THE INITIAL SERIES

Data for the children who failed to return for all the services they needed are summarized in table 5. Comparison of this group with

TABLE 5.—Services and visits on initial series of treatments for 543 children who failed to complete this series. Philadelphia Mouth Hygiene Association

Service	Number of children	Percentage of children	Number of teeth		Number of visits		
			Per child in group	Per child needing specified service	Per child in group	Per child needing specified service	Per tooth treated
Prophylaxis.....	508	93.6			1.0	1.1	-----
Fillings:							
Deciduous indicated.....	182	33.5	1.3	3.8			
Deciduous filled.....	72	13.3	.3	2.1	.3	2.1	.99
Permanent indicated.....	492	90.6	5.7	6.3			
Permanent filled.....	291	53.6	1.6	3.0	1.9	3.5	1.17
Extractions:							
Deciduous indicated.....	195	35.9	1.1	3.1			
Deciduous extracted.....	132	24.3	.6	2.5	.4	1.8	.71
Permanent indicated.....	267	49.2	1.3	2.6			
Permanent extracted.....	192	35.4	.7	1.9	.6	1.8	.97
Total services and visits..	543	100.0	19.4	-----	4.3	4.3	-----

¹ Indicated for filling or extraction.
² Includes a small number of visits for zinc oxide and eugenol treatment.

those children who completed their treatments (table 4) shows that the former, who were on the average a year older, had considerably more work to be done than the latter. The differences may be seen in the following tabulation and in figure 2.

Indicated treatment per child in group	Initial series	
	Completed	Not completed
	Number of teeth	
Fillings:		
Deciduous teeth.....	1.1	1.3
Permanent teeth.....	4.2	5.7
Extractions:		
Deciduous teeth.....	.9	1.1
Permanent teeth.....	.7	1.3

The total number of visits these services would require, including visits for prophylaxis and polishing, is approximately 12. The average number of visits actually made was 4.3; that is to say, a little over a third of all the operations indicated were completed. In relation to work needed, more extractions were done than fillings (fig. 2), largely because it is the practice in these clinics to attend to the most

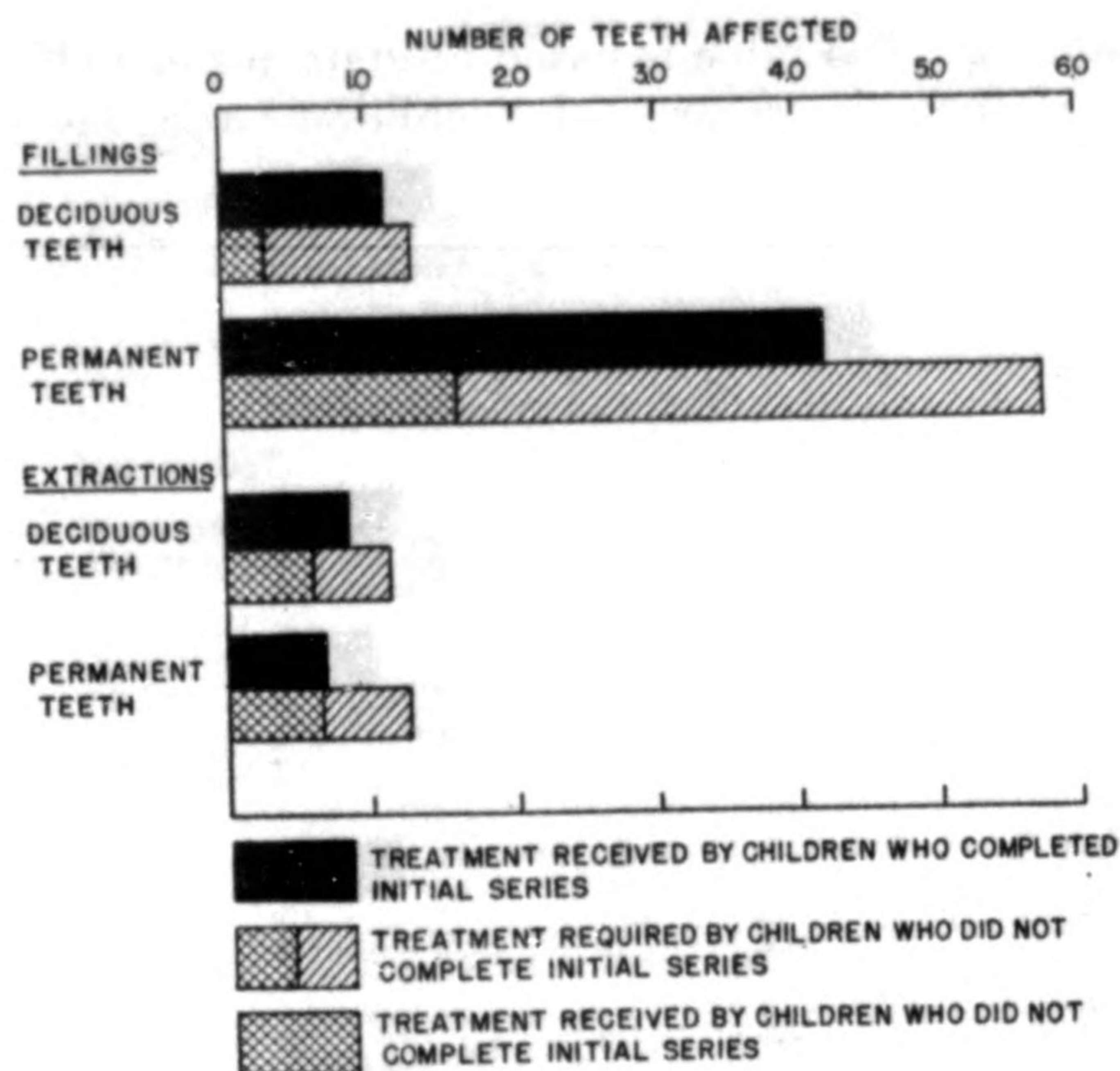


FIGURE 2.—Care required on initial series of treatments: Comparison of children who completed this series with those who did not. Philadelphia Mouth Hygiene Association.

urgent needs first. Often, it is an emergency extraction that introduces parent and child to the clinic.

The number of visits per service for these children, as shown in the last column of table 5, is remarkably similar to that for the group completing the initial series (table 4). As will be shown later (page 126), the ratio of visits to services was also very much the same on the subsequent recalls of these children. Thus, visits per type of service would seem to afford a constant or guide that is applicable in estimating dental-treatment facilities.

SERVICES RECEIVED ON FIRST RECALL

Patients of the clinic are recalled for examination and further treatment 6 months from the completion of the preceding series. Reference to table 3 will show that of the 626 children who completed the initial course of treatment, 336 responded to the recall notice (although not all the children responded promptly). Fifty failed to complete all treatment on first recall, but because of their small number these children have been included in the two tables for this section. The effect of their discontinuance can be gathered from the differences between treatment indicated and received.

Interval between initial series and first recall.—The average interval between completion of initial treatment and return for first recall was 7.2 months. Seventy percent of the group returned in 5 to 7 months, and all but 6 percent returned within a year. The services indicated for the group on first recall and the services received by them are

January 24, 1947

shown in table 6. The table is based on data for 329 children, since for various reasons the records of 7 children were not completely tabulated.

TABLE 6.—Services and visits on first recall for 329 children. Philadelphia Mouth Hygiene Association

Service	Number of children	Percentage of children	Number of teeth		Number of visits		
			Per child in group	Per child needing specified service	Per child in group	Per child needing specified service	Per tooth treated
Prophylaxis.....	318	96.7			1.0	1.0	
Fillings:							
Deciduous indicated.....	91	27.7	0.6	2.0			
Deciduous filled.....	79	24.0	.5	2.1	.5	2.0	0.98
Permanent indicated.....	245	74.5	2.4	3.3			
Permanent filled.....	222	67.5	1.9	2.8	2.0	3.0	1.09
Extractions:							
Deciduous indicated.....	69	21.0	.4	1.8			
Deciduous extracted.....	59	17.9	.3	1.8	.3	1.4	.81
Permanent indicated.....	26	7.9	.1	1.3			
Permanent extracted.....	26	7.9	.1	1.3	.1	1.3	1.03
Total services and visits..	329	100.0	13.5		4.3	4.3	

¹ Indicated for filling or extraction.

² Includes visits for polishing and a small number of visits for zinc oxide and eugenol treatment and treatment with silver nitrate.

Services.—It is worth emphasizing that at the time these children completed the initial series they presumably required no further dental services. The data in table 6, then, represent the need that accrued over a period of 7 months on the average.

A fourth of the children were found to need fillings in one or more deciduous teeth and three-fourths to need fillings in the permanent teeth. One in five required extraction of deciduous teeth, and extraction of permanent teeth was indicated for about one in twelve. As for the number of teeth affected, the deciduous and permanent teeth combined amounted to three teeth per child to be filled and 0.5 tooth to be extracted.

Some appreciation of the significance of these increments is gained by comparing this group of children with those who did not return for the first recall. On the original series, the children who did not return required 7.1 fillings (teeth) and extractions, whereas for those who did return the figure was 6.6. The former required more services on the permanent teeth, but they were a year older on the average. This similarity between the two groups indicates that caries susceptibility was not a factor in the selection of the children who returned for first recall. Thus, the findings as to increment may have some application beyond these children.

The data for the children who responded to this recall are affected by their age distribution, for these are the years when the deciduous

teeth are lost and the permanent teeth acquired. The care needed by each age group, in 3-year intervals, is shown in table 7. The picture is

TABLE 7.—Fillings and extractions indicated on first recall, by age group. Philadelphia Mouth Hygiene Association

Age (in years)	Number of children	Per child in age group			
		Deciduous fillings (teeth)	Permanent fillings (teeth)	Deciduous extractions	Permanent extractions
6 or less.....	42	2.0	0.4	0.6	.....
7-9.....	81	1.1	2.0	.8	(¹)
10-12.....	85	.2	2.7	.3	0.1
13-15.....	85	.....	3.6	(¹)	.2
16 and over.....	36	.....	2.5	.....	.1
All children.....	329	.6	2.4	.4	.1

¹ Less than 0.05.

very much what one would expect. The tendency is to fill the deciduous teeth in the earliest years, when they are needed, and to extract them later on when they are ready for replacement by the permanent teeth. Permanent teeth required an increasing amount of attention until the age of 14 or 15 when, in this group at least, there was some tapering off in the number of teeth with cavities to be filled. The rate of extraction of permanent teeth after the age of 9 was fairly constant.

SERVICES RECEIVED ON SECOND RECALL

Data are presented in table 8 for 173 children³ who returned for the second recall. The average time between the end of the first recall

TABLE 8.—Services and visits on second recall for 173 children. Philadelphia Mouth Hygiene Association

Service	Number of children	Percentage of children	Number of teeth		Number of visits		
			Per child in group	Per child needing specified service	Per child in group	Per child needing specified service	Per tooth treated
Prophylaxis.....	160	92.5	.....	.....	0.9	1.0	.....
Fillings:							
Deciduous indicated.....	43	24.9	0.5	2.0	.....	.....	.....
Deciduous filled.....	40	23.1	.4	1.9	.4	1.8	0.96
Permanent indicated.....	113	65.3	2.0	3.0	.....	.....	.....
Permanent filled.....	109	63.0	1.7	2.7	1.8	2.8	1.04
Extractions:							
Deciduous indicated.....	27	15.6	.3	1.9	.....	.....	.....
Deciduous extracted.....	24	13.9	.2	1.7	.2	1.4	.83
Permanent indicated.....	9	5.2	.1	1.6	.....	.....	.....
Permanent extracted.....	9	5.2	.1	1.4	.1	1.3	.92
Total services and visits..	173	100.0	12.9	.....	3.8	3.8	.....

¹ Indicated for filling or extraction.

² Includes visits for polishing and a small number of visits for zinc oxide and eugenol treatment.

³ According to table 2, there should be 195 children in this group, but the second recall records of 22 children were not tabulated; 18 of the children considered up to date in treatment were awaiting second recall and 4 were not coded for other reasons.

January 24, 1947

124

and the beginning of the second was 7.6 months, with three-fourths of the children returning in 5 to 8 months.

Although for the group as a whole there is a consistent decrease in required services as compared with the findings on first recall, these differences are so small as to warrant the opinion that uniform increases in dental need are to be expected in groups of children over periods of 6 months or a year. The data on the two recalls were as follows:

Indicated treatment per child in group	Number of teeth	
	First recall	Second recall
Fillings:		
Deciduous teeth.....	0.6	0.5
Permanent teeth.....	2.4	2.0
Extractions:		
Deciduous teeth.....	.4	.3
Permanent teeth.....	.1	.1

In table 9 are given the services per child by age group. The numbers of children involved in the table are small, but comparison with table 7 shows that the findings in both tables are quite similar.

TABLE 9.—Fillings and extractions indicated on second recall, by age group. Philadelphia Mouth Hygiene Association

Age (in years)	Number of children	Per child in age group			
		Deciduous fillings (teeth)	Permanent fillings (teeth)	Deciduous extractions	Permanent extractions
6 or less.....	30	1.7	0.4	0.8	0.1
7-9.....	46	.7	1.7	.3	.1
10-12.....	49	.1	3.1	.2	.1
13-15.....	40	.....	2.2	.....	.1
16 and over.....	8	.....	1.6	.....	.....
All children.....	173	.5	2.0	.3	.1

The data for both recalls have been combined in figure 3 to show the approximate age trend in the annual increment of needed fillings and extractions.

Annual increment in required treatment.—An idea of the annual increment can be gained from adding the data in tables 6 and 8. In this group of children, which was fairly evenly distributed by age between 5 and 16 years and consisted largely of white children, the average annual increment was approximately one deciduous tooth and four permanent teeth requiring fillings, 0.7 of a deciduous tooth and 0.2 of a permanent tooth requiring extraction. If two prophylaxes are added, the total of routine services comes to eight.

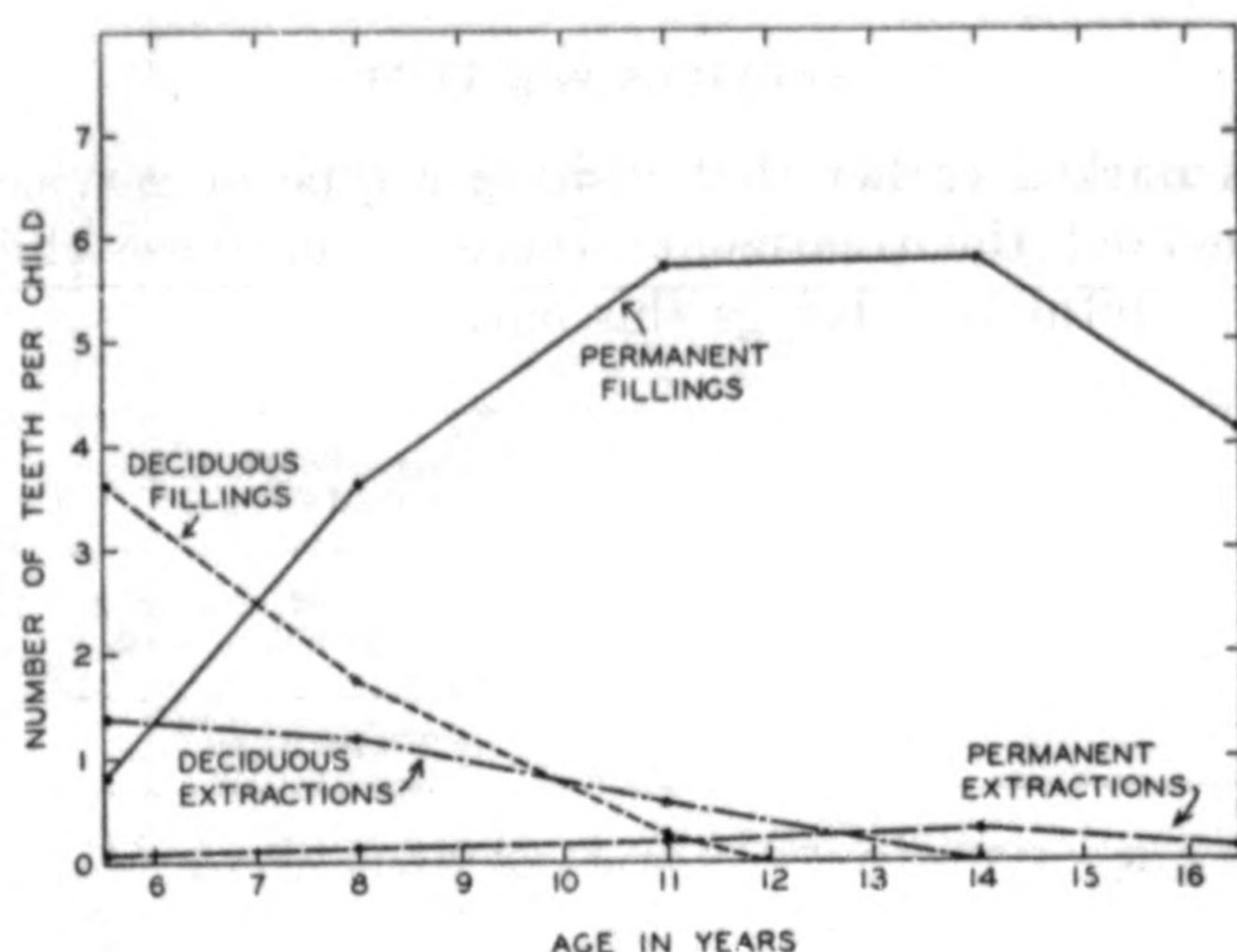


FIGURE 3.—Approximate annual incidence of needed fillings and extractions, by age. Philadelphia Mouth Hygiene Association.

It is important to recognize that this annual increment did not necessarily occur in teeth never previously treated. Many of the fillings, for example, were placed in teeth in which previous cavities had been filled. This raises the question of the additiveness of the data on fillings for the two recalls. Although an overstatement of the number of teeth attacked by caries may result, a measure is obtained of the actual number on which work has to be done.

A more precise estimate of annual increment may be obtained by eliminating the children for whom the interval between completion of the initial series and commencement of the second recall was appreciably more than a year, although the results vary little from those for the entire group. This procedure leaves 122 children for whom the interval was 10 to 15 months, inclusive. For these children, the annual increment in dental need was, on the average, 1.5 deciduous and 3.4 permanent teeth requiring fillings, and 0.6 deciduous and 0.1 permanent tooth requiring extraction. The results are shown graphically in figure 4.

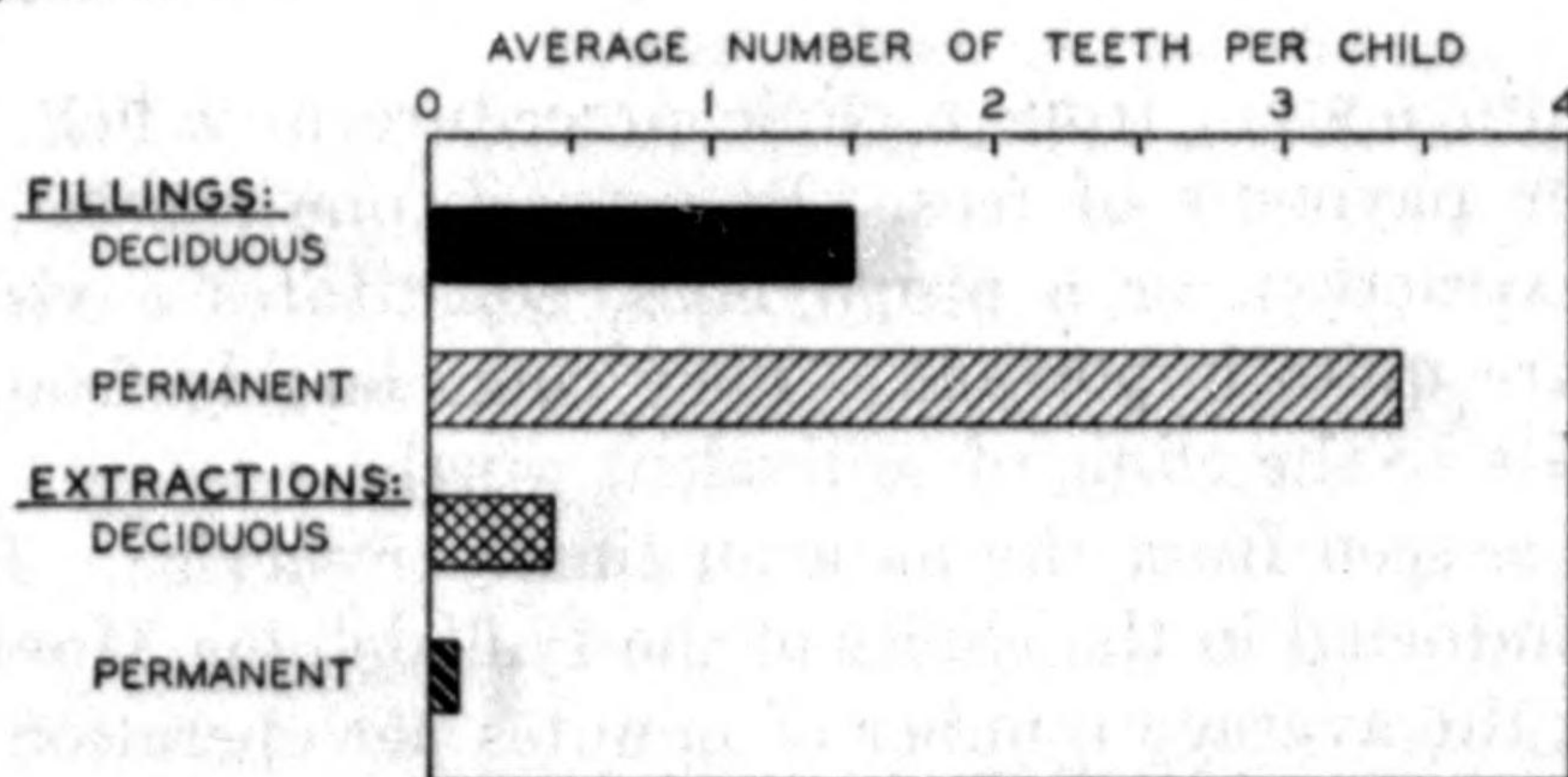


FIGURE 4.—Average annual increment in needed fillings and extractions. Philadelphia Mouth Hygiene Association.

January 24, 1947

126

SERVICES PER VISIT

It was remarked earlier that visits per type of service were constant throughout the treatment experience of these children. The following recapitulation brings this out.

Type of service	Children who completed initial series			Initial series incomplete	Weighted average
	Initial series	First recall	Second recall		
	Visits per service				
Prophylaxis.....	1.02	1.01	1.01	1.05	1.03
Filling (complete tooth):					
Deciduous.....	.98	.98	.96	.99	.98
Permanent.....	1.18	1.09	1.04	1.17	1.16
Extraction:					
Deciduous.....	.79	.81	.83	.71	.77
Permanent.....	.98	1.03	.92	.97	.98

Three percent of the children require more than one visit for a prophylaxis. In a very small number of instances, more than one deciduous tooth is filled at a visit and more than one permanent tooth extracted. The multiple extraction of deciduous teeth occurs frequently. Between 15 and 20 percent of all permanent teeth require more than one visit to have all cavities or surfaces completely taken care of. (See fig. 5.)

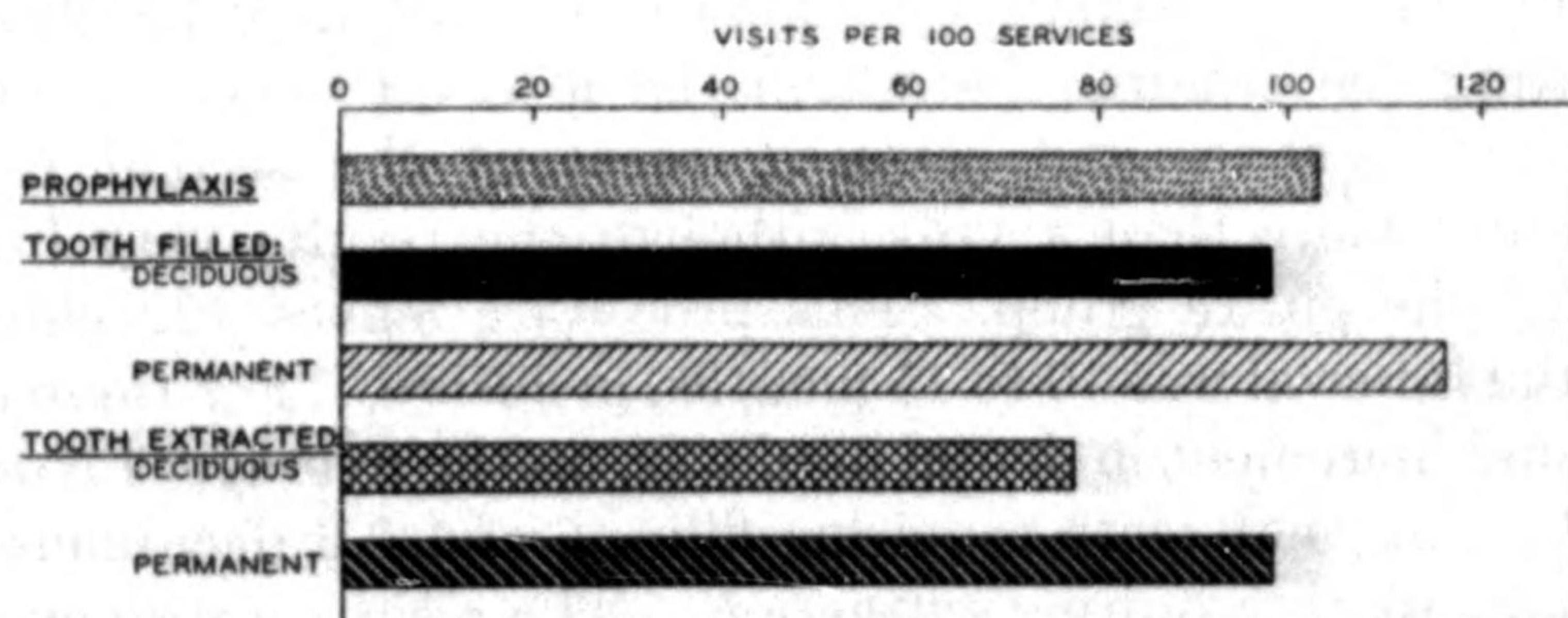


FIGURE 5.—Visits per 100 specified dental services. Philadelphia Mouth Hygiene Association.

These findings stem from a clinic procedure in which the visit is the basis for payment of fees. In general, one service, such as a filling, an extraction, or a prophylaxis, constitutes a visit, but the deviations are quite important. They come largely from the effort to make visits to the clinic of equivalent worth.

This fact is seen from the data on time per service. In the time study (1) conducted in the clinics of the Philadelphia Mouth Hygiene Association, the average number of minutes per operation was found to be as follows:

Prophylaxis.....	15.5
Deciduous filling (complete tooth).....	14.3
Permanent filling (complete tooth).....	17.4
Deciduous extraction.....	9.3
Permanent extraction.....	12.5
Polishing.....	11.8

The briefest operation was the deciduous extraction; but the extraction of two deciduous teeth at a visit was a frequent occurrence. On the other hand, the longest operation, the filling of a permanent tooth, was often spread over two visits.

From the data on visits and time per service, preliminary estimates can be made of the dental manpower—at the chair—required in treating children's teeth, so far as taking care of the increment is concerned. One advantage in employing visits required rather than number of teeth is that allowance can more adequately be made for time between children, interruptions, etc., and for the administration of the clinic service.

SPECIAL SERVICES

As was previously indicated, the clinics of the Philadelphia Mouth Hygiene Association offer such services as orthodontic and prosthodontic treatments, and root-canal therapy. Orthodontic and prosthodontic services are charged for at fees considered to be within the reach of the economic groups served. It was possible to obtain accurately only the number in this group of children who received such services and not the number considered to need them.

In the entire group of 1,169 children, 61 availed themselves of these opportunities for correction and tooth-saving, with 4 children receiving some combination of services. Thirty received orthodontic treatment, 21 were provided with prosthetic devices, and 18 had root-canal therapy. These are relatively small numbers, but the clinic itself does a substantial amount of work in orthodontics and prosthetics for children who can afford to obtain routine treatment from private dentists but are referred to the clinic by the latter for the costlier services.

SUMMARY

1. An analysis has been made of the dental records of 1,169 children who came to the Central City Clinic of the Philadelphia Mouth Hygiene Association for the first time in 1942 or 1943. The association provides dental care at low cost for children whose families cannot afford private treatment.

2. Fifty-four percent of these children completed the initial series of treatments; 46 percent dropped out before all the treatment indicated for them could be provided. Of the Negro children, 44 percent completed the first series of treatments.

January 24, 1947

128

Twenty-five percent of the 1,169 children failed to return in 6 months for reexamination. Of the entire group, 12 percent were up to date in treatment. Younger children showed a greater proneness to continue treatment.

3. Children who failed to complete the initial series of treatments had considerably more need than the children who completed this series. The average number of teeth requiring filling or extraction was 6.9 in the latter group and 9.4 in the former.

4. Indicated services per child for the routine treatments on the first recall (which was begun 7 months after completion of the initial series, on the average) were: fillings, 0.6 deciduous tooth and 2.4 permanent teeth; extractions, 0.4 deciduous tooth and 0.1 permanent tooth.

5. Children who responded to the first recall did not apparently differ in caries susceptibility from those who did not respond. On the initial series, both groups had an average of approximately seven teeth in need of filling or extraction.

6. Services indicated on second recall were slightly less than those on the first: 0.5 filling in deciduous teeth and 2.0 in permanent teeth, 0.3 extraction in deciduous teeth and 0.1 in permanent teeth.

7. There were 122 children for whom the interval between completion of the initial series and beginning of the second recall was 10 to 15 months, or approximately 1 year. For these children, the annual increment in dental need was 1.5 deciduous and 3.4 permanent teeth requiring fillings, 0.6 deciduous and 0.1 permanent tooth requiring extraction.

8. The average number of visits per service in this clinic, where charges are made on a visit basis, were:

Prophylaxis.....	1.03	Deciduous tooth extracted.....	0.77
Deciduous tooth filled.....	.98	Permanent tooth extracted.....	.98
Permanent tooth filled.....	1.16		

9. In the entire group of 1,169 children, 30 received orthodontic treatment, 21 were provided with prosthetic devices, and 18 had root-canal therapy.

ACKNOWLEDGMENT

This study was made possible only by the complete cooperation of Lt. Col. William C. Webb, Jr., executive director of the children's dental clinics of the Philadelphia Mouth Hygiene Association, and the members of his staff. Advice and assistance were received from Dr. Antonio Ciocco and Dr. Henry Klein of the Division of Public Health Methods. Responsibility for tabulation and for the preparation of tables and charts was borne by Mrs. Marion Lee Fatt of this Division.

REFERENCES

- (1) Altman, Isidore: Time per service in a children's dental clinic. Pub. Health Rep., 61: 1211-19 (Aug. 16, 1946).
- (2) U. S. Congress. Senate Committee on Education and Labor. Dental research and dental care; hearings before a subcommittee * * * on S. 190 * * * and S. 1099. Washington: U. S. Government Printing Office (1945).
- (3) Council on Dental Health, American Dental Association: A dental care plan for low income groups. Chicago, American Dental Association (1945).

APPENDIX

TABLE 10.—Services and visits on initial series of treatments for 465 white children who completed this series. Philadelphia Mouth Hygiene Association

Service	Children receiving specified service		Number of teeth		Number of visits		
	Number	Percentage	Per child in group	Per child treated	Per child in group	Per child treated	Per tooth treated
Prophylaxis.....	425	91.4			0.9	1.0	
Fillings:							
Deciduous teeth.....	183	39.4	1.2	3.0	1.2	3.0	0.99
Permanent teeth.....	378	81.3	4.2	5.1	4.9	6.1	1.19
Extractions:							
Deciduous teeth.....	169	36.3	.9	2.5	.7	1.9	.79
Permanent teeth.....	157	33.8	.7	2.0	.7	1.9	.97
Polishing.....	343	73.8			.7	1.8	
X-ray.....	57	12.3					
Total services and visits..	465	100.0	7.0		19.2	19.2	

¹ Per child who had one or more teeth filled.

² Includes a small number of visits for zinc oxide and eugenol treatment and treatment with silver nitrate

TABLE 11.—Services and visits on initial series of treatments for 335 white children who failed to complete this series. Philadelphia Mouth Hygiene Association

Kind of operation	Number of children	Percentage of children	Number of teeth		Number of visits		
			Per child in group	Per child needing specified service	Per child in group	Per child needing specified service	Per tooth treated
Prophylaxis.....	311	92.8			1.0	1.0	
Fillings:							
Deciduous indicated.....	120	35.8	1.2	3.4			
Deciduous filled.....	40	11.9	.2	2.0	.2	2.0	1.03
Permanent indicated.....	302	90.1	5.8	6.5			
Permanent filled.....	182	54.3	1.7	3.2	2.1	3.8	1.19
Extractions:							
Deciduous indicated.....	135	40.3	1.3	3.2			
Deciduous extracted.....	93	27.8	.7	2.5	.5	1.8	.71
Permanent indicated.....	162	48.4	1.2	2.6			
Permanent extracted.....	119	35.5	.6	1.8	.6	1.8	.97
Total services and visits..	335	100.0	19.5		14.6	14.6	

¹ Indicated for filling or extraction.

² Includes a small number of visits for zinc oxide and eugenol treatments.

January 24, 1947

130

TABLE 12.—Services and visits on first recall for 254 white children. Philadelphia Mouth Hygiene Association

Kind of operation	Number of children	Percentage of children	Number of teeth		Number of visits		
			Per child in group	Per child needing specified service	Per child in group	Per child needing specified service	Per tooth treated
Prophylaxis.....	247	97.2			1.0	1.0	
Fillings:							
Deciduous indicated.....	70	27.6	0.5	2.0			
Deciduous filled.....	59	23.2	.5	1.9	.4	1.9	0.98
Permanent indicated.....	189	74.4	2.4	3.3			
Permanent filled.....	173	68.1	1.9	2.8	2.0	3.0	1.07
Extractions:							
Deciduous indicated.....	50	19.7	.3	1.7			
Deciduous extracted.....	44	17.3	.3	1.7	.2	1.4	.85
Permanent indicated.....	18	7.1	.1	1.3			
Permanent extracted.....	17	6.7	.1	1.4	.1	1.4	1.00
Total services and visits..	254	100.0	¹ 3.3		² 4.3	² 4.3	

¹ Indicated for filling or extraction.

² Includes visits for polishing and a small number of visits for zinc oxide and eugenol treatment and treatment with silver nitrate.

TABLE 13.—Services and visits on second recall for 129 white children Philadelphia Mouth Hygiene Association

Kind of operation	Number of children	Percentage of children	Number of teeth		Number of visits		
			Per child in group	Per child needing specified service	Per child in group	Per child needing specified service	Per tooth treated
Prophylaxis.....	119	92.2			0.9	1.0	
Fillings:							
Deciduous indicated.....	32	24.8	0.5	1.9			
Deciduous filled.....	31	24.0	.4	1.8	.4	1.8	0.96
Permanent indicated.....	84	65.1	1.9	2.9			
Permanent filled.....	84	65.1	1.7	2.6	1.8	2.7	1.05
Extractions:							
Deciduous indicated.....	18	14.0	.3	2.1			
Deciduous extracted.....	15	11.6	.2	1.9	.2	1.6	.86
Permanent indicated.....	6	4.7	.1	1.5			
Permanent extracted.....	6	4.7	.1	1.5	.1	1.3	.89
Total services and visits..	129	100.0	¹ 2.8		² 3.7	² 3.7	

¹ Indicated for filling or extraction.

² Includes visits for polishing.

PUBLIC HEALTH SERVICE PUBLICATIONS**A List of Publications Issued During the Period January-June 1946**

There is given herewith a list of publications of the United States Public Health Service issued during the period January-June 1946.

The purpose of this list is to provide a complete and continuing record of Public Health Service publications, for reference use by librarians, scientific workers, and others interested in particular fields of public health work, and not to offer the publications for indiscriminate free distribution.

Single sample copies are available from the Public Inquiries Section, Office of Health Information, United States Public Health Service, Washington 25, D. C.

Quantities may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at prices shown, with a reduction of 25 percent on lots of 100 copies or more of a single publication.

Those publications marked with an asterisk (*) can be obtained only by purchase.

Periodicals

- *Public Health Reports (weekly), January-June, vol. 61, Nos. 1 to 26, pages 1 to 977. 10 cents a number.
- *The Journal of Venereal Disease Information (monthly), January-June, vol. 27, Nos. 1 to 6, pages 1 to 168. 5 cents a number.
- *Journal of the National Cancer Institute (bimonthly), February-June, vol. 6, Nos. 4 to 6, pages 196 to 377. 40 cents a number.
- Public Health Engineering Abstracts (monthly), January-June, vol. XXVI, Nos. 1 to 6, 32 pages each. No sales stock.
- National Negro Health News (quarterly), January-June, vol. 14, Nos. 1 and 2, 24 pages each. No sales stock.

**Extracts from Public Health Reports
Tuberculosis Control Issues**

1. Editorial. (By Herman E. Hilleboe.) Rehabilitation and aftercare in tuberculosis. I. General Problems. By Herman E. Hilleboe and Norvin C. Kiefer. Photofluorographic roll-film viewers. By Ira Lewis. Tuberculosis mortality in major cities: United States, 1942-43. By R. V. Kasius and E. H. Pitney. Characteristics of commercial X-ray intensifying screens: resolving power. Excerpt from "Tuberculosis in Holland during the war." March 1, 1946. 32 pages; 2 plates. No sales stock.
2. Editorial—Teamwork in tuberculosis control. (By Herman E. Hilleboe.) Geographic differences in sensitivity to histoplasmin among student nurses. By Carroll E. Palmer. Tuberculosis mortality in the United States and in each State: 1944. By J. Yerushalmy and I. M. Moriyama. April 5, 1946. 44 pages. No sales stock.
3. Editorial—Tuberculosis record systems. (By Herman E. Hilleboe.) The modalities of bed rest. By William M. Peck. Review of tuberculosis control demonstrations and the program of grants-in-aid. By Francis J.

January 24, 1947

132

Weber. Isolation of *Mycobacterium tuberculosis* from gastric contents neutralized after varying periods. By Marian G. Sprick and John W. Towey. Excerpts from "How much control of tuberculosis." A forecast (excerpt from "The Modern Attack on Tuberculosis"). May 3, 1946. 30 pages; 6 plates. No sales stock.

4. Editorial—BCG vaccination against tuberculosis. (By Herman E. Hilleboe.) Experience with BCG vaccine in the control of tuberculosis among North American Indians. By Joseph D. Aronson and Carroll E. Palmer. Indolent early tuberculosis. Excerpt from "Rehabilitating the tuberculous." Excerpt from "Chemotherapy in tuberculosis." Excerpt from "Tuberculosis in Sweden and the fight against it in recent years." New films available on administration of mass radiography programs. Laryngeal swabs for detection of tuberculosis. June 7, 1946. 30 pages. No sales stock.

Reprints From the Public Health Reports

2686. A cycle of morphine addiction. Biological and psychological studies. Part I: Biological investigations. By Edwin G. Williams and Fred W. Oberst. Part II: Psychological investigations. By Ralph R. Brown. January 4 and 11, 1946. 42 pages. 10 cents.
2687. The release of antigen from certain bacteria on treatment with ether. By Charles C. Shepard. January 11, 1946. 6 pages. 5 cents.
2688. An epidemic of a severe pneumonitis in the bayou region of Louisiana. VI. A comparative study of the viruses of lymphogranuloma venereum, psittacosis and Louisiana pneumonitis. By C. L. Larson and B. J. Olson. January 18, 1946. 10 pages. 5 cents.
2689. Tularemia. Attempted transmission by each of two species of fleas: *Xenopsylla cheopis* (Roths.) and *Diamanus montanus* (Baker). By F. M. Prince and M. C. McMahon. January 18, 1946. 8 pages. 10 cents.
2690. Physical impairments of members of low-income farm families—11,490 persons in 2,477 Farm Security Administration borrower families, 1940. VI. Extent of immunization against smallpox, diphtheria, and typhoid fever. By Mary Gover and Jesse B. Yaukey. January 25, 1946. 13 pages. 5 cents.
2691. Composition of some trade name solvents used for cleaning and degreasing and for thinning paints. By Allen D. Brandt, W. J. McConnell, and R. H. Flinn. February 1, 1946. 12 pages. 5 cents.
2692. Influence of pH and temperature on the survival of coliforms and enteric pathogens when exposed to chloramine. By C. T. Butterfield and Elsie Wattie. February 8, 1946. 36 pages. 10 cents.
2693. Diphtheria incidence and trends in relation to artificial immunization with some comparative data for scarlet fever. By Selwyn D. Collins. February 15, 1946. 38 pages. 10 cents.
2694. The increase in tuberculosis proportionate mortality among nonwhite young adults. By J. Yerushalmy. February 22, 1946. 8 pages. 5 cents.
2695. Negro mortality. I. Mortality from all causes in the death registration States. By Mary Gover. February 22, 1946. 8 pages. 5 cents.
2696. The incidence of poliomyelitis and its crippling effects, as recorded in family surveys. By Selwyn D. Collins. March 8, 1946. 28 pages. 10 cents.
2697. Public Health Service drinking water standards, 1946. March 15, 1946. 14 pages. 5 cents.

2698. The excretion of DDT (2, 2-bis-(p-chlorophenyl)-1, 1, 1-trichloroethane) in man, together with clinical observations. By P. A. Neal, T. R. Sweeney, S. S. Spicer, and W. F. von Oettingen. March 22, 1946. 8 pages. 5 cents.
2699. Alterations in the cardiac conduction mechanism in experimental thiamine deficiency. By W. D. King and W. H. Sebrell. March 22, 1946. 7 pages; 2 plates. 5 cents.
2700. Cerebrospinal meningitis. A chronological record of reported cases and deaths. By Mary Gover and Glee Jackson. March 29, 1946. 17 pages. 10 cents.
2701. Some physical properties of DDT and certain derivatives. By Howard L. Andrews, William C. White, Loubov R. Gamow, and Dorothy C. Peterson. March 29, 1946. 8 pages; 1 plate. 15 cents.
2702. A method of conducting the 50 percent hemolysis end point complement-fixation test for parasitic diseases. By John Bozicevich, Helen M. Hoyem, and Vernal M. Walston. April 12, 1946. 6 pages. 5 cents.
2703. Streptomycin in experimental plague. By J. W. Hornibrook. April 12, 1946. 4 pages. 5 cents.
2704. Sequestration of calcium and magnesium in the presence of alkaline detergents. By Edward H. Mann and C. C. Ruehhoft. April 12, 1946. 8 pages. 5 cents.
2705. A statistical study of 500 psychopathic prisoners. By Hulsey Cason and M. J. Pescor. April 19, 1946. 17 pages. 10 cents.
2706. A public health program for rural areas. By Frederick D. Mott. April 26, 1946. 9 pages. 5 cents.
2707. Homologous serum jaundice. Experimental inactivation of etiologic agent in serum by ultraviolet irradiation. By John W. Oliphant and Alexander Hollaender. April 26, 1946. 6 pages; 1 plate. 5 cents.
2708. Comparative assays of rodenticides on wild Norway rats. I. Toxicity. By Sally H. Dieke and Curt P. Richter. May 10, 1946. 7 pages. 5 cents.
2709. Chlorine as a possible ovicide for *Aedes aegypti* eggs. By Stephen P. Hatchett. May 10, 1946. 4 pages. 5 cents.
2710. Shadowed replicas of tooth surfaces. By David B. Scott and Ralph W. G. Wyckoff. May 17, 1946. 10 pages; 6 plates. 5 cents.
2711. The preparation of antigens from yolk sacs infected with rickettsiae. By Norman H. Topping and Charles C. Shepard. May 17, 1946. 8 pages. 5 cents.
2712. The tropical disease education program of the United States Public Health Service. By William S. Boyd, Trawick H. Stubbs and Paul P. Weinstein. May 17, 1946. 6 pages. 5 cents.
2713. Training public health workers. Programs sponsored by State health departments under Title VI of the Federal Social Security Act and the Federal Venereal Disease Control Act (1936-44). By Joseph W. Mountin and Emily K. Hankla. May 24, 1946. 24 pages. 10 cents.
2714. The nature of the soluble antigen from typhus rickettsiae. By Charles C. Shepard and Ralph W. G. Wyckoff. May 31, 1946. 8 pages; 4 plates. 5 cents.
2715. Antibacterial action of penicillin, penicillin X, and streptomycin on *Hemophilus influenzae*. By William L. Hewitt and Margaret Pittman. May 31, 1946. 12 pages. 5 cents.

January 24, 1947

134

2716. A method for the preparation of tsutsugamushi (scrub typhus) antigen from infected yolk sacs. By Norman H. Topping and Charles C. Shepard. May 31, 1946. 4 pages. 5 cents.
2717. How does housing affect health? By M. Allen Pond. May 10, 1946. 8 pages. 5 cents.
2718. Electrocardiographic alterations in adult rats as a result of acute thiamine deficiency. By James M. Hundley and W. H. Sebrell. June 14, 1946. 16 pages; 5 plates. 10 cents.
2719. Studies of the acute diarrheal diseases. XVII. The sulfonamides in shigellosis. By Albert V. Hardy. June 14, 1946. 9 pages. 5 cents.
2720. Full-time public health positions in local health departments. By Marion E. Altenderfer. June 14, 1946. 10 pages. 5 cents.
2721. A performance test for rating dishwashing detergents. By Edward H. Mann and C. C. Ruchhoft. June 14, 1946. 12 pages; 2 plates. 10 cents.
2722. A serological study of 37 cases of tsutsugamushi disease (scrub typhus) occurring in Burma and the Philippine Islands. By Ida A. Bengtson. June 14, 1946. 8 pages. 5 cents.
2723. Complement fixation in tsutsugamushi disease (scrub typhus). By Ida A. Bengtson. June 14, 1946. 6 pages. 5 cents.
2724. Incidence of poliomyelitis in the United States in 1945. By C. C. Dauer. June 21, 1946. 8 pages. 5 cents.
2725. *Plasmodium gallinaceum* infection characterized by predominance of exo-erythrocytic forms. By Victor H. Haas, Aimee Wilcox, Frances Park Davis, and Frances Moore Ewing. June 21, 1946. 7 pages. 5 cents.
2726. Prevalence of typhus complement-fixing antibodies in human serums in San Antonio, Texas. By David E. Davis and Morris Pollard. June 21, 1946. 4 pages. 5 cents.
2727. Conclusions concerning psychiatric training and clinics. Meeting of consultants in mental hygiene, United States Public Health Service September 6, 1945. June 28, 1946. 16 pages. 5 cents.
2728. Promizole treatment of leprosy. A preliminary report. By G. H. Faget, R. C. Pogge and F. A. Johansen. June 28, 1946. 4 pages; 1 plate. 5 cents.
2729. Present status of diasone in the treatment of leprosy. Brief clinical note. By G. H. Faget, R. C. Pogge and F. A. Johansen. June 28, 1946. 8 pages; 3 plates. 5 cents.
1137. Questions and answers on smallpox and vaccination. By J. P. Leake. Revised 1946. 28 pages. 10 cents.

* **Supplements to Public Health Reports**

133. The public health nurse and you. Revised 1946. 13 pages, illustrated. 10 cents.
190. The notifiable diseases. Prevalence of certain important communicable diseases, by States, 1944. 1946. 14 pages. 5 cents.

National Institute of Health Bulletins

184. The genus *Ixodes* in North America. By R. A. Cooley and Glen M. Kohls. 1945. 246 pages. 40 cents.
185. The toxicity and potential dangers of methyl bromide with special reference to its use in the chemical industry, in fire extinguishers, and in fumigation. By W. F. von Oettingen. 1946. 41 pages. 15 cents.

186. The effects of aliphatic nitrous and nitric acid esters on the physiological functions with special reference to their chemical constitution. By W. F. von Oettingen. 1946. 76 pages. 15 cents.
187. The genera *Boophilus*, *Rhipicephalus*, and *Haemaphysalis* (*Ixodidae*) of the new world. By R. A. Cooley. 54 pages. 15 cents.

Annual Report

- Annual Report of the United States Public Health Service for the fiscal year 1945. 1945. 156 pages. 30 cents.

Unnumbered Publications

- Index to Public Health Reports, vol. 60, part 2, July-December 1945. 1946. 16 pages. 5 cents.
- Index to Journal of the National Cancer Institute, vol. VI, August 1945-June 1946. 1946. 6 pages. 5 cents.
- Set your cap for the U. S. Public Health Service. 1946. 8 page folder, illustrated. No sales stock.
- National Negro Health Week program. This pamphlet is published annually, usually during March, for community leaders in an effort to suggest ways and means by which interested individuals and organizations may be organized for a concerted and effective attack upon the community's disease problems. Thirty-second observance, March 31-April 7. 4 pages. Out of print.
- National Negro Health Week leaflet. Thirty-second observance. 1946. 2 pages. Out of print.
- National Negro Health Week poster. Thirty-second observance. 1946. Out of print.

Reprints from The Journal of Venereal Disease Information

253. The synergistic action of penicillin and mapharsen (oxophenarsine hydrochloride) in the treatment of experimental syphilis. By Harry Eagle, Harold J. Magnuson and Ralph Fleischman. January 1946. 8 pages. 5 cents.
254. San Francisco industrial venereal disease educational and case-finding program. By Richard A. Koch, Lawrence Arnstein, and Arthur C. Painter. January 1946. 12 pages. 5 cents.
255. A plan for revitalizing National venereal disease control. By J. R. Heller, Jr., Lida J. Usilton and Arch B. Clark. February 1946. 6 pages. 5 cents.
256. Untreated syphilis in the male Negro. II. Mortality during 12 years of observation. By J. R. Heller, Jr., and P. T. Bruyere. The effect of treated acquired syphilis on life expectancy. By Dudley C. Smith and Martha C. Bruyere. Mortality trends for syphilis. By Lida J. Usilton. February 1946. 20 pages. 10 cents.
257. Cooperation of health officers and police departments. By Eugene A. Gillis. March 1946. 4 pages. 5 cents.
258. Preliminary report evaluating the worth of obtaining names of suspected contacts during a regular contact interview. By W. D. Hazlehurst, C. P. Stevick, and Harold A. Kahn. March 1946. 4 pages. 5 cents.
259. The revised reports and forms of the Venereal Disease Division. By J. R. Heller, Jr. and L. J. Usilton. April 1946. 8 pages. 5 cents.
260. Blood testing and treatment program in Jefferson County, Alabama. By W. H. Y. Smith and George A. Denison. April 1946. 11 pages. 5 cents.

January 24, 1947

136

261. Studies on chancroid. III. Ducrey skin reactions in Negro hospital patients. By Albert Heyman and Paul B. Beeson. April 1946. 4 pages. 5 cents.
262. Cases of syphilis and gonorrhoea reported for the first time in States, territories and possessions for the year 1945. 1 page. 5 cents.
263. The systemic treatment of arsenic poisoning with BAL (2, 3-Di-mercapto-propanol). By Harry Eagle. May 1946. 8 pages. 5 cents.
264. False positive serologic reactions for syphilis in lymphogranuloma venereum. By Albert Heyman and E. L. Webb. May 1946. 6 pages. 5 cents.
265. Studies in syphilis. VI. Fibrosis and round cell infiltration of the parenchymatous organs (Warthin) in relation to serodiagnostic findings. By Paul D. Rosahn. May 1946. 4 pages. 5 cents.
266. National venereal disease control. Report of the committee on venereal disease control to the State and Territorial Health Officers' Association, April 1946. June 1946. 5 pages. 5 cents.

Supplements to The Journal of Venereal Disease Information

4. Directory of clinics for the diagnosis and treatment of venereal diseases. Revised 1946. 52 pages. 15 cents.
20. Postwar venereal disease control. Proceedings, National Conference, St. Louis, Missouri, November 1944. 213 pages. 35 cents.

INCIDENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

December 1-28, 1946

The accompanying table summarizes the incidence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State for each week are published in PUBLIC HEALTH REPORTS under the section "Incidence of Disease." The table gives the number of cases of these diseases for the 4 weeks ended December 28, 1946, the number reported for the corresponding period in 1945, and the median number for the years 1941-45.

DISEASES ABOVE MEDIAN INCIDENCE

Influenza.—The number of reported cases of influenza was about normal for this season of the year. For the 4 weeks ended December 28 there were 11,686 cases reported, which was only slightly above the 1941-45 median. In the West North Central, South Atlantic and Mountain sections the numbers of cases were about normal, but in all other sections of the country the incidence was below the seasonal expectancy. Of the total cases, Texas reported 5,593, South Carolina 1,702, Virginia 1,689 and Arizona 809 cases—more than 80 percent of all cases were reported from those 4 States. The 1945-46 influenza epidemic reached its peak during the week ended December 15, 1945, a total of approximately 149,000 cases being reported for the week,

and for the 4 weeks corresponding to the current 4-week period there were nearly 320,000 cases reported.

Poliomyelitis.—Although the incidence of poliomyelitis dropped more than 50 percent from the preceding 4-week period, the number of cases (668) reported for the current 4 weeks was 1.5 times the 1945 incidence for the corresponding weeks and 2.5 times the 1941-45 median. The number of cases was higher than in 1945 in all sections except the Mountain and Pacific. All sections reported excesses over the preceding 5-year medians. Although the rate of decline of this disease since the recent epidemic has been about normal, there is still a relatively high number of cases being reported. The number of cases (668) was the highest reported for this period in the 18 years for which these data are available. States reporting more than 30 cases for the current 4-week period were California 74, Illinois 61, New York 58, Wisconsin 39, Michigan 38, and Missouri 33.

Whooping cough.—For the 4 weeks ended December 28 there were 8,709 cases of whooping cough reported, as compared with 7,297 for the corresponding weeks in 1945. The 1941-45 median was represented by the 1945 incidence. In the Middle Atlantic, East North Central, South Atlantic, and West South Central sections the incidence was somewhat above the normal seasonal expectancy, but in the other five sections of the country the numbers of cases were below the preceding 5-year median.

DISEASES BELOW MEDIAN INCIDENCE

Diphtheria.—For the 4 weeks ended December 28 there were 1,415 cases of diphtheria reported as compared with 1,819 for the corresponding period in 1945 and a 5-year (1941-45) median of 1,517 cases. From the latter part of 1944 until July 1946 there was a consistent increase in the incidence of this disease, but since that time the number of cases for each 4-week period has been less than for the corresponding period in 1945, as well as lower than the preceding 5-year median for each period. In the southern part of the country where the disease has been most prevalent, there has been a very appreciable decline in the number of cases, but in the New England and Middle Atlantic sections where the disease has also been relatively high, the current incidence was 3.1 and 1.5, respectively, times the preceding 5-year median. Only four of the nine geographic sections reported more cases during this period than in 1945 but all except two sections, the West South Central and Pacific, reported excesses over the preceding 5-year median.

Measles.—The incidence of measles was relatively low, 9,902 cases being reported during the current 4-week period as compared with a 5-year median of approximately 17,000 cases. The New England

January 24, 1947

138

and South Atlantic sections each reported a relatively high incidence, but in the other seven sections the numbers of cases were considerably below the median expectancy.

Meningococcus meningitis.—The incidence of meningococcus meningitis (248 cases) was about 50 percent of the 1945 incidence for the corresponding 4 weeks. The 1941-45 median was represented by the 1945 figure (498 cases). The number of cases in each geographic section was lower than the 1941-45 median. For the country as a whole, the current incidence was the lowest since 1941 when there were 143 cases reported for the corresponding 4-week period.

Scarlet fever.—For the current 4-week period there were 8,257 cases of scarlet fever reported, as compared with 10,391 during the corresponding period in 1945 and a preceding 5-year median of 11,821 cases. In each section of the country the number of cases was less than the 1941-45 median, and for the country as a whole the current incidence was the lowest for this period in the 18 years for which data are available in this form.

Smallpox.—Seven cases of smallpox were reported for the current 4-week period, as compared with 23 for the same period in 1945 and a 1941-45 median of 32 cases. In the West North Central section 4 cases were reported as compared with a preceding 5-year median of 10 cases, and in the East North Central there was 1 case reported as against a median of 18 cases. No cases were reported from any other section except the West South Central where 2 cases were reported as compared with a 5-year median of 7 cases.

Typhoid and paratyphoid fever.—The number of cases of these diseases continued at a relatively low level, the 166 cases reported for the 4 weeks ended December 28 being only about 80 percent of the 1945 incidence and 65 percent of the 1941-45 median. In the Mountain section the number of cases (21) was 1.6 times the normal expectancy, but in all other sections of the country the incidence was below the preceding 5-year median.

MORTALITY, ALL CAUSES

For the 4 weeks ended December 28 there were 38,086 deaths from all causes reported to the Bureau of the Census by 93 large cities. The average number of deaths reported for the same weeks in the years 1943-45 was 43,044. For each week of the current 4-week period the number of deaths was less than the preceding 3-year average, the decreases ranging from 2 percent during the first week to 21 percent during the last week of the period. For the 4 weeks ended December 28 the number of deaths was 11.5 percent less than the 1943-45 average.

The birth rate (28.8 per 1,000 population) for the month of November (the latest data available) was the highest since the establishment of the birth registration area in 1915. On the other hand, the general and infant mortality rates for September, October, and November were the lowest in recent years. Infant mortality rates for those months represented about 10-percent reductions over the corresponding months of last year, but the decreases were less for general mortality.

Number of reported cases of nine communicable diseases in the United States during the 4-week period December 1-28, 1946, the number for the corresponding period in 1945, and the median number of cases reported for the corresponding period, 1941-45

Division	Current period	1945	5-year median	Current period	1945	5-year median	Current period	1945	5-year median
	Diphtheria			Influenza ¹			Measles ²		
United States.....	1,415	1,819	1,517	11,686	319,576	11,556	9,902	10,381	17,320
New England.....	104	50	34	30	498	102	2,816	765	1,919
Middle Atlantic.....	196	95	127	60	729	121	3,327	2,930	3,699
East North Central.....	197	282	181	167	7,122	341	965	1,969	1,655
West North Central.....	128	146	110	112	33,904	157	102	435	1,100
South Atlantic.....	257	416	248	3,734	49,663	3,755	1,343	563	563
East South Central.....	206	205	166	333	124,382	662	134	666	603
West South Central.....	153	415	332	6,100	59,697	7,444	213	316	434
Mountain.....	74	147	68	1,065	42,055	1,016	563	685	1,300
Pacific.....	100	63	116	85	1,526	418	439	2,052	2,052
	Meningococcus meningitis			Poliomyelitis			Scarlet fever		
United States.....	248	498	498	668	458	267	8,257	10,391	11,821
New England.....	18	20	39	36	23	16	898	744	1,250
Middle Atlantic.....	47	115	115	81	52	52	1,799	1,902	2,252
East North Central.....	41	99	99	178	100	32	2,566	2,883	3,114
West North Central.....	16	34	34	128	45	19	644	898	1,323
South Atlantic.....	41	56	87	49	43	26	664	1,089	1,129
East South Central.....	24	54	54	32	23	11	333	504	504
West South Central.....	25	43	43	61	34	32	188	713	392
Mountain.....	9	13	25	19	21	15	407	530	640
Pacific.....	27	64	71	104	117	60	758	1,128	1,128
	Smallpox			Typhoid and paratyphoid fever			Whooping cough ²		
United States.....	7	23	32	166	207	251	8,709	7,297	7,297
New England.....	0	0	0	14	11	16	1,044	1,109	1,109
Middle Atlantic.....	0	0	0	21	29	32	2,289	2,024	2,024
East North Central.....	1	4	18	20	30	30	2,348	1,671	1,671
West North Central.....	4	5	10	7	4	8	267	189	396
South Atlantic.....	0	0	1	26	32	39	1,065	825	932
East South Central.....	0	5	4	22	20	31	346	187	391
West South Central.....	2	4	7	23	57	48	770	529	587
Mountain.....	0	4	2	21	12	13	243	225	302
Pacific.....	0	1	0	12	12	21	337	538	566

¹ Mississippi and New York excluded; New York City included.
² Mississippi excluded.

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED JANUARY 4, 1947

Summary

A total of 96 cases of poliomyelitis was reported for the current week, as compared with 103 last week and a 5-year (1942-46) median of 34. The only States reporting more than 4 cases are California (12), Michigan (18), and Wisconsin (13). Since March 15, 1946, the approximate average date of lowest seasonal incidence, a total of 24,863 cases has been reported, as compared with 13,394 and 19,061, respectively, for the corresponding periods of 1945-46 and 1944-45, and a 5-year median of 12,133.

A slight increase was recorded in the incidence of influenza during the week. A total of 3,665 cases was reported, as compared with 2,660 last week, 48,041 for the corresponding week last year, and a 5-year median of 4,587. Of the current total, 4 States reported 3,044 cases, or approximately 83 percent, as follows (last week's figures in parentheses): Texas 1,431 (1,159), South Carolina 789 (271), Virginia 615 (487), and Arizona 209 (131). For the corresponding week last year these 4 States reported an aggregate of 20,507 cases, or 43 percent of the total. Currently, no other State reported more than 90 cases, and only 4 other States reported more than 50 cases. The total since the low seasonal incidence last year (July 28) is 36,640 cases, as compared with 410,289 for the corresponding period ended January 5, 1946, and 39,662 for the corresponding 5-year median.

Total cases reported for other diseases included in the following tables are as follows (figures for the corresponding week of last year in parentheses): Diphtheria 366 (458), the dysenteries (amebic, bacillary, and unspecified) 832 (588), infectious encephalitis 4 (6), measles 2,995 (2,769), meningococcus meningitis 83 (191), Rocky Mountain spotted fever 1 (0), scarlet fever 2,080 (2,383), smallpox 3 (4), tularemia 51 (20), typhoid and paratyphoid fever 38 (40), endemic typhus fever 37 (67), undulant fever 86 (39), whooping cough 1,746 (1,373).

Deaths recorded for the week in 93 large cities of the United States totaled 10,209, as compared with 11,928 and 9,786, respectively, for the corresponding weeks of 1946 and 1945, and a 3-year (1944-46) median of 11,928.

Telegraphic morbidity reports from State health officers for the week ended Jan. 4, 1947, and comparison with corresponding week of 1946 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none was reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46
	Jan. 4, 1947	Jan. 5, 1946		Jan. 4, 1947	Jan. 5, 1946		Jan. 4, 1947	Jan. 5, 1946		Jan. 4, 1947	Jan. 5, 1946	
NEW ENGLAND												
Maine	3	0	0	1	2	1	260	12	25	1	0	2
New Hampshire	0	1	0	1	3	3	10	3	6	0	0	0
Vermont	0	1	0	32	24	24	126	3	7	0	0	0
Massachusetts	21	4	5				247	236	236	3	5	8
Rhode Island	0	0	0			25	16	7	7	0	0	0
Connecticut	0	3	1	2	558	11	84	21	32	0	2	2
MIDDLE ATLANTIC												
New York	25	15	15	18	178	17	112	316	493	4	14	22
New Jersey	4	6	3	4	155	27	120	26	134	1	15	15
Pennsylvania	11	10	16	4	19	7	778		801	1	7	10
EAST NORTH CENTRAL												
Ohio	18	48	12	5	175	26	211	23	40	6	10	10
Indiana	21	13	13	23	124	49	18	38	42	0	4	4
Illinois	3	17	16	4	49	18	23	327	169	6	9	9
Michigan ¹	5	2	3		8	8	126	52	52	4	0	1
Wisconsin	4	7	2	33	1,494	62	77	45	273	2	2	2
WEST NORTH CENTRAL												
Minnesota	9	4	4		8	1	6	4	6	0	1	1
Iowa	0	9	5		59	2	1	16	44	4	5	2
Missouri	8	3	3	1	23	10	6	41	27	2	5	7
North Dakota	3	2	2	2	25	36	2	1	1	1	0	1
South Dakota	0	0	2				7	10	10	1	0	0
Nebraska	0	2	4		819	60	1	14	12	1	0	1
Kansas	3	10	6	36	3,705	9	4	93	64	1	1	2
SOUTH ATLANTIC												
Delaware	0	0	0					2	2	0	2	0
Maryland ²	14	13	10	5	69	11	10	10	13	0	6	6
District of Columbia	0	0	0	1	10	6	15	2	5	2	2	2
Virginia	3	19	15	615	5,323	659	86	85	85	1	9	9
West Virginia	12	3	3	65	2,356	59	22	4	61	6	6	2
North Carolina	8	37	24			6	160	53	53	2	8	8
South Carolina	18	7	7	789	3,017	688	45	61	61	6	3	4
Georgia	18	13	13	12	411	181	89	19	19	0	2	2
Florida	6	6	7	7	8	8	1	19	19	0	5	2
EAST SOUTH CENTRAL												
Kentucky	21	4	4	3	1,953	2		119	66	2	4	4
Tennessee	16	10	10	22	681	89	8	22	39	1	4	6
Alabama	8	8	7	69	2,497	413	27	9	9	2	4	4
Mississippi ²	14	14	13							3	1	1
WEST SOUTH CENTRAL												
Arkansas	1	13	7	53	1,204	192	13	12	39	1	0	0
Louisiana	18	16	9	3	6,314	21	11	6	11	1	2	2
Oklahoma	2	8	7	90	2,245	187	10	31	15	1	3	3
Texas	27	67	48	1,431	11,510	2,250	25	91	91	8	13	9
MOUNTAIN												
Montana	1	1	1	44	350	31	70	2	38	0	0	0
Idaho	1	3	1	19	79	2	4	100	24	0	1	1
Wyoming	0	3	1	14	6	6	2	3	10	0	0	0
Colorado	8	4	6	22	195	62	2	59	87	2	5	2
New Mexico	1	3	3	2	1	1	8		3	0	2	1
Arizona	7	7	1	209	657	195	64	6	7	0	1	1
Utah ²	0	0	0	28	1,114	32	10	72	48	1	0	1
Nevada	0	0	0					15	4	0	0	0
PACIFIC												
Washington	10	3	7			1	20	241	31	0	0	2
Oregon	3	9	2	25	269	22	29	34	55	0	7	7
California	11	30	30	13	436	108	29	414	225	6	21	21
Total	366	458	372	3,665	48,041	4,587	2,995	2,769	7,892	83	191	238
Seasonal low week ³	(27th) July 5-11			(30th) July 26-Aug. 1			(35th) Aug. 30-Sept. 5			(37th) Sept. 13-19		
Total since low	7,931	12,102	9,444	36,640	410,289	39,662	25,882	28,893	46,195	1,054	1,695	1,695

¹ New York City only.

² Period ended earlier than Saturday.

³ Dates between which the approximate low week ends. The specific date will vary from year to year.

January 24, 1947

Telegraphic morbidity reports from State health officers for the week ended Jan. 4, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Pollomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever ⁴		
	Week ended—		Median 1942-46	Week ended		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46
	Jan. 4, 1947	Jan. 5, 1946		Jan. 4, 1947	Jan. 5, 1946		Jan. 4, 1947	Jan. 5, 1946		Jan. 4, 1947	Jan. 5, 1946	
NEW ENGLAND												
Maine.....	1	0	0	48	35	16	0	0	0	0	0	0
New Hampshire.....	1	1	0	7	2	6	0	0	0	0	0	0
Vermont.....	1	1	0	12	4	5	0	0	0	0	0	0
Massachusetts.....	0	1	1	144	163	262	0	0	0	3	0	1
Rhode Island.....	0	0	0	10	12	13	0	0	0	0	0	0
Connecticut.....	0	0	0	26	31	49	0	0	0	0	1	1
MIDDLE ATLANTIC												
New York.....	4	6	3	226	263	367	0	0	0	1	4	2
New Jersey.....	1	1	1	94	56	76	0	0	0	0	1	0
Pennsylvania.....	3	0	0	113	146	226	0	0	0	2	3	3
EAST NORTH CENTRAL												
Ohio.....	1	3	1	284	216	290	1	0	0	4	2	3
Indiana.....	4	1	1	103	56	92	1	1	2	2	0	1
Illinois.....	2	0	0	129	139	213	0	0	0	1	3	2
Michigan ²	18	0	0	165	39	66	0	0	0	1	0	0
Wisconsin.....	12	10	0	69	84	145	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota.....	0	0	0	32	22	66	0	0	0	0	0	0
Iowa.....	2	0	0	17	39	39	0	0	0	0	0	0
Missouri.....	2	1	1	35	38	52	0	0	0	0	1	0
North Dakota.....	0	0	0	6	5	16	0	0	0	0	0	0
South Dakota.....	1	0	0	16	11	39	0	0	0	1	0	0
Nebraska.....	1	0	0	10	48	33	0	0	0	0	0	0
Kansas.....	4	0	0	25	80	80	0	0	0	1	0	0
SOUTH ATLANTIC												
Delaware.....	0	0	0	6	6	9	0	0	0	0	0	0
Maryland ²	0	0	0	19	55	55	0	0	0	0	0	1
District of Columbia.....	0	0	0	4	5	15	0	0	0	0	3	0
Virginia.....	2	0	1	25	55	55	0	0	0	0	2	2
West Virginia.....	0	0	0	16	38	49	0	0	0	1	1	0
North Carolina.....	3	0	0	37	51	81	0	1	0	1	0	0
South Carolina.....	0	0	0	26	6	11	0	0	0	1	2	1
Georgia.....	3	1	0	9	12	23	0	0	0	1	0	1
Florida.....	1	0	0	10	6	8	0	0	0	0	0	0
EAST SOUTH CENTRAL												
Kentucky.....	0	0	0	40	40	48	0	0	0	2	0	1
Tennessee.....	0	2	1	15	49	49	0	0	0	1	5	1
Alabama.....	1	1	0	19	22	22	0	0	0	0	0	1
Mississippi ²	1	3	1	4	15	15	1	0	0	1	0	0
WEST SOUTH CENTRAL												
Arkansas.....	1	1	1	3	9	7	0	0	0	0	1	1
Louisiana.....	3	1	0	4	16	10	0	0	0	4	2	2
Oklahoma.....	3	1	1	6	46	25	0	1	0	0	0	1
Texas.....	3	5	4	26	87	83	0	0	1	1	7	5
MOUNTAIN												
Montana.....	0	0	1	5	13	17	0	0	0	0	0	0
Idaho.....	0	0	0	13	7	8	0	0	1	2	0	0
Wyoming.....	0	0	0	5	1	7	0	0	0	0	0	0
Colorado.....	2	0	0	30	29	30	0	0	0	1	0	0
New Mexico.....	0	0	0	6	13	10	0	0	0	0	0	1
Arizona.....	0	1	1	8	13	10	0	0	0	2	1	0
Utah ²	1	1	0	20	32	43	0	0	0	0	0	0
Nevada.....	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington.....	1	4	3	42	45	52	0	0	0	1	1	1
Oregon.....	0	0	0	25	20	20	0	0	0	1	0	0
California.....	12	11	8	86	203	203	0	1	0	2	0	1
Total	96	57	34	2,080	2,383	3,457	3	4	10	38	40	53
Seasonal low week ⁴	(11th) Mar. 15-21			(32nd) Aug. 9-15			(35th) Aug. 30-Sept. 5			(11th) Mar. 15-21		
Total since low.....	24,863	13,394	12,133	28,766	40,954	42,197	57	80	125	3,566	4,291	5,019

² Period ended earlier than Saturday.
⁴ Including paratyphoid fever reported separately, as follows: Massachusetts 3 (salmonella infection); California 1.

Telegraphic morbidity reports from State health officers for the week ended Jan. 4, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Whooping cough		Week ended Jan. 4, 1947								
	Week ended—		Me- dian 1942- 46	Dysentery			En- ceph- alitis, infec- tious	Rocky Mt. spot- ted fever	Tula- remia	Ty- phus fever, en- dem- ic	Un- du- lant fever
	Jan. 4, 1947	Jan. 5, 1946		Ame- bic	Bacil- lary	Un- spec- ified					
NEW ENGLAND											
Maine.....	14	19	29							2	
New Hampshire.....		5	1							3	
Vermont.....	4	16	33							4	
Massachusetts.....	118	129	129		2						
Rhode Island.....	11	19	19								
Connecticut.....	10	31	73								
MIDDLE ATLANTIC											
New York.....	166	179	179	9	5		1			3	
New Jersey.....	94	91	91	1							
Pennsylvania.....	158	94	141							1	
EAST NORTH CENTRAL											
Ohio.....	86	71	118						5		
Indiana.....	15	12	18					1	8	2	
Illinois.....	70	47	72	3			2		5	1	
Michigan ¹	228	18	43	1	4				2	1	
Wisconsin.....	134	48	86							31	
WEST NORTH CENTRAL											
Minnesota.....	1	8	30	1							
Iowa.....	5	6	11							12	
Missouri.....	11	7	13						6	2	
North Dakota.....	1		1								
South Dakota.....	1		8							1	
Nebraska.....	3	5	2								
Kansas.....	19	17	31						3	1	
SOUTH ATLANTIC											
Delaware.....	4									1	
Maryland ²	40	20	23				1		1	1	
District of Columbia.....	6	10	10						1		
Virginia.....	75	44	46			29			2		
West Virginia.....	10	3	22								
North Carolina.....	13	26	82						5	1	
South Carolina.....	62	63	63	2	15				2	1	
Georgia.....	8	6	11		2					16	
Florida.....	9	1	15							2	
EAST SOUTH CENTRAL											
Kentucky.....	46	5	23						3	1	
Tennessee.....	9	11	20	2					2	3	
Alabama.....	15	4	13							4	
Mississippi ²										1	
WEST SOUTH CENTRAL											
Arkansas.....	23	3	7						1	1	
Louisiana.....	1	2	2	9						3	
Oklahoma.....		5	5	2					4	2	
Texas.....	139	107	145	6	293	419				5	
MOUNTAIN											
Montana.....	1	6	15						1		
Idaho.....	5	7	2							1	
Wyoming.....	1		8								
Colorado.....	6	23	23								
New Mexico.....	1	2	3								
Arizona.....	23	10	21			25					
Utah ²	3	12	19								
Nevada.....		1	3								
PACIFIC											
Washington.....	6	69	51	1							
Oregon.....	12	13	13								
California.....	79	98	149		1					8	
Total	1,746	1,373	1,845	37	322	473	4	1	51	37	86
Same week, 1946.....				37	450	101	6	0	20	67	39
Median, 1942-46.....			1,845	14	296	47	6	0	38	67	47

¹ Period ended earlier than Saturday.

² 2-year average, 1945-46.

Anthrax: Ohio 1 case.

January 24, 1947

WEEKLY REPORTS FROM CITIES¹

City reports for week ended Dec. 28, 1946

This table lists the reports from 89 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polio-myelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland	1	0	0	0	15	1	2	1	6	0	0	0
New Hampshire:												
Concord	0	0	0	0	0	0	0	0	0	0	0	0
Vermont:												
Barre	0	0	0	0	0	0	0	0	0	0	0	1
Massachusetts:												
Boston	11	0	1	13	0	14	0	16	0	1	31	0
Fall River	0	0	0	1	0	1	0	1	0	0	4	0
Springfield	1	0	0	0	0	1	0	2	0	0	4	0
Worcester	0	0	0	3	0	10	0	4	0	0	13	0
Rhode Island:												
Providence	0	0	0	2	0	1	0	5	0	0	6	0
Connecticut:												
Bridgeport	0	0	0	0	0	2	0	0	0	0	0	0
Hartford	0	0	1	0	0	1	0	2	0	0	0	0
New Haven	0	0	0	33	0	3	0	3	0	0	0	0
MIDDLE ATLANTIC												
New York:												
Buffalo	2	0	1	0	0	4	0	5	0	0	7	0
New York	12	1	5	22	2	75	3	58	0	0	30	0
Rochester	0	0	1	1	0	4	2	12	0	0	0	0
Syracuse	0	0	0	0	0	4	0	13	0	0	4	0
New Jersey:												
Camden	0	0	0	0	0	3	0	0	0	0	0	0
Newark	0	0	0	1	0	4	0	8	0	0	10	0
Trenton	0	0	0	14	0	3	0	2	0	0	1	0
Pennsylvania:												
Philadelphia	6	0	6	4	6	2	8	1	18	0	28	0
Pittsburgh	0	0	1	1	208	0	7	0	11	0	2	0
Reading	0	0	0	1	0	1	0	0	0	0	5	0
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	1	0	0	0	1	1	0	5	0	1	4	0
Cleveland	0	0	6	129	1	7	0	21	0	0	5	0
Columbus	0	0	0	2	1	1	0	10	0	0	4	0
Indiana:												
Fort Wayne	0	0	0	7	0	5	0	1	0	0	0	0
Indianapolis	5	0	0	0	1	4	0	10	0	0	10	0
South Bend	0	0	0	0	0	0	0	3	0	0	0	0
Terre Haute	0	0	0	0	0	2	0	1	0	0	0	0
Illinois:												
Chicago	1	0	1	9	4	33	1	35	0	0	45	0
Springfield	0	0	0	0	0	2	0	0	0	0	0	0
Michigan:												
Detroit	1	1	0	2	0	13	1	30	0	0	32	0
Flint	0	0	0	0	0	1	1	6	0	0	0	0
Grand Rapids	0	0	0	1	0	2	0	5	0	0	5	0
Wisconsin:												
Kenosha	0	0	0	1	0	0	0	0	0	0	0	0
Milwaukee	0	0	2	2	0	8	0	23	0	0	49	0
Racine	0	0	0	0	0	0	0	0	0	0	8	0
Superior	0	0	0	2	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	0	1	0	0	0	0	0	0	0	0
Minneapolis	3	0	2	3	0	4	0	5	0	0	0	0
St. Paul	0	0	0	1	0	6	0	12	0	0	0	0
Missouri:												
Kansas City	1	0	1	1	0	5	0	6	0	1	3	0
St. Joseph	0	0	0	0	0	0	0	0	0	0	2	0
St. Louis	2	0	1	2	1	11	1	8	0	0	5	0

¹ In some instances the figures include nonresident cases.

City reports for week ended Dec. 28, 1946—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polio-myelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—continued												
North Dakota:												
Fargo.....	0	0	0	0	0	1	1	2	0	0	0	0
Nebraska:												
Omaha.....	0	0	0	0	0	3	0	4	0	0	0	0
Kansas:												
Topeka.....	1	0	0	1	1	2	0	4	0	0	0	1
Wichita.....	0	0	1	0	0	3	0	1	0	0	0	1
SOUTH ATLANTIC												
Delaware:												
Wilmington.....	0	0	0	0	0	1	0	3	0	0	0	6
Maryland:												
Baltimore.....	6	0	2	0	4	4	0	11	0	1	0	24
Cumberland.....	0	0	0	0	0	0	0	0	0	0	0	0
Frederick.....	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia:												
Washington.....	1	0	1	0	29	0	12	10	0	0	0	4
Virginia:												
Lynchburg.....	0	0	0	0	0	0	0	1	0	0	0	1
Richmond.....	0	0	1	1	12	0	4	2	0	0	0	0
Roanoke.....	0	0	0	0	0	0	0	1	0	0	0	0
West Virginia:												
Charleston.....	0	0	0	0	0	0	0	2	0	0	0	0
Wheeling.....	0	0	0	0	0	1	0	0	0	0	0	4
North Carolina:												
Raleigh.....	0	0	0	0	0	1	0	0	0	0	0	2
Wilmington.....	1	0	0	0	0	0	0	0	0	0	0	0
Winston-Salem.....	0	0	0	11	0	1	0	2	0	0	0	0
South Carolina:												
Charleston.....	0	0	17	0	1	0	1	0	0	0	0	0
Georgia:												
Atlanta.....	1	0	1	1	24	0	8	1	0	1	0	4
Brunswick.....	0	0	0	0	0	0	0	0	0	0	0	0
Savannah.....	0	0	2	0	24	0	1	0	0	0	0	0
Florida:												
Tampa.....	0	0	2	0	0	1	0	0	0	0	0	0
EAST SOUTH CENTRAL												
Tennessee:												
Memphis.....	10	0	0	0	0	7	0	0	0	0	0	0
Nashville.....	0	0	0	1	0	2	0	4	0	0	0	0
Alabama:												
Birmingham.....	1	0	1	1	2	0	1	4	0	0	0	1
Mobile.....	0	0	1	2	0	2	0	0	0	0	1	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock.....	0	0	0	0	0	1	0	0	0	0	0	0
Louisiana:												
New Orleans.....	14	0	5	1	4	4	2	2	0	2	0	4
Shreveport.....	0	0	0	0	0	3	0	0	0	0	0	0
Texas:												
Dallas.....	0	0	0	0	0	3	0	2	0	0	0	2
Galveston.....	0	0	0	0	0	0	0	1	0	0	0	0
Houston.....	0	0	0	0	0	3	0	0	0	0	0	1
San Antonio.....	1	0	0	1	0	4	0	1	0	1	0	0
MOUNTAIN												
Montana:												
Billings.....	0	0	0	0	0	2	0	0	0	0	0	0
Great Falls.....	0	0	0	26	0	1	0	1	0	0	0	0
Helena.....	0	0	0	2	0	0	0	0	0	0	0	0
Missoula.....	0	0	0	0	0	0	0	0	0	0	0	0
Colorado:												
Denver.....	4	0	4	1	2	0	4	0	14	0	0	4
Pueblo.....	0	0	0	0	1	0	2	0	1	0	0	0
Utah:												
Salt Lake City.....	0	0	0	0	1	0	1	0	7	0	0	0

January 24, 1947

City reports for week ended Dec. 28, 1946—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC												
Washington:												
Seattle.....	0	0	0	0	1	0	1	0	5	0	1	-----
Spokane.....	0	0	1	0	4	0	1	1	8	0	0	-----
Tacoma.....	0	0	0	0	0	0	0	0	0	0	0	-----
California:												
Los Angeles.....	2	0	7	0	1	0	5	6	12	0	0	15
Sacramento.....	0	0	0	0	0	1	0	1	0	0	0	-----
San Francisco.....	2	0	2	0	3	2	4	1	7	0	0	1
Total.....	91	2	69	23	635	21	347	20	461	0	10	393
Corresponding week, 1945	86	-----	1,203	112	1,042	-----	737	-----	576	0	12	372
Average 1941-45.....	77	-----	1,639	156	1,251	-----	732	-----	960	0	10	680

¹ 3-year average, 1943-45.

² 5-year median, 1941-45.

Anthrax.—Cases: Philadelphia 1.

Dysentery, amebic.—Cases: New York, 2; Chicago, 2; Detroit, 1; St. Louis, 1; San Antonio, 1; Denver, 1.

Dysentery, bacillary.—Cases: Providence, 1; Detroit, 1; Los Angeles, 1.

Dysentery, unspecified.—Cases: San Antonio, 9.

Leprosy.—Cases: New York, 1.

Tularemia.—Cases: Indianapolis, 1; Chicago, 1; St. Louis, 1; Baltimore, 1; Washington, D. C., 2; Lynchburg, 1; Los Angeles, 1.

Typhus fever, endemic.—Cases: Atlanta, 1; Nashville, 2; New Orleans, 10; Los Angeles, 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 89 cities in the preceding table (estimated population, 1943, 34,369,500)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England.....	34.0	0.0	2.6	2.6	175	2.6	91.5	2.6	102	0.0	2.6	154
Middle Atlantic.....	9.3	0.5	5.6	3.2	117	1.9	52.3	2.8	59	0.0	0.0	40
East North Central.....	4.9	0.6	5.5	1.8	93	4.9	48.0	1.8	91	0.0	0.6	99
West North Central.....	13.9	0.0	2.0	8.0	18	4.0	69.6	4.0	84	0.0	2.0	24
South Atlantic.....	14.7	0.0	42.5	3.3	172	0.0	57.2	0.0	54	0.0	3.3	74
East South Central.....	64.9	0.0	5.9	23.6	12	0.0	70.8	0.0	47	0.0	5.9	6
West South Central.....	43.0	0.0	14.3	2.9	14	11.5	45.9	0.0	17	0.0	8.6	20
Mountain.....	33.0	0.0	33.0	8.3	264	0.0	82.6	0.0	190	0.0	0.0	33
Pacific.....	9.5	0.0	15.8	0.0	14	3.2	19.0	12.7	52	0.0	1.6	25
Total.....	14.1	0.3	10.5	3.5	97	3.2	52.8	3.0	70	0.0	1.5	60

DEATHS DURING WEEK ENDED DEC. 28, 1946

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Dec. 28, 1946	Corresponding week, 1945
Data for 93 large cities of the United States:		
Total deaths.....	9,380	11,399
Average for 3 prior years.....	11,920	-----
Total deaths, first 52 weeks of year.....	470,184	471,729
Deaths under 1 year of age.....	721	602
Average for 3 prior years.....	657	-----
Deaths under 1 year of age, first 52 weeks of year.....	34,936	31,573
Data from industrial insurance companies:		
Policies in force.....	67,278,078	67,190,360
Number of death claims.....	9,065	7,789
Death claims per 1,000 policies in force, annual rate.....	7.0	6.0
Death claims per 1,000 policies, first 52 weeks of year, annual rate.....	9.3	9.9

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended December 14, 1946.—During the week ended December 14, 1946, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		29	1	204	498	48	36	53	135	1,004
Diphtheria		5	3	23	7	2	2			42
Dysentery:					4					4
Amebic										1
Bacillary				1						1
Encephalitis, infectious					1					1
German measles				22	10			8	8	48
Influenza		10		9					2	21
Measles		277	48	80	103	37	442	251	153	1,391
Meningitis, meningococcus				1		1				2
Mumps		1		45	386	42	117	42	200	833
Poliomyelitis		1		9	7		1			18
Scarlet fever		6	3	98	97	9	4	4	16	237
Tuberculosis (all forms)		7	14	100	56	23	9	18	39	266
Typhoid and paratyphoid fever				8	1				3	12
Undulant fever				2						2
Veneral diseases:										
Gonorrhoea	3	27	6	164	118	40	32	37	77	504
Syphilis	1	6	2	64	83	13	8	14	35	226
Other forms				1					2	3
Whooping cough		14	1	37	119	12	11	2	5	201

JAMAICA

Notifiable diseases—4 weeks ended December 14, 1946.—During the 4 weeks ended December 14, 1946, cases of certain notifiable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis	1	2	Leprosy		2
Chickenpox		7	Puerperal sepsis		2
Diphtheria	2	5	Tuberculosis (pulmonary)	24	44
Dysentery		4	Typhoid fever	6	95
Erysipelas		1	Typhus fever (murine)	1	

JAPAN

Notifiable diseases—4 weeks ended November 16, 1946, and for the year to date.—For the 4 weeks ended November 16, 1946, and for the year to date, cases of certain notifiable diseases were reported in Japan as follows:

January 24, 1947

148

Disease	4 weeks ended Nov. 16, 1946	Total cases reported for the year to date	Disease	4 weeks ended Nov. 16, 1946	Total cases reported for the year to date
Cholera.....	6	1,204	Paratyphoid fever.....	634	8,334
Diphtheria.....	4,702	43,360	Scarlet fever.....	196	1,869
Dysentery, unspecified.....	6,859	85,866	Smallpox.....	36	17,696
Encephalitis, Japanese "B".....	8	172	Syphilis.....	7,298	62,575
Gonorrhea.....	12,361	110,476	Typhoid fever.....	2,666	41,266
Malaria.....	1,755	24,848	Typhus fever.....	66	30,819
Meningitis, epidemic.....	79	1,359			

¹ For the period June 2, 1946, to date.

NEW ZEALAND

Notifiable diseases—4 weeks ended November 30, 1946.—During the 4 weeks ended November 30, 1946, certain notifiable diseases were reported in New Zealand as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis.....	12	1	Poliomyelitis.....	1	
Diphtheria.....	80		Puerperal fever.....	9	
Dysentery:			Scarlet fever.....	86	
Amebic.....	2		Tetanus.....	1	
Bacillary.....	5		Trachoma.....	3	
Erysipelas.....	15		Tuberculosis (all forms).....	176	56
Food poisoning.....	4		Typhoid fever.....	4	
Lethargic encephalitis.....	2	1	Undulant fever.....	6	
Malaria.....	2				

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual incidence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever during recent months. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Cholera

Afghanistan—Urgun District—China Khwa.—For the week ended November 23, 1946, 30 cases of cholera with 10 deaths were reported in China Khwa, Urgun District, Afghanistan.

Smallpox

China—Hong Kong.—For the week ended December 21, 1946, 96 cases of smallpox were reported in Hong Kong, China.

Yellow Fever

French Equatorial Africa—Ubangi Shari Department—Carnot.—For the week ended December 21, 1946, 1 death from yellow fever (suspected) was reported in Carnot, Ubangi Shari Department, French Equatorial Africa.

FEDERAL SECURITY AGENCY
UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

DIVISION OF PUBLIC HEALTH METHODS

G. ST. J. FERROTT, *Chief of Division*

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It contains (1) current information regarding the incidence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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March 1946.

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Public Health Reports

VOLUME 57

MARCH 27, 1942

NUMBER 13

IN THIS ISSUE

Immunization With Inactive Virus of Influenza B

Experimental Malaria Control Drainage Ditch Linings



CONTENTS

	Page
Immunization with inactive virus of influenza B: Comparison of antibody response with that produced by infection. Monroe D. Eaton, Walter P. Martin, and personnel of Naval Laboratory Research Unit No. 1.....	445
Observations on experimental malaria control drainage ditch linings. J. L. Robertson, Jr., J. A. LePrince, H. A. Johnson, and W. V. Parker.....	451
Deaths during week ended March 14, 1942:	
Deaths in a group of large cities in the United States.....	464
Death claims reported by insurance companies.....	464
PREVALENCE OF DISEASE	
United States:	
Reports from States for week ended March 21, 1942, and comparison with former years.....	465
Consolidated monthly State reports for October, November, and December, 1941.....	469
Weekly reports from cities:	
City reports for week ended March 7, 1942.....	474
Rates for a group of selected cities.....	475
Foreign reports:	
Canada—Provinces—Communicable diseases—Week ended February 21, 1942.....	476
Cuba—	
Habana—Communicable diseases—4 weeks ended March 7, 1942.....	476
Provinces—Notifiable diseases—4 weeks ended January 31, 1942.....	476
Malta—Notifiable diseases—November 1941.....	477
World distribution of cholera, plague, smallpox, typhus fever, and yellow fever—	
Cholera.....	477
Plague.....	478
Smallpox.....	479
Typhus fever.....	480
Yellow fever.....	481
* * *	
Court decisions on public health.....	482

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UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

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| <p>10 Laws. Federal statutes and compilations of laws on various subjects.</p> <p>11 Foods and Cooking. Home economics, household recipes, canning, cold storage.</p> <p>15 Geological Survey. Covers geology and water supply.</p> <p>18 Engineering and Surveying. Levelling, tides, magnetism, triangulation, and earthquakes.</p> <p>19 Army and Militia. National defense, veterans' affairs.</p> <p>20 Public domain. Public lands, conservation, National Resources Planning Board.</p> <p>21 Fish and Wildlife Service, and other publications relating to fish and wildlife.</p> <p>24 Indians. Publications pertaining to Indians, anthropology, and archeology.</p> <p>25 Transportation and Panama Canal. Railroad and shipping problems, postal service, communications, Coast Guard, Panama Canal.</p> <p>28 Finance. Banking, securities, loans.</p> <p>31 United States Office of Education, and other publications relating to education.</p> <p>32 Insular Possessions (Philippines, Puerto Rico, Guam, American Samoa, Virgin Islands).</p> <p>33 Labor. Child labor, women workers, wages, workmen's insurance and compensation.</p> <p>35 Geography and Explorations, National parks, guidebooks.</p> <p>36 Government Periodicals, for which subscriptions are taken.</p> <p>37 Tariff. Compilation of acts, decisions, and regulations, relating to tariff, taxation, and income tax.</p> <p>38 Animal Industry. Domestic animals, poultry and dairy industries.</p> <p>41 Insects. Bees, and insects harmful to man, animals, and plants.</p> <p>42 Irrigation, Drainage, Water Power. Federal Power Commission, water resources.</p> <p>43 Forestry. National forests, ranges, lumber and timber, American woods.</p> <p>44 Plants. Culture of fruits, vegetables, cereals, grasses, grain.</p> <p>45 Roads. Construction, improvement, and maintenance.</p> <p>46 Agricultural Chemistry and Soils and Fertilizers. Chemistry of foods, soil surveys, soil erosion, and conservation.</p> <p>48 Weather, Astronomy, and Meteorology. Climate, floods, aerological observations.</p> | <p>49 Proceedings of Congress. Bound volumes of Congressional Record and Congressional Globe.</p> <p>50 American History and Biography. The Revolution, Civil War, World War.</p> <p>51 Health. Diseases, drugs, sanitation, water pollution.</p> <p>53 Maps. Government maps, and directions for obtaining them.</p> <p>54 Political Science. Government, crime, liquors, District of Columbia, Supreme Court, un-American activities.</p> <p>55 National Museum. Contributions from National Herbarium, National Academy of Sciences, and Smithsonian reports.</p> <p>58 Mines. Explosives, fuel, gas, gasoline, petroleum, minerals.</p> <p>59 Interstate Commerce. Steam railways, motor carriers, carriers by water.</p> <p>60 Alaska and Hawaii. Mineral and agricultural resources, coal lands, geology, water supply, seal fisheries.</p> <p>62 Commerce and Manufactures. Foreign trade, patents, trusts, public utilities.</p> <p>63 Navy. Publications relating to Navy and Marine Corps.</p> <p>64 Standards of Weight and Measure. Tests of metals, building materials, electricity, photography.</p> <p>65 Foreign Relations. Executive agreements, treaties, neutrality, international conferences.</p> <p>67 Immigration. Aliens, citizenship, naturalization, races.</p> <p>68 Farm Management. Agricultural credit, farm products, marketing, agricultural statistics.</p> <p>69 Pacific States: California, Oregon, Washington. All material relating to these States.</p> <p>70 Census. Statistics of population, manufactures, agriculture, occupations.</p> <p>71 Children's Bureau, and other publications relating to children.</p> <p>72 Suburbanites. Publications of interest to suburbanites and home builders.</p> <p>75 Federal Specifications. Federal standard stock catalog.</p> <p>77 World War II. National defense, postwar planning.</p> <p>List of Field Manuals and Technical Manuals.</p> <p>List of Radio Publications.</p> |
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March 1946.

MINES

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ABRASIVES.

Abrasive materials in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: Ab 84/940
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: Ab 84/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: Ab 84/945

ACCIDENTS.

Accident experience and cost of accidents at Washington metal mines and quarries. 1932. (Mines Bureau, Technical Paper 514.) 10¢.
Catalog No. C 22.5: 514

Accidents from falls of rock or ore in metal mines. 1940. 21 p. (Mines Bureau, Miners' Circular 41.) 5¢.
Catalog No. I 28.6: 41

Accidents from falls of rock or ore in metal mines, metal-mine accident-prevention course, section 2. 1945. 53 p. il. (Mines Bureau, Miners' Circular 52.) 10¢.
Catalog No. I 28.6: 52

Accidents from falls of roof and coal in bituminous-coal mines: Coal-mine accident-prevention course, section 2. 1945. 114 p. il. (Mines Bureau, Miners' Circular 48.) 25¢.
Catalog No. I 28.6: 48

Accidents from hoisting and haulage in bituminous-coal mines, coal-mine accident-prevention course, sec. 3. 1946. 59 p. il. (Mines Bureau, Miners' Circular 49.) 20¢.
Catalog No. I 28.6: 49

Accidents from hoisting and haulage in metal mines, metal-mine accident-prevention course, section 3. 1945. 60 p. il. (Mines Bureau, Miners' Circular 53.) 15¢.
Catalog No. I 28.6: 53

Accidents in the Oklahoma petroleum industry in 1937. 1941. 141 p. il. (Mines Bureau, Technical Paper 620.) 15¢.
Catalog No. I 28.7: 620

Coal mine accidents in United States:

1938. 127 p. (Mines Bureau, Bulletin 437.) 15¢. Catalog No. I 28.3: 437
1939. 123 p. (Mines Bureau, Bulletin 444.) 20¢. Catalog No. I 28.3: 444
1940. 134 p. (Mines Bureau, Bulletin 448.) 20¢. Catalog No. I 28.3: 448
1941. 131 p. (Mines Bureau, Bulletin 456.) 20¢. Catalog No. I 28.3: 456

Coal-mine fatalities. Cost of coal-mine fatalities and some permanent disabilities in Ohio, Jan. 1, 1930-Dec. 31, 1934. 1938. 31 p. (Mines Bureau, Technical Paper 589.) 10¢.
Catalog No. I 28.7: 589

Coke-oven accident in United States during calendar year:

1938. 16 p. il. (Mines Technical Paper 614.) 5¢. Catalog No. I 28.7: 314
1939. 17 p. il. (Mines Technical Paper 623.) 5¢. Catalog No. I 28.7: 623
1940. 19 p. (Mines Bureau, Technical Paper 640.) 5¢. Catalog No. I 28.7: 640
1941. 19 p. (Mines Bureau, Technical Paper 651.) 10¢. Catalog No. I 28.7: 651
1942. 21 p. il. (Mines Bureau, Technical Paper 660.) 10¢. Catalog No. I 28.7: 660

Order publications by catalog number and title

ACCIDENTS.—Continued.

Electrical and mechanical hazards in metal mines, metal-mine accident-prevention course, section 6. 1946. 82 p. il. (Mines Bureau, Miners' Circular 56.) 20¢. Catalog No. I 28.6: 56

Explosions and fires in bituminous-coal mines, coal-mine accident-prevention course, section 4. 1946. 107 p. il. (Mines Bureau, Miners' Circular 50.) 25¢. Catalog No. I 28.6: 59

Metal- and nonmetal-mine accidents in United States (excluding coal mines) during calendar year:

1936. 53 p. (Mines Bureau, Bulletin 422.) 10¢. Catalog No. I 28.3: 422

1937. 54 p. (Mines Bureau, Bulletin 428.) 10¢. Catalog No. I 28.3: 428

1938. 52 p. (Mines Bureau, Bulletin 435.) 10¢. Catalog No. I 28.3: 435

1939. 53 p. (Mines Bureau, Bulletin 440.) 10¢. Catalog No. I 28.3: 440

1940. 51 p. (Mines Bureau, Bulletin 450.) 10¢. Catalog No. I 28.3: 450

1942. 81 p. il. (Mines Bureau, Bulletin 461.) 20¢. Catalog No. I 28.3: 461

The reports for the years 1936, 1937, and 1938 cover metal mines only.

Pipe-tool accidents. Prevention of pipe-tool accidents at drilling and producing well. 1928. (Mines Bureau, Technical Paper 422.) 15¢. Catalog No. C 22.5: 422

Principal coal-mine disasters in United States. 1941. p. 111-118. (Mines Bureau.) 5¢. Catalog No. I 28.3/a: C 631/2

Reprint from Bulletin 437, Coal mine accidents in United States, 1938.

Quarry accidents in United States during calendar year:

1937. 73 p. il. (Mines Bureau, Bulletin 426.) 15¢. Catalog No. I 28.3: 426

1938. 75 p. (Mines Bureau, Bulletin 432.) 15¢. Catalog No. I 28.3: 432

1939. 76 p. (Mines Bureau, Bulletin 438.) 10¢. Catalog No. I 28.3: 438

1940. 87 p. (Mines Bureau, Bulletin 447.) 15¢. Catalog No. I 28.3: 447

1941. 89 p. (Mines Bureau, Bulletin 452.) 15¢. Catalog No. I 28.3: 452

1942. 89 p. il. (Mines Bureau, Bulletin 458.) 15¢. Catalog No. I 28.3: 458

West Virginia coal-mine accident costs and data, July 1, 1929, to June 30, 1934. 1937. 51 p. (Mines Bureau, Technical Paper 580.) 10¢. Catalog No. I 28.7: 580

See also Explosions and explosives; Minerals.

ACETONE-AIR MIXTURES. Protection of equipment containing explosive acetone-air mixtures by use of diaphragms. 1933. (Mines Bureau, Technical Paper 553.) 5¢. Catalog No. C 22.5: 553

AGGLOMERATION. *See* Slimes.

AIR-BLAST METER. Design of air-blast meter and calibrating equipment. 1942. 20 p. il. (Mines Bureau, Technical Paper 635.) 10¢. Catalog No. I 28.7: 635

AIR FLOW. Flow of air and natural gas through porous media. 1938. 55 p. il. (Mines Bureau, Technical Paper 592.) 10¢. Catalog No. I 28.7: 592

See also Injectors.

ALABAMA. *See* Clay; Coal; Coal mines; Iron ore; Ores.

ALASKA. *See* Coal; Gold; Minerals; Peat; and Price list 60.

ALCOHOL IN MOTOR FUEL. *See* Motor fuels.

ALKALI CYANIDES. Occurrence, distribution, and significance of alkali cyanides in iron blast furnace. 1926. (Mines Bureau, Technical Paper 390.) 10¢. Catalog No. I 28.7: 390

ALUMINUM.

Aluminum in 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: A1 82/945

Preparation of light aluminum-copper casting alloys. 1922. (Mines Technical Paper 287.) 10¢. Catalog No. I 28.7: 287

See also Bauxite.

ALUMINUM CHLORIDE. Anhydrous aluminum chloride. 1923. (Mines Bureau, Technical Paper 321.) 5¢. Catalog No. I 28.7: 321

ASBESTOS.—Continued.

Asbestos in—Continued.

1941. [From Minerals Yearbook 1941.] 10¢. Catalog No. I 28.37/a: As 15/941
 1942. [From Minerals Yearbook 1942.] 5¢. Catalog No. I 28.37/a: As 15/942
 1943. [From Minerals Yearbook 1943.] 5¢. Catalog No. I 28.37/a: As 15/943
 1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: As 15/944
 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: As 15/945

ASHES. See Fuel.**ASPHALT** and related bitumens in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢. Catalog No. I 28.37/a: As 65/940
 1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a: As 65/940-2
 1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: As 65/944
 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: As 65/945

ATMOSPHERE IN MINES. See Ventilation.**BARITE, WITHERITE, AND BARIUM CHEMICALS** in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢. Catalog No. I 28.37/a: B 239/940
 1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a: B 239/940-2
 1941. [From Minerals Yearbook 1941.] 5¢. Catalog No. I 28.37/a: B 239/941
 1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: B 239/944
 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: B 239/945

BARRIERS. See Rock-dust barriers.**BAUXITE.**

Bauxite and aluminum in:

1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a: B 329/940-2
 1941. [From Minerals Yearbook 1941.] 10¢. Catalog No. I 28.37/a: B 329/941
 1944. [From Minerals Yearbook 1944.] 10¢. Catalog No. I 28.37/a: B 329/944
 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: B 329/945

BENTONITE, its properties, mining, preparation, and utilization. 1940. 83 p. (Mines Bureau, Technical Paper 603.) 15¢. Catalog No. I 28.7: 603

See also Clay.

BERYLLIUM. See Metals.**BISMUTH** in:

1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: B 542/944
 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: B 542/945

See also Arsenic; Metals.

BITUMINOUS COAL. See Coal; Coal mines.**BITUMINOUS-COAL MINERS.** Changing status of bituminous-coal miners, 1937-46. 1946. 10 p. (Labor Statistics Bureau, Bulletin 882.) 5¢. Catalog No. L 2.3: 882

MINES

5

BLAST FURNACES.

Blast-furnace stock column. 1929. (Mines Bureau, Technical Paper 442.)
30¢. Catalog No. C 22.5: 442

Composition of materials from various elevations in iron blast furnace. 1926.
(Mines Bureau, Technical Paper 397.) 5¢. Catalog No. C 22.5: 397

Effect of sized ore on blast-furnace operation. 1930. 92 p. il. (Mines Bureau
Technical Paper 459.) 20¢. Catalog No. C 22.5: 459

16th Census of United States, 1940, manufactures, 1939; Blast furnaces, steel
works, and rolling mills. 1941. 16 p. (Census Bureau.) 10¢.
Catalog No. C 3.940-18: B 61

See also Alkali cyanides.

BLASTING. Permissible single-shot blasting units. 1928. (Mines Bureau,
Technical Paper 429.) 10¢. Catalog No. C 22.5: 429

See also Copper mines; Metal mines.

BOILER FEED-WATER. Questions and answers on boiler feed-water condi-
tioning. [Rev.] 1943. 121 p. (Mines Bureau, Question and Answer
Handbook 3.) 25¢. Catalog No. I 28.48. 3/2

BOILERS.

Building materials and structures: Effect of soot on rating of oil-fired heating
boiler, 1940. 4 p. il. (National Bureau of Standards, Building Materials
and Structures Report 54.) 10¢. Catalog No. C 13.29: 54

Bureau of Ships manual: chap. 51, Boilers. Rev. 1945. 154 p. il. pl. (Navy
Dept.) 30¢. Catalog No. N 29.13: 51/945

Hand firing soft coal under power-plant boilers. 1916. (Mines Bureau, Tech-
nical Paper 80.) 10¢. Catalog No. I 28.7: 80

For supplement to this publication *see* under the heading "Flue gases" (Mines
Technical Paper 97).

Nonferrous range boilers. 1941. 17 p. il. (National Bureau of Standards,
Simplified Practice Recommendation 181.) 5¢. Catalog No. C 13.12/1: 181

Tests of large boiler fired with powdered coal, at Lakeside Station, Milwaukee.
1925. (Mines Bureau, Bulletin 237.) 15¢. Catalog No. I 28.3: 237

See also Coal, subheaded Bituminous coal as generator fuel, etc., and Five
hundred tests of various coals, etc.; Flue gases; Smoke; Steel.

BOLIVIA. *See* Metals; and Price list 65.

BRASS FURNACES. Electric brass furnace practice. 1922. (Mines Bureau,
Bulletin 202.) 50¢. Catalog No. I 28.3: 202

BREATHING APPARATUS. *See* Gas masks; Rescue work.

BRIQUETS.

Fuel briquets and packaged fuel in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: B 773/940

1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: B 773/940-2

1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: B 773/944

1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: B 773/945

BROWN COAL. *See* Lignite.

BURRELL METHANE INDICATOR. *See* Methane.

CABLES. Rubber-sheathed trailing cables. 1932. (Mines Bureau, Bulletin 358.)
25¢. Catalog No. C 22.3: 358

CADMIUM in:

1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a: C 114/941

1944. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a: C 114/944

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CADMIUM in:—Continued.

1945. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a : C 114/945

See also Antimony ; Metals.**CALCIUM SULPHATE RETARDERS** for portland cement clinker. 1929. (Mines Bureau, Technical Paper 451.) 10¢.

Catalog No. C 22.5 : 451

CALIFORNIA. *See* Gold ; Lamps ; Minerals ; Slimes.**CANADA.** *See* Dikes.**CANOL PROJECT.** *See* Oil.**CARBON BLACK.**

Carbon black produced from natural gas in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a : C 177/940

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a : C 177/940-2

1941. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a : C 177/941

1944. [From Minerals Yearbook 1944.] 5¢.

Catalog No. I 28.37/a : C 177/944

1945. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a : C 177/945

CARBON DIOXIDE. Oxidation of zinc vapor by carbon dioxide. 1924. (Mines Bureau, Technical Paper 336.) 5¢.

Catalog No. I 28.7 : 336

See also Nonmetals.**CARBON MONOXIDE.**

Carbon monoxide hazards from house heaters burning natural gas. 1923. (Mines Bureau, Technical Paper 337.) 10¢.

Catalog No. I 28.7 : 337

Carbon monoxide poisoning, its cause and prevention. 1935. 4 p. (Labor Standards Division, Industrial Health and Safety Series 4.) 5¢.

Catalog No. L 16.9 : 4

Medical study of men exposed to measured amounts of carbon monoxide in the Holland Tunnel for 13 years. 1942. 74 p. il. (Public Health Service, Bulletin 278.) 15¢.

Catalog No. FS 2.3 : 278

Methods for detection and determination of carbon monoxide. 1938. 30 p. il. (Mines Bureau, Technical Paper 582.) 10¢.

Catalog No. I 28.7 : 582

Pyrotannic acid method for quantitative determination of carbon monoxide in blood and air, its use in diagnosis and investigation of cases of carbon monoxide poisoning. 1925. 18 p. il. pl. (Mines Bureau, Technical Paper 373.) 10¢.

Catalog No. C 22.5 : 373

See also Price list 51.**CARBONACEOUS SLIME TAILINGS.** *See* Slimes.**CARBONIZING APPARATUS.** *See* Coal.**CEMENT.**

Cement in:

1939. [From Minerals Yearbook 1940, review of 1939.] 10¢.

Catalog No. I 28.37/a : C 322/940

1940. [From Minerals Yearbook, review of 1940.] 10¢.

Catalog No. I 28.37/a : C 322/940-2

1942. [From Minerals Yearbook 1942.] 10¢.

Catalog No. I 28.37/a : C 322/942

1943. [From Minerals Yearbook 1943.] 10¢.

Catalog No. I 28.37/a : C 322/943

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a : 332/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a : C 332/945

MINES

7

CEMENT.—Continued.

Relative value of gypsum and anhydrite as additions to portland cement. 1937. 15 p. (Mines Bureau, Technical Paper 578.) 5¢.

Catalog No. I 28.7: 578

See also Calcium sulphate retarders; and Price list 64.

CENTRAL STATES. See Gold; Silver.

CHALCOCITE. Chemistry of leaching chalcocite. 1930. (Mines Bureau, Technical Paper 473.) 10¢.

Catalog No. C 22.5: 473

CHALK. See Limestone.

CHARCOAL MAKING. American charcoal making in the era of the cold-blast furnace. 1941. 25 p. il. (National Parks Service, Popular Study Series, History, No. 14.) 10¢.

Catalog No. I 29.45: 14

CHROMITE in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a: C 468/940

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: C 468/940-2

1941. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a: C 468/941

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: C 468/944

1945. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a: C 468/945

CHROMIUM.

Sponge chromium. 1942. 109 p. il. pl. (Mines Bureau, Bulletin 436.) 20¢.

Catalog No. I 28.3: 436

Thermodynamic properties of carbides of chromium. 1944. 43 p. il. (Mines Bureau, Technical Paper 662.) 10¢.

Catalog No. I 28.7: 662

CLAY.

Beneficiation and utilization of Georgia clays. 1926. (Mines Bureau, Bulletin 252.) 20¢.

Catalog No. C 22.3: 252

Clay in:

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: C 579/940-2

1941. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a: C 579/941

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: C 579/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a: C 579/945

These reports cover kaolin (china clay and paper clay), ball clay, fire clay, bentonite, fuller's earth (bleaching clays), and miscellaneous clay.

Georgia and Alabama clays as fillers. 1925. (Mines Bureau, Technical Paper 343.) 10¢.

Catalog No. C 22.5: 343

See also Ammonium and potassium alums; Price list 64.

COAL.

Analyses of Alaska coals. 1946. 114 p. il. pl. (Mines Bureau, Technical Paper 682.) 25¢.

Catalog No. I 28.7: 682

Analyses of ash from coals of United States. 1945. 20 p. (Mines Bureau, Technical Paper 679.) 10¢.

Catalog No. I 28.7: 679

Analyses of Indiana coals. 1927. 50 p. il. (Mines Bureau, Technical Paper 417.) 10¢.

Catalog No. C 22.5: 417

Analyses of Kansas coals. 1929. (Mines Bureau, Technical Paper 455.) 10¢.

Catalog No. C 22.5: 455

Analyses of Kentucky coals. 1944. 323 p. il. (Mines Bureau, Technical Paper 652.) 40¢.

Catalog No. I 28.7: 652

Analyses of Maryland coals. 1930. (Mines Bureau, Technical Paper 465.) 15¢.

Catalog No. C 22.5: 465

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COAL.—Continued.

- Analyses of mine and car samples of coal collected, 1916-1919. 1st ed. 1922. 391 p. (Mines Bureau, Bulletin 193.) 35¢. Catalog No. I 28.3: 193
- Analyses of Missouri coals. 1926. (Mines Bureau, Technical Paper 366.) 10¢. Catalog No. C 22.5: 366
- Analyses of Montana coals. 1932. (Mines Bureau, Technical Paper 529.) 10¢. Catalog No. C 22.5: 529
- Analyses of New Mexico coals. 1936. (Mines Bureau, Technical Paper 569.) 15¢. Catalog No. I 28.7: 569
- Analyses of Ohio coals. 1923. (Mines Bureau, Technical Paper 344.) 5¢. Catalog No. I 28.7: 344
- Analyses of Oklahoma coals. 1928. 62 p. (Mines Bureau, Technical Paper 411.) 10¢. Catalog No. C 22.5: 411
- Analyses of Pennsylvania bituminous coals. 1939. 503 p. il. (Mines Bureau, Technical Paper 590.) 50¢. Catalog No. I 28.7: 590
- Analyses of Tennessee coals (including Georgia). 1945. 243 p. il. (Mines Bureau, Technical Paper 671.) 35¢. Catalog No. I 28.7: 671
- Analyses of Utah coals. 1925. (Mines Bureau, Technical Paper 345.) 10¢. Catalog No. I 28.7: 345
- Analyses of Virginia coals. 1944. 159 p. il. (Mines Bureau, Technical Paper 656.) 15¢. Catalog No. I 28.7: 656
- Analyses of Washington coals. 1931. (Mines Bureau, Technical Paper 491.) 30¢. Catalog No. C 22.5: 491
- *Supplement to above.* Analyses of Washington coals. 1941. 81 p. il. map. (Mines Bureau, Technical Paper 618.) 15¢. Catalog No. I 28.7: 618
- Analyses of West Virginia coals. 1942. 341 p. il. pl. map. (Mines Bureau, Technical Paper 626.) 45¢. Catalog No. I 28.7: 626
- Bibliography of Bureau of Mines investigations of coal and its products, 1935-1940. 1942. 43 p. il. (Mines Bureau, Technical Paper 639.) 10¢. Catalog No. I 28.7: 639
- Bibliography of Bureau of Mines investigations on coal and its products, 1910-35. 1937. 147 p. (Mines Bureau, Technical Paper 576.) 15¢. Catalog No. I 28.7: 576

This is a revision of Mines Technical Paper 493.

Bituminous Coal Act of 1937.

Act [H. R. 4985] to regulate interstate commerce in bituminous coal, and for other purposes. Approved Apr. 26, 1937. (75th Cong., Public Law 48.) 5¢. Catalog No. S 7.5/1: 75/48
Creates National Bituminous Coal Commission. Repeals Bituminous Coal Conservation Act of 1935. Cited as the Bituminous Coal Act of 1937.

Interstate commerce in bituminous coal; report to accompany H. R. 4985 [to regulate interstate commerce in bituminous coal]. Mar. 25, 1937. 5 p. (75th Cong., 1st sess., S. rp. 252.) 5¢. Catalog No. 75-1: S.rp.252

Bituminous coal as generator fuel for large water-gas sets with waste-heat boilers. 1925. (Mines Bureau, Technical Paper 335.) 15¢. Catalog No. I 28.7: 335

Bituminous coal code, promulgated June 21, 1937. 1937. 12 p. (National Bituminous Coal Commission, Order no. 4.) 5¢. Catalog No. I 34.13: 4

Bituminous Coal Commission, National. 3d annual report under Bituminous Coal Act of 1937, being full report of activities of National Bituminous Coal Commission, fiscal year 1939, with some additional activities of Bituminous Coal Division, Department of Interior. 1940. 29 p. 10¢. Catalog No. I 46.1: 939

Bituminous Coal Division, Interior Department.

NOTE.—All records of the Bituminous Coal Division were transferred to the Solid Fuels Administration for War, effective Aug. 24, 1943.

MINES

9

COAL.—Continued.

Bituminous Coal Division, Interior Department.—Continued.

Administrative procedure in Government agencies, monograph of Attorney General's Committee on Administrative Procedure embodying results of investigations made by the staff of said Committee relative to administrative practices and procedures of the several agencies of the Government: pt. 10, Bituminous Coal Division, Department of Interior. 1941. 56 p. (77th Cong., 1st sess., S. doc. 10, pt. 10.) 10¢.
Catalog No. 77-1: S.doc.10/pt.10

[5th] annual report of Director of Bituminous Coal Division to Secretary of Interior, reprinted from Annual report of Secretary of Interior, fiscal year ended June 1941. 1941. p. 177-214. 10¢.
Catalog No. I 46.1: 941

[6th] annual report of Director of Bituminous Coal Division to Secretary of Interior, reprinted from Annual report of Secretary of Interior for fiscal year ended June 1942. 1943. p. 101-117. 5¢. Catalog No. I 46.1: 942

Decisions and orders, v. 1, Oct. 1, 1940-June 30, 1941. 1943. 1352 p. (Bituminous Coal Division.) Cloth, \$2.00. Catalog No. I 46.16: 1

Bituminous coal in:

1940. [From Minerals Yearbook, review of 1940.] 10¢.
Catalog No. I 28.37/a: B 549/940-2

1943. [From Minerals Yearbook 1943.] 15¢.
Catalog No. I 28.37/a: B 549/943

This report also includes final statistics for 1942, and lignite.

1944. [From Minerals Yearbook 1944.] 15¢.
Catalog No. I 28.37/a: B 549/944

This report also contains final statistics for 1943, and lignite.

1945. [From Minerals Yearbook 1945.] 15¢.
Catalog No. I 28.37/a: B 549/945

Also includes final statistics for 1944.

Bureau of Mines research on the hydrogenation and liquefaction of coal and lignite. 1944. 69 p. il. (Mines Bureau, Technical Paper 666.) 15¢.
Catalog No. I 28.7: 666

Burning of coal and coke treated with small quantities of chemicals. 1937. 158 pages, illus., figures. (Mines Bureau, Bulletin 404.) 25¢.
Catalog No. I 28.3: 404

Burning of coal in down-draft ceramic kilns and burning characteristics of some Ohio coals. 1939. 34 p. il. (Mines Bureau, Technical Paper 598.) 10¢.
Catalog No. I 28.7: 598

Burning steam sizes of anthracite, with or without admixture of soft coal. 1919. (Mines Bureau, Technical Paper 220.) 5¢. Catalog No. I 28.7: 220

Carbonizing apparatus. Comparison of small and large scale experimental carbonizing apparatus, tests of Pittsburgh bed coal from Allison mine, Fayette Co., Pa., and of a coal from Michel mine, British Columbia, 1932. (Mines Bureau, Technical Paper 543.) 5¢. Catalog No. C 22.5: 543

Carbonizing properties and constitution of:
Alma bed coal from Spruce River No. 4 mine, Boone Co., W. Va. 1935. (Mines Bureau, Technical Paper 562.) 10¢. Catalog No. I 28.7: 562

Chilton bed coal from Boone No. 2 mine, Logan Co., W. Va. 1932. (Mines Bureau, Technical Paper 542.) 10¢. Catalog No. C 22.5: 542

Carbonizing properties and petrographic composition of:
Bakerstown-bed coal from No. 23 mine, Coketon, Tucker County, W. Va., and the effect of blending this coal with Pittsburgh-bed (Warden mine) coal. 1942. 46 p. il. (Mines Bureau, Technical Paper 644.) 15¢.
Catalog No. I 28.7: 644

Clintwood bed coal from Buchanan mines Nos. 1 and 2, Buchanan County, Va. 1936. 34 pages, illus. (Mines Bureau, Technical Paper 570.) 10¢.
Catalog No. I 28.7: 570

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Carbonizing properties and petrographic composition of—Continued.

- Hazard No. 4 coal from Columbus No. 4 mine and high-tempered carbonizing properties of Hazard No. 7 coal from Hardburly mine, Perry County, Ky. 1945. 46 p. il. (Mines Bureau, Technical Paper 672.) 10¢.
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- High splint bed coal from Closplint mine, Closplint, Harlan Co., Ky. 1939. 38 p. il. (Mines Bureau, Technical Paper 599.) 10¢.
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- Lower Hignite-bed coal from Atlas mine, Middlesboro, Bell County, Ky., and the effect of blending this coal with Pocahontas No. 3 and No. 4 bed coals. 1942. 47 p. il. (Mines Bureau, Technical Paper 634.) 10¢.
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- No. 1-bed coal from Bell No. 1 mine, Sturgis, Crittenden County, Ky., and effect of blending this coal with Pocahontas No. 3- and No. 4-bed coals. 1941. 45 p. il. (Mines Bureau, Technical Paper 628.) 10¢.
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- No. 2-bed coal from Bartoy mine and No. 5-bed coal from Wilkeson-Miller mine, Wilkeson, Pierce County, Wash. 1942. 46 p. il. (Mines Bureau, Technical Paper 649.) 10¢.
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- Pittsburgh-bed coal from Bureau of Mines experimental mine, Bruceton, Allegheny Co., Pa. 1939. 43 p. il. (Mines Bureau, Technical Paper 594.) 10¢.
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- Pittsburgh bed coal from Pittsburgh terminal No. 9 mine, Washington County, Pa. 1936. 33 p. il. (Mines Bureau, Technical Paper 571.) 10¢.
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- Powellton-bed coal from Elk Creek No. 1 mine, Emmett, Logan County, W. Va., and effect of blending this coal with Pocahontas No. 3- and No. 4-bed coals. 1941. 45 p. il. (Mines Bureau, Technical Paper 630.) 10¢.
Catalog No. I 28.7: 630
- Sewell-bed coal from Wyoming mine, Wyoming County, W. Va., and effect of blending this coal with Alma-bed coal. 1939. 45 p. il. (Mines Bureau, Technical Paper 601.) 10¢.
Catalog No. I 28.7: 601
- Taggart-bed coal from Mines 30 and 31, Lynch, Harlan Co., Ky., and effect of blending this coal with Pocahontas No. 3- and No. 4-bed coals. 1943. 45 p. il. (Mines Bureau, Technical Paper 650.) 10¢. Catalog No. I 28.7: 650
- Thick Freeport-bed coal from Harmar mine, Harmarville, Allegheny County, Pa., and effect of blending this coal with Pocahontas No. 3- and No. 4-bed coals. 1943. 46 p. il. (Mines Bureau, Technical Paper 655.) 10¢.
Catalog No. I 28.7: 655
- Upper Banner bed coal from Clinchfield No. 9 mine, Dickens Co., Va., and of Indiana No. 4-bed coal from Saxton No. 1 mine, Vigo Co., Ind., and effect of blending these coals with Beckley-bed coal. 1938. 81 p. il. (Mines Bureau, Technical Paper 584.) 10¢.
Catalog No. I 28.7: 584
- Upper Freeport coal from Morgantown district, Monongalia County, W. Va., and of Lower Freeport coal from eastern Indiana County near Cambria County, Pa. 1941. 77 p. il. (Mines Bureau, Technical Paper 621.) 15¢.
Catalog No. I 28.7: 621
- Carbonizing properties of Davis-bed coal from Garrett Co., Md., and of mixtures with Pittsburgh-bed coal. 1932. (Mines Bureau, Technical Paper 511.) 20¢.
Catalog No. C 22.5: 511
- Carbonizing properties of Eagle-bed coal from prospect shaft, Carbon, Kanawha Co., W. Va. 1946. 43 p. il. (Mines Bureau, Technical Paper 691.) 15¢.
Catalog No. I 28.7: 691
- Carbonizing properties of Pocahontas No. 3-bed coal from Kimball, McDowell County, W. Va., and effect of blending this coal with Pittsburgh-bed coal. 1944. 35 p. il. (Mines Bureau, Technical Paper 670.) 10¢.
Catalog No. I 28.7: 670

MINES

11

COAL.—Continued.

- Carbonizing properties of Powellton-bed coal from Coal Mountain mine, Guyan, Wyoming County, W. Va. 1945. 44 p. il. (Mines Bureau, Technical Paper 683.) 15¢. Catalog No. I 28.7: 683
- Carbonizing properties of Velva lignite from Ward County, N. Dak., and Monarch coal from Sheridan County, Wyo. 1946. 41 p. il. (Mines Bureau, Technical Paper 695.) 10¢. Catalog No. I 28.7: 695
- Carbonizing properties of Western coals. 1946. 79 p. il. (Mines Bureau, Technical Paper 692.) 20¢. Catalog No. I 28.7: 692
- Carbonizing properties of Western Region Interior Province coals and certain blends of these coals. 1944. 138 p. il. (Mines Bureau, Technical Paper 667.) 20¢. Catalog No. I 28.7: 667
- Central district bituminous coals as water-gas generator fuel. 1924. (Mines Bureau, Bulletin 203.) 15¢. Catalog No. I 28.3: 203
- Clinker formation as related to fusibility of coal ash. 1932. (Mines Bureau, Bulletin 364.) 10¢. Catalog No. C 22.3: 364
- Coal-cutting equipment. Permissible coal-cutting equipment, approved prior to July 1, 1932. 1934. 129 p. il. (Mines Bureau Bulletin 382.) 15¢. Catalog No. I 28.3: 382
- Coal deposits of Pike County, Ky. 1937. 92 p. il. maps and portfolio of 47 plates and map. (Geological Bureau, Bulletin 876.) \$2.25. Catalog No. I 19.3: 876
- Coal fireman. Questions and answers for coal fireman. Revised 1941. 17 p. (Mines Bureau, Question and Answer Handbook 1.) 10¢. Catalog No. I 28.48: 1/2
- Coal industry of the world, with special reference to international trade in coal. 1930. 328 p. il. (Foreign and Domestic Commerce Bureau, Trade Promotion Series 105.) Cloth, \$1.00. Catalog No. C 18.27: 105
- Coal-mining problems in State of Washington. 1924. (Mines Bureau, Bulletin 190.) 20¢. Catalog No. I 28.3: 190
- Coal-washing investigations, methods, and tests. 1929. (Mines Bureau, Bulletin 300.) 50¢. Catalog No. C 22.3: 300
- Coking of Illinois coals. 1917. (Mines Bureau, Bulletin 138.) 20¢. Catalog No. I 28.3: 138
- Compressibility and bearing strength of coal in place, tests of lateral compression of Pittsburgh coal bed. 1933. (Mines Bureau, Technical Paper 527.) 5¢. Catalog No. C 22.5: 527
- Developments in coal research and technology in 1937 and 1938. 1940. 95 p. (Mines Bureau, Technical Paper 613.) 10¢. Catalog No. I 28.7: 613
- Diffusion of oxygen through stored coal. 1917. (Mines Bureau, Technical Paper 170.) 10¢. Catalog No. I 28.7: 170
- Directions for sampling coal for shipment or delivery. Rev. 1933. 8 p. il. (Mines Bureau, Technical Paper 133.) 5¢. Catalog No. I 28.7: 133
- Economics of coal traffic flow, letter from Board of Investigation and Research transmitting report on economics of coal traffic flow. 1945. 103 p. il. pl. map. (79th Cong., 1st sess., S. doc. 82.) 60¢. Catalog No. 79-2: S. doc. 82
- Effect of labor relations in bituminous coal industry upon interstate commerce. 1938. 77 p. charts, map. (National Labor Relations Board, Economic Research Bulletin 2.) 20¢. Catalog No. LR 1.3: 2
- Effects of moisture on spontaneous heating of stored coal. 1917. (Mines Bureau, Technical Paper 172.) 5¢. Catalog No. I 28.7: 172
- Experiments on strength of small pillars of coal in Pittsburgh bed. 1939. 22 p. il. (Mines Bureau, Technical Paper 605.) 5¢. Catalog No. I 28.7: 605
- Exploration, composition, and washing, burning and gas-producer tests of a coal occurring near Coaldale, Esmeralda Co., Nev. 1946. 79 p. il. pl. map. (Mines Bureau, Technical Paper 687.) 30¢. Catalog No. I 28.7: 687

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- Five hundred tests of various coals in house heating boilers. 1928. (Mines Bulletin 276.) 15¢. Catalog No. C 22.3: 276
- How much heat in bituminous coal, excerpts from transcript of hearing held in Washington, July 15-16, 1937, by National Bituminous Coal Commission, including recommendation made to commission by Consumers' Counsel, and brief outline of A. S. T. M. standards. 1937. 28 p. il. (Consumers' Counsel of National Bituminous Coal Commission, Consumer Ideas 1.) 10¢. Catalog No. I 39.7: 1
- Hydrogenation and liquefaction of coal: pt. 4, Effect of temperature, catalyst and rank of coal on rates of coal-hydrogenation reactions. 1943. 50 p. il. (Mines Bureau, Technical Paper 654.) 10¢. Catalog No. I 28.7: 654
- Hydrogenation and liquefaction of coal: pt. 5, Characterization of light oil. 1946. 18 p. il. (Mines Bureau, Technical Paper 690.) 10¢. Catalog No. I 28.7: 690
- Index of coals tested in Bureau of Mines survey of carbonizing properties of American coals. 1942. 10 p. (Mines Bureau, Technical Paper 637.) 5¢. Catalog No. I 28.7: 637
- Interstate commerce in bituminous coal. *See* under this same heading Bituminous Coal Act of 1937.
- Know your coal. 1938. 10 p. il. (Consumers' Counsel of National Bituminous Coal Commission, Consumer Ideas 3.) 10¢. Catalog No. I 39.7: 3
- Methods and apparatus used in determining gas, coke, and by-product making properties of American coals, with results on a Taggart-bed coal from Roda, Wise Co., Va. 1931. (Mines Bureau, Bulletin 344.) 40¢. Catalog No. C 22.3: 344
- Methods of analyzing coal and coke. Edition of 1938. (Mines Bureau, Technical Paper 8.) 15¢. Catalog No. I 28.7: 8
- Microscopic study of Elkhorn coal bed at Jenkins, Letcher Co., Ky. 1931. (Mines Bureau, Technical Paper 506.) 20¢. Catalog No. C 22.5: 506
- National Bituminous Coal Commission. *See* under this same heading, Bituminous Coal Commission, National.
- Notes on sampling and analysis of coal. 1938. 48 p. il. (Mines Bureau, Technical Bulletin 586.) 10¢. Catalog No. I 28.7: 586
- Operating regulations to govern coal-mining methods and safety and welfare of miners on leased lands on the public domain, under act of Feb. 25, 1920 (41 Stat. 437) and amendments thereto. 2d ed. 1938. 46 p. (Geological Survey.) 10¢. Catalog No. I 19.15/2: C 63
- Origin and petrographic composition of Lower Sunnyside coal of Utah. 1937. 34 p. il. (Mines Bureau, Technical Paper 573.) 10¢. Catalog No. I 28.7: 573
- Permissible coal-handling equipment, approved from Jan. 1926, to Dec. 1930, inclusive. (Mines Bureau, Bulletin 343.) 35¢. Catalog No. C 22.3: 343
- Plastic and swelling properties of bituminous coking coals. 1942. 260 p. il. (Mines Bureau, Bulletin 445.) 30¢. Catalog No. I 28.3: 445
- Pneumatic tabling of coal, effect of specific gravity, size, and shape. 1932. (Mines Bureau, Technical Paper 536.) 5¢. Catalog No. C 22.5: 536
- Protection for consumers of bituminous coal by act of Congress. 1938. 12 p. (Consumers' Counsel of National Bituminous Coal Commission.) 5¢. Catalog No. I 39.2: C 76/2
- Regulations 98 relating to taxes on sale or other disposal of bituminous coal, imposed under Bituminous Coal Act of 1937 (Approved Apr. 26, 1937, Public no. 48, 75th Congress). 1937. 30 p. (Internal Revenue Bureau.) 10¢. Catalog No. T 22.17: 98
- Relationship between oxidizability and composition of coal. 1931. (Mines Bureau, Bulletin 340.) 10¢. Catalog No. C 22.3: 340
- Relative spontaneous heating tendencies of coals. 1945. 24 p. il. (Mines Bureau, Technical Paper 681.) 10¢. Catalog No. I 28.7: 681

MINES

13

COAL.—Continued.

- Research and progress in production and use of coal. 1941. 49 p. (National Resources Planning Board, Technical Paper 4.) 15¢.
Catalog No. Pr 32.309:4
- Reserves, bed characteristics, and coking properties of Willow Creek coal bed, Kemmerer district, Lincoln County, Wyo. 1945. 48 p. il. pl. (Mines Bureau, Technical Paper 673.) 25¢.
Catalog No. I 28.7:673
- Resins in coal. 1945. 24 p. il. (Mines Bureau, Technical Paper 680.) 10¢.
Catalog No. I 28.7:680
- Retail prices of food and coal, 1941. 1942. 35 p. il. (Labor Statistics Bureau, Bulletin 707.) 10¢.
Catalog No. L 2.3:707
- Rosebud coal field, Rosebud and Custer counties, Mont. 1936. 120 p. il. maps, pl. (2 in pocket). (Geological Survey, Bulletin 847-B.) \$1.25.
Catalog No. I 19.3:847-B
- Sampling. Directions for sampling coal for shipment or delivery. 1917. (Mines Bureau, Technical Paper 133.) 5¢.
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- Sampling. Fundamentals of coal sampling. 1944. 127 p. il. (Mines Bureau, Bulletin 454.) 20¢.
Catalog No. I 28.3:454
- Screen sizing of coal, ores, and other minerals. 1925. (Mines Bureau, Bulletin 234.) 40¢.
Catalog No. I 28.3:234
- Some properties of water in coal. 1916. (Mines Technical Paper 113.) 5¢.
Catalog No. I 28.7:113
- Spontaneous heating of coal. 1928. 74 p. il. (Mines Bureau, Technical Paper 409.) 20¢.
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- Statistical analysis of progress in mechanical cleaning of bituminous coal from 1927 to 1934. 1936. 25 p. (Mines Bureau, Economic Paper 18.) 10¢.
Catalog No. I 28.38:18
- Structure in Paleozoic bituminous coals. 1920. (Mines Bureau, Bulletin 117.) 80¢.
Catalog No. I 28.3:117
- Subsidence due to coal mining in Illinois. 1927. (Mines Bureau, Bulletin 238.) 30¢.
Catalog No. C 22.3:238
- Typical analyses, bituminous coals produced in District 1. 1941. 18 p. il. (Office of Bituminous Coal Consumers' Counsel, Data Book, v. 2.) 50¢.
Catalog No. Y 3.B 54/2:2 D 26/v.2
- Same, in Districts 2, 3, 4, 5, and 6. 1941. 29 p. il. (Office of Bituminous Coal Consumers' Counsel, Data Book, v. 3.) 60¢.
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- Same, in District 6. 1945. 32 p. maps. (Mines Bureau, Data Book, v. 6.) 20¢.
Catalog No. I 28.2:D 26/v.6
- Same, in Districts 7 and 8. 1941. 28 p. maps. (Interior Dept.,*Consumers' Counsel Division, Data Book, v. 1.) 55¢.
Catalog No. I 48.52:D 26/v.1
- Same, in Districts 10 and 11. 1942. 48 p. maps. (Office of Bituminous Coal Consumers' Counsel, Data Book, v. 5.) 15¢.
Catalog No. Y 3.B 54/2:2 D 26/v.5
- Same, in District 13. 1942. 11 p. il. (Office of Bituminous Coal Consumers' Counsel, Data Book, v. 4.) 40¢.
Catalog No. Y 3.B 54/2:2 D 26/v.4
- These books contain descriptive tables of rail- and river-shipping mines, maps showing their locations, and analytical tables of seams by States and counties.
- Typical analyses of coals of United States. 1942. 45 p. (Mines Bureau, Bulletin 446.) 10¢.
Catalog No. I 28.3:446
- Use of hydrogen-volatile-matter ratio in obtaining net heating value of American coals. 1918. (Mines Bureau, Technical Paper 197.) 5¢.
Catalog No. I 28.7:197
- Value of bituminous coal and coke for generating steam in low-pressure cast-iron boiler. 1925. (Mines Bureau, Technical Paper 367.) 10¢.
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- Wage structure in bituminous-coal mining, fall of 1945. [1946.] 10 p. (Labor Statistics Bureau, Bulletin 867.) 5¢. Catalog No. L 2.3: 867
- Yields and properties of gases from BM-AGA carbonization tests at 900° C. 1946. 12 p. il. (Mines Bureau, Technical Paper 693.) 5¢. Catalog No. I 28.7: 693
- See also* Accidents; Anthracite; Boilers; Coal mines; Explosions and explosives; Gases; and Price list 15.
- COAL BURNERS.** Domestic burners for Pennsylvania anthracite (underfeed type). 2d ed. 1941. 16 p. il. (National Bureau of Standards, Commercial Standard 48.) 5¢. Catalog No. C 13.20: 48/2
- COAL DUST.**
- Allaying dust in bituminous-coal mines with water. 1939. 55 p. il. (Mines Bureau, Technical Paper 593.) 15¢. Catalog No. I 28.7: 593
- Coal-dust explosion tests in experimental mine:
- 1913 to 1918, inclusive. (Mines Bureau, Bulletin 167.) \$1.00. Catalog No. I 28.3: 167
- 1919-24. (Mines Bureau, Bulletin 268.) 35¢. Catalog No. C 22.3: 268
- Explosion hazards from use of pulverized coal at industrial plants. 1925. (Mines Bureau, Bulletin 242.) 25¢. Catalog No. C 22.3: 242
- Explosion tests of Pittsburgh coal dust in experimental mine, 1925 to 1932, inclusive. (Mines Bureau, Bulletin 369.) 5¢. Catalog No. C 22.3: 369
- Inflammability of Illinois coal dust. 1916. (Mines Bureau, Bulletin 102.) 15¢. Catalog No. I 28.3: 102
- Stone dusting or rock dusting to prevent coal-dust explosions, as practiced in Great Britain and France. 1924. (Mines Bureau Bulletin 225.) 10¢. Catalog No. I 28.3: 225
- What a miner can do to prevent explosions of gas and of coal dust. 1916. (Mines Bureau, Miners' Circular 21.) 5¢. Catalog No. I 28.6: 21
- COAL FIREMAN.** *See* Coal.
- COAL MINERS.** *See* Miners' health and diseases; Safety, etc.
- COAL MINERS' SAFETY MANUAL.** *See* Safety, etc.
- COAL MINES.**
- Coal-mine safety organizations in Alabama. 1931. (Mines Bureau, Technical Paper 489.) 10¢. Catalog No. C 22.5: 489
- Explanation of tentative inspection standards for anthracite mines. 1945. 118 p. (Mines Bureau, Miners' Circular 46.) 15¢. Catalog No. I 28.6: 46
- Falls of roof and coal in mines operating in:
- Pittsburgh coal bed in Marion and Monongalia Counties, W. Va. 1932. (Mines Bureau, Technical Paper 522.) 10¢. Catalog No. C 22.5: 522
- Pittsburgh coal bed, Panhandle district, W. Va. 1932. (Mines Bureau, Technical Paper 534.) 5¢. Catalog No. C 22.5: 534
- Sewickley coal bed in Monongalia County, W. Va. 1932. (Mines Bureau, Technical Paper 520.) 5¢. Catalog No. C 22.5: 520
- Falls of roof in bituminous coal mines, influence of seasons and rate of production. 1928. (Mines Bureau, Technical Paper 410.) 10¢. Catalog No. C 22.5: 410
- Federal mine safety code for bituminous-coal and lignite mines of United States, July 24, 1946. 1946. 90 p. (Mines Bureau.) 25¢. Catalog No. I 28.2: Sa 1
- Inspections and investigations in coal mines. Act [H. R. 2082] relating to certain inspections and investigations in coal mines for purpose of obtaining information relating to health and safety conditions, accidents, and occupational diseases therein, and for other purposes. Approved May 7, 1941. (77th Cong., Public Law 49.) 5¢. Catalog No. S 7.5/1: 77/49
- Investigations in coal mines; report to accompany H. R. 2082. 1941. 5 p. (77th Cong., 1st sess., H. rp. 168.) 5¢. Catalog No. 77-1: H. rp. 168

MINES

15

COAL MINES.—Continued.

Occupational hazards to young workers, report 3, Coal-mining industry. 1942. 55 p. (Children's Bureau, Publication 275.) 10¢. Catalog No. L 5.20: 275

Stoppings. Concrete stoppings in coal mines for resisting explosions, detailed tests of typical stoppings and strength of coal as a buttress. 1931. (Mines Bureau, Bulletin 345.) 25¢. Catalog No. C 22.3: 345

Study of mine roof of Pittsburgh coal bed in Pittsburgh mining district. 1932. (Mines Bureau, Technical Paper 541.) 10¢. Catalog No. C 22.5: 541

Study of roof in Pennsylvania mines contiguous to the Monongahela River. 1933. (Mines Bureau, Technical Paper 550.) 5¢. Catalog No. C 22.5: 550

Unwatering flooded coal mines in Washington. 1933. (Mines Bureau, Technical Paper 549.) 5¢. Catalog No. C 22.5: 549

See also Accidents; Coal dust; Explosions and explosives; Gases; Mine fires; Mine timbers.

COAL STRIKES. *See* Miners' strikes.

COBALT in:

1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: C 632/944

1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: C 632/945

See also Metals; Nickel.

COKE.

Coke and by-products in:

1940. [From Minerals Yearbook, review of 1940.] 10¢. Catalog No. I 28.37/a: C 669/940-2

1944. [From Minerals Yearbook 1944.] 15¢. Catalog No. I 28.37/a: C 669/944

1945. [From Minerals Yearbook 1945.] 15¢. Catalog No. I 28.37/a: C 669/945

Physical and chemical properties of coke made or used in Washington [State]. 1939. 44 p. il. (Mines Bureau, Technical Paper 597.) 10¢. Catalog No. I 28.7: 597

See also Accidents; Coal.

COLORADO. *See* Gases; Gold.

COPPER.

Acceleration of extraction of soluble copper from leached ores. 1930. (Mines Bureau, Technical Paper 472.) 10¢. Catalog No. C 22.5: 472

Copper and zinc in cyanidation sulphide-acid precipitation. 1931. (Mines Bureau, Technical Paper 494.) 15¢. Catalog No. C 22.5: 494

Copper in:

1933. [From Minerals Yearbook 1940, review of 1939.] 10¢. Catalog No. I 28.37/a: C 793/940

1940. [From Minerals Yearbook, review of 1940.] 10¢. Catalog No. I 28.37/a: C 793/940-2

1941. [From Minerals Yearbook 1941.] 10¢. Catalog No. I 28.37/a: C 793/941

1944. [From Minerals Yearbook 1944.] 10¢. Catalog No. I 28.37/a: C 793/944

1945. [From Minerals Yearbook 1945.] 10¢. Catalog No. I 28.37/a: C 793/945

Factors governing removal of soluble copper from leached ores. 1929. (Mines Bureau, Technical Paper 453.) 15¢. Catalog No. C 22.5: 453

Leaching nonsulphide copper ores with sulphur dioxide. 1923. (Mines Bureau, Technical Paper 312.) 20¢. Catalog No. I 28.7: 312

Purification of copper sulphate solutions. 1924. (Mines Bureau, Technical Paper 359.) 10¢. Catalog No. I 28.7: 359

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- Report to Senate on copper. 1932. 82 p. (Tariff Commission, Report 29, 2d Series.) 10¢. Catalog No. TC 1.9: 29
- Subsidence and ground movement in copper and iron mines of Upper Peninsula, Michigan. 1929. (Mines Bureau, Bulletin 295.) 40¢. Catalog No. C 22.3: 295
- Summarized data of copper production. 1928. (Mines Bureau, Economic Paper 1.) 10¢. Catalog No. C 22.13: 1
- See also* Gold; Iron; Silver; Ventilation; and Price list 15.

COPPER MINES.

- Drilling and blasting in open-cut copper mines. 1927. (Mines Bureau, Bulletin 273.) 30¢. Catalog No. C 22.3: 273
- Rock bursts in the Lake Superior copper mines, Keweenaw Point, Michigan. 1929. (Mines Bureau, Bulletin 309.) 20¢. Catalog No. C 22.3: 309
- Safety organizations in Arizona copper mines. 1929. (Mines Bureau, Technical Paper 452.) 10¢. Catalog No. C 22.5: 452
- See also* Ventilation.

COTTON VALLEY [OIL] FIELD. See Oil.

- COVELLITE. Chemistry of leaching covellite. 1930. (Mines Bureau, Technical Paper 487.) 5¢. Catalog No. C 22.5: 487

CRUDE OIL. See Oil; Petroleum.**CRYOLITE. See Fluorspar.****DETONATORS. See Explosions and explosives.**

- DIATOMITES of the Pacific Northwest as filter-aids. 1944. 87 p. ll. (Mines Bureau, Bulletin 460.) 25¢. Catalog No. I 28.3: 460

- DIKES. Results of some magnetic measurements on dikes, with experiments upon geophysical differentiation of nickel-ore deposits in the Sudbury district, Ontario, Canada. 1932. (Mines Bureau, Technical Paper 510.) 10¢. Catalog No. C 22.5: 510

DISEASES (miners'). See Miners' health and diseases.**DOMESTIC BURNERS. See Coal burners; Furnaces.****DRILLING. See Copper mines; Metal mines; Oil wells.****DUMORTIERITE. See Nonmetals.****DUST AND DUST EXPLOSIONS. See Coal dust; Miners' health and diseases; and Price list 46.****EASTERN STATES. See Gold.****ELECTRIC APPARATUS AND EQUIPMENT.**

- Action of acid mine water on insulation of electric conductors, preliminary report. 1913. (Mines Bureau, Technical Paper 58.) 5¢. Catalog No. I 28.7: 58
- Electric switches for use in gaseous mines. 1913. (Mines Bureau, Bulletin 68.) 10¢. Catalog No. I 28.3: 68
- Inspection and testing of mine-type electrical equipment for permissibility. 1929. (Mines Bureau, Bulletin 305.) 10¢. Catalog No. C 22.3: 305
- Maintenance of electrical mine equipment from viewpoint of safety inspector. 1932. (Mines Bureau, Technical Paper 537.) 5¢. Catalog No. C 22.5: 537
- Permissible junction boxes. 1929. 19 p. ll. pl. (Mines Bureau, Technical Paper 454.) 10¢. Catalog No. C 22.5: 454
- Suggestions for design of electrical accessories for permissible mining equipment. 1926. (Mines Bureau, Bulletin 258.) 15¢. Catalog No. C 22.3: 258
- See also* Metallurgy.

ELECTRIC FURNACES. See Brass furnaces.

MINES

17

ELECTROLYTIC MANGANESE PILOT PLANT. Operation of electrolytic manganese pilot plant, Boulder City, Nev.: pt. 1, Pilot-plant operations; pt. 2, Methods of analyzing manganese ore and electrolytic manganese pilot-plant metallurgical products; pt. 3, Proposals for electrolytic manganese plant for Three Kds, Oreg. 1946. 169 p. il. pl. (Mines Bureau, Bulletin 463.) 55¢.
Catalog No. I 28.3:463

EUROPE. See Iron.

EXPLOSIONS AND EXPLOSIVES.

Accuracy of manometry of explosions, comparative performance of some diaphragm-type explosion manometers when using hydrogen-air mixtures. 1931. (Mines Bureau, Technical Paper 496.) 15¢. Catalog No. C 22.5:496

Analysis of detonating and priming mixtures. 1922. (Mines Bureau, Technical Paper 282.) 5¢. Catalog No. I 28.7:282

Average hourly earnings in the explosives industry, June 1944. [1945.] 17 p. (Labor Statistics Bureau, Bulletin 819.) 10¢. Catalog No. L 2.3:819

Characteristics of fuel pitches and their explosibility in pulverized form. 1940. 45 p. il. (Mines Bureau, Technical Paper 617.) 10¢. Catalog No. I 28.7:617

Detonators, initiating efficiency by the miniature-cartridge test. 1945. 34 p. il. (Mines Bureau, Technical Paper 677.) 10¢. Catalog No. I 28.7:677

Effect of stemming on efficiency of explosives. 1912. (Mines Bureau, Technical Paper 17.) 5¢. Catalog No. I 28.7:17

Explosion at Consolidated School, New London, Tex., report on investigation of explosion at Consolidated School, New London, Tex. Mar. 18, 1937. 1937. 13 p. il. (75th Cong., 1st sess., S. doc. 56.) 10¢.
Catalog No. 75-1:S.doc.56

Explosion hazards in storage-battery rooms. 1940. 16 p. il. pl. (Mines Bureau Technical Paper 612.) 10¢. Catalog No. I 28.7:612

Explosions in Washington coal mines. 1931. (Mines Bureau, Technical Paper 507.) 10¢. Catalog No. C 22.5:507

Ignition of fire damp by explosives, study of process of ignition by the Schlieren method. 1932. (Mines Bureau, Bulletin 354.) 15¢. Catalog No. C 2.3:354

Liquid oxygen explosives. 1932. 88 p. il. (Mines Bureau, Bulletin 349.) 25¢. Catalog No. C 22.3:349

Medical study of effect of TNT [trinitrotoluene] on workers in a bomb and shell loading plant; and Report of fatal case of aplastic anemia. [1945.] 98 p. il. pl. (Public Health Service, Public Health Bulletin 291.) 25¢.
Catalog No. FS 2.3:291

Occupational hazards to young workers: Report 1, Explosives-manufacturing industries. 1942. 19 p. (Children's Bureau, Publication 273.) 10¢.
Catalog No. L 5.20:273

Ordnance safety manual, regulations governing manufacture, storage, loading, and handling of military explosives and ammunition at establishments of the Ordnance Department, Army, Dec. 1, 1941. 1941. 221 p. il. pl. (Ordnance Dept.) 30¢. Catalog No. W 34.12/2:Sa 1/2/941

Phenomena in the ignition of fire damp by explosives: pt. 1, Particles from the detonation. 1940. 17 p. pl. (Mines Bureau, Technical Paper 603.) 10¢.
Catalog No. I 28.7:603

Preventing accidents by proper use of permissible explosives. 1936. 43 p. il. (Mines Bureau, Technical Paper 567.) 10¢. Catalog No. I 28.7:567

Procedure for applying for tests made on explosives [including sheathed explosives] and blasting devices by Bureau of Mines, prescribed conditions and requirements for permissibility when used in coal mines and schedule of fees for the tests; approved June 15, 1944. 1944. 16 p. (Mines Bureau, Schedule 1E.) 5¢. Catalog No. I 28.8:1E

Production of industrial explosives in United States during calendar year: 1939. 30 p. il. (Mines Bureau, Technical Paper 627.) 5¢.
Catalog No. I 28.7:627

Order publications by catalog number and title

EXPLOSIONS AND EXPLOSIVES.—Continued.**Production of industrial explosives in United States.—Continued.**

1940. 30 p. il. (Mines Bureau, Technical Paper 636.) 10¢. Catalog No. I 28.7: 636
 1941. 30 p. il. (Mines Bureau, Technical Paper 647.) 10¢. Catalog No. I 28.7: 647
 1942. 24 p. il. (Mines Bureau, Technical Paper 658.) 10¢. Catalog No. I 28.7: 658
 1943. 26 p. il. (Mines Bureau, Technical Paper 665.) 10¢. Catalog No. I 28.7: 665

Progress of investigations on liquid-oxygen explosives. 1923. (Mines Bureau, Technical Paper 204.) 15¢. Catalog No. I 28.7: 294

Regulations for transportation of explosives and other dangerous articles by land and water in rail freight, express, and baggage services, and by motor vehicle (highway), and water, including specifications for shipping containers; revised, effective Jan. 7, 1941. 1940. 219 p. (Interstate Commerce Commission.) *Exhausted.*

— Supplement no. 1 to above. 1943. 78 p. il. (Interstate Commerce Commission.) 20¢. Catalog No. IC 1.12/2: Ex 7/13/941/Supp.1

Some factors influencing performance of diaphragm indicators of explosion pressures. 1941. p. 175-193, pl. (National Bureau of Standards, Research Paper 1368.) 15¢. Catalog No. C 13.22/a: 1368

Theoretical calculations for explosives: 1, Explosion temperatures and gaseous products and effects of changes in carbonaceous material. 1941. 21 p. il. (Mines Bureau, Technical Paper 632.) 5¢. Catalog No. I 28.7: 632

Theoretical calculations for explosives: 2, Explosion pressures. 1942. 26 p. il. (Mines Bureau, Technical Paper 643.) 10¢. Catalog No. I 28.7: 643

Transportation of explosives and other dangerous articles, effective July 1, 1945. 1945. 2 p. (Civil Aeronautics Board, Civil Air Regulations, pt. 49.) 5¢. Catalog No. C 31.209: 49

See also Coal dust; Coal mines.

FALLS OF ROOF, COAL, ROCK, OR ORE. *See* Accidents; Coal mines.

FEDERAL MINE SAFETY CODE, etc. *See* Coal mines.

FEDERAL OIL CONSERVATION BOARD. *See* Oil.

FELDSPAR in:

1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a: F 333/940-2
 1941. [From Minerals Yearbook 1941.] 5¢. Catalog No. I 28.37/a: F 333/941
 1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: F 333/944
 1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: F 333/945

FERRO-ALLOYS. *See* Iron.

FILMS. *See* Mines Bureau.

FIRE DAMP. *See* Explosions and explosives; Lamps.

FIRES. *See* Accidents; Mine fires; Oil and gas fires.

FIRST AID.

Manual of first-aid instruction. 1940. 361 p. il. (Mines Bureau.) 45¢. Catalog No. I 28.16: F 51/2/940

Suggested procedure for conducting first-aid and mine rescue contests. 1944. 92 p. il. (Mines Bureau.) 15¢. Catalog No. I 28.16: F 51/6
 This is a revision of Mines Technical Paper 579.

See also Price list 51.

FLOTATION. Certain interfacial tension equilibria important in flotation. 1923. (Mines Bureau, Technical Paper 262.) 10¢. Catalog No. I 28.7: 262

MINES

19

FLUE GASES. Sampling and analyzing flue gases. 1915. (Mines Bureau Bulletin 97.) 15¢. Catalog No. I 28.3: 97

Describes a simple apparatus, interesting to all persons in charge of boiler plants. This supplements Technical Paper 80, entitled "Hand firing soft coal under power-plant boilers," which is entered in this price list under the heading "Boilers."

FLUES. See Soot removal.

FLUORSPAR AND CRYOLITE in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢
Catalog No. I 28.37/a: F 573/940

1940. [From Minerals Yearbook, review of 1940.] 5¢
Catalog No. I 28.37/a: F 673/940-2

1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: F 673/945

FRACTIONATING COLUMNS. Review of the literature on the construction, testing, and operation of laboratory fractionating columns. 1939. 36 p. il. (Mines Bureau, Technical Paper 600.) 10¢. Catalog No. I 28.7: 600

FUEL.

Fuel situation in the Middle West, hearings, 78th Cong., 1st sess., pursuant to S. Res. 61 (78th Congress) (extending S. Res. 319, 77th Congress), resolution authorizing investigation concerning production, transportation, and use of fuels in certain areas west of the Mississippi River: (Special Committee to Investigate Fuel Situation in the Middle West, Senate.)

Catalog No. Y 4.F 95: H 35/(pt.)

Pt. 1, Jan. 7 and 8, 1943, Washington, D. C. 1943. p. 1-168. 20¢.

Pt. 2, Jan. 18-21, 1943, Kansas City, Mo. 1943. p. 171-530. 35¢.

Pt. 3, Jan. 22 and 23, 1943, Oklahoma City, Okla. 1943. p. 531-669. 15¢.

Pt. 4, Feb. 16, 18, and 19, 1943, Washington, D. C. 1943. p. 671-786. 15¢.

Pt. 5, Apr. 15 and 16, 1943, Kansas City, Mo., July 13, 1943, Washington, D. C. 1943. p. 787-983. 20¢.

Pt. 6, Aug. 3-5, and Sept. 14, 1943, Kansas City, Mo. (3d and 4th Kansas City hearings). 1943. p. 985-1300. 35¢.

Fuel wood used in United States, 1630-1930. 1942. 20 p. il. (Agriculture Dept., Circular 641.) 5¢. Catalog No. A 1.4/2: 641

Solid Fuels Administration for War. Annual report of Administrator of Office of Solid Fuels Administration for War to Secretary of Interior, fiscal year 1943. [1944.] p. 89-94. (Interior Dept., Solid Fuels Administration for War.) 5¢. Catalog No. I 51.1: 943

From Annual report of Secretary of Interior, fiscal year 1943.

Underfeed combustion, effect of preheat, and distribution of ash in fuel beds. 1934. (Mines Bureau, Bulletin 378.) 10¢. Catalog No. I 28.3: 378

Wood fuel in wartime. 1942. 22 p. il. (Agriculture Dept., Farmers' Bulletin 1912.) 10¢. Catalog No. A 1.9: 1912

See also Names of fuel.

FUEL CONSERVATION. See Winterizing the home.

FUEL PITCHES. See Explosions and explosives.

FULLER'S EARTH. See Clay.

FURNACES.

Automatic mechanical draft oil burners designed for domestic installations. 2d ed. 1942. 25 p. il. (National Bureau of Standards, Commercial Standard 75.) 10¢. Catalog No. C 13.20: 75

Hot shot furnaces. [1941.] 10 p. il. (National Park Service, Popular Study Series 7.) 10¢. Catalog No. I 29.45: 7

Gives history and description of hot shot furnaces.

Low-rate combustion in fuel beds of hand-fired furnaces. 1918. (Mines Bureau, Technical Paper 139.) 10¢. Catalog No. I 28.7: 139

Oil-burning floor furnaces equipped with vaporizing pot-type burners. 1944. 23 p. il. (National Bureau of Standards, Commercial Standard 113.) 10¢. Catalog No. C 13.20: 113

Order publications by catalog number and title

FURNACES.—Continued.

Solid-fuel-burning forced-air furnaces. 1944. 36 p. il. (National Bureau of Standards, Commercial Standard 109.) 10¢. Catalog No. C 13.20: 109

See also Blast furnaces; Boilers; Brass furnaces; Charcoal making; Coal; Soot removal.

GAS.

Act [H. R. 6586] to regulate transportation and sale of natural gas in interstate commerce. Approved June 21, 1938. (75th Cong., Public Law 688.) 5¢. Catalog No. S 7.5/1: 75/638

Cited as Natural Gas Act.

Changes in retail prices of gas, 1923-36. 1937. 52 p. il. (Labor Statistics Bureau, Bulletin 628.) 10¢. Catalog No. L 2.3: 623

Chlorination of natural gas. 1921. (Mines Bureau, Technical Paper 255.) 10¢. Catalog No. I 28.7: 255

Conditions affecting activity of iron oxides in removing hydrogen sulphide from city gas. 1924. (Mines Bureau Technical Paper 332.) 10¢. Catalog No. I 28.7: 332

Deviation of natural gas from Boyle's law. 1932. (Mines Technical Paper 539.) 5¢. Catalog No. C 22.5: 539

Effects of gasoline removal on heating value of natural gas. 1920. (Mines Bureau, Technical Paper 253.) 5¢. Catalog No. I 28.7: 253

Facts relating to the production and substitution of manufactured gas for natural gas. 1929. (Mines Bureau, Bulletin 301.) 35¢. Catalog No. C 22.3: 301

Geologic structure and occurrence of gas in part of southwestern New York; pt. 1, Structure and gas possibilities of Oriskany sandstone in Steuben, Yates, and adjacent counties. 1938. 68 p. il. maps, 1 in pocket. (Geological Survey Bulletin 899-A.) 35¢. Catalog No. I 19.3: 899-A

Ignition of natural gas-air mixtures by heated surfaces. 1930. (Mines Bureau, Technical Paper 475.) 20¢. Catalog No. C 22.5: 475

Natural Gas Act. 1939. 41 p. (Federal Power Commission.) 10¢. Catalog No. FP 1.2: G 21

Natural gas and natural gas pipe lines. Investigation of concentration of Economic power, study made for Temporary National Economic Committee, 76th Cong. 3d sess., pursuant to Public Res. 113 (75th Congress), authorizing and directing select committee to make full and complete study and investigation with respect to concentration of economic power in, and financial control over, production and distribution of goods and services: **Monograph 36, Reports of Federal Trade Commission on natural gas and natural gas pipe lines in U. S. A., agricultural implement and machinery inquiry, motor vehicle industry inquiry.** 1940. 275 p. pl. (Temporary National Economic Committee.) 35¢. Catalog No. Y 4.T 24: M 75/no.36

Natural gas in:

1939. [From Minerals Yearbook 1940, review of 1939.] 10¢. Catalog No. I 23.37/a: G 21/940

1940. [From Minerals Yearbook, review of 1940.] 10¢. Catalog No. I 28.37/a: G 21/940-2

1942. [From Minerals Yearbook 1942.] 10¢. Catalog No. I 28.37/a: G 21/942

1943. [From Minerals Yearbook 1943.] 10¢. Catalog No. I 28.37/a: G 21/943

1944. [From Minerals Yearbook 1944.] 10¢. Catalog No. I 28.37/a: G 21/944

The reports also include final statistics for the preceding year.

Natural-gas manual for the home. 1922. (Mines Bureau, Technical Paper 325.) 10¢. Catalog No. I 28.7: 325

Propagation of flame in mixtures of natural gas and air. 1928. (Mines Bureau, Technical Paper 427.) 10¢. Catalog No. C 22.5: 427

Solubility and liberation of gas from natural oil-gas solutions. 1933. (Mines Bureau, Technical Paper 554.) 10¢. Catalog No. C 22.5: 554

MINES

21

GAS.—Continued.

Uniform system of accounts prescribed for natural gas companies subject to provisions of Natural Gas Act; effective Jan. 1, 1940. 1940. 171 p. (Federal Power Commission.) 30¢. Catalog No. FP 1.7: G 21

Viscosity of natural gas. 1933. (Mines Bureau, Technical Paper 555.) 5¢. Catalog No. C 22.5: 555

Wastes in production and utilization of natural gas and means for their prevention. 1913. (Mines Bureau, Technical Paper 38.) 5¢. Catalog No. I 28.7: 38

See also Coal; Coal dust; Gases; Oil; Oil Wells; and Price list 64.

GAS FIRES. *See* Oil and gas fires.

GAS MASKS.

Tests of gas masks and respirators for protection from locomotive smoke in railroad tunnels with analyses of tunnel atmospheres. 1922. (Mines Bureau, Technical Paper 292.) 10¢. Catalog No. I 28.7: 292

Use of a type in miners' gas mask. 1929. (Mines Bureau, Miners' Circular 32.) 10¢. Catalog No. C 22.6: 32

GASES.

Bureau of Mines Orsat apparatus for gas analysis. 1925. 18 p. il. pl. (Mines Bureau, Technical Paper 320.) 5¢. Catalog No. C 22.5: 320

Coal-mine gases, technical information for use in vocational training classes. Revised edition. 1931. (Vocational Education Bulletin 39.) 20¢. Catalog No. VE 1.3: 39

Gases found in coal mines. 1916. (Mines Bureau, Miners' Circular 14.) 5¢. Catalog No. I 28.6: 14

Intensities of odors and irritating effects of warning agents for inflammable and poisonous gases. 1930. 37 p. il. (Mines Bureau, Technical Paper 480.) 10¢. Catalog No. C 22.5: 480

Limits of inflammability of gases and vapors. 1939. 146 p. il. (Mines Bureau, Bulletins 279.) 20¢. Catalog No. I 28.3: 279

Rock-strata gases of Cripple Creek district, Colorado, and their effect on mining. 1930. (Mines Bureau, Bulletin 317.) 20¢. Catalog No. C 22.3: 317

Vitiation of garage air by automobile exhaust gases. 1919. (Mines Bureau, Technical Paper 216.) 5¢. Catalog No. I 28.7: 216

See also Coal; Explosions and explosives; Flue gases; Gas; Lamps; Methane.

GASOLINE.

Bureau of Ships manual: chap. 15, Gasoline stowage and equipment. 1944. 12 p. (Navy Dept., Ships Bureau.) 10¢. Catalog No. N 29.13: 15/944

Gasoline and fuel-oil shortages, hearings, 77th Cong., 1st sess., pursuant to S. Res. 156, creating Special Committee to Investigate Gasoline and Fuel-Oil Shortages, methods of curtailment, and means of insuring adequate supply: (Special Committee to Investigate Gasoline and Fuel-Oil Shortages, Senate.) Catalog No. Y 4.G 21: G 21/(pt.)

Pt. 1, Aug. 28, 29, Sept. 3-10, 1941. 1941 p. 1-382, il. 35¢.

Pt. 2, Oct. 1 and 2, 1941. 1941 p. 383-682, il. 25¢.

Pt. 3, Jan. 4, 11-13, and 27, 1943. 1943 p. 683-973. 30¢.

Gasoline and fuel-oil shortages; preliminary report pursuant to S. Res. 156. 1941. 5 p. (77th Cong., 1st sess., S. rp. 676 [pt. 1].) 5¢. Catalog No. 77-1; S.rp.676/pt.1

Influence of fractionation on distribution of sulphur in gasoline. 1931. (Mines Bureau, Technical Paper 505.) 10¢. Catalog No. C 22.5: 505

Natural gasoline in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢. Catalog No. I 28.37/a: G 212/940

Order publications by catalog number and title

GASOLINE.—Continued.

Natural gasoline in:—Continued.

1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 212/940-2
1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 212/941
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a : G 212/944

The reports also include liquefied petroleum gases, and final statistics for the preceding year.

- Reduction of evaporation losses from gasoline bulk-storage stations. 1935.
35 p. il. (Mines Bureau, Technical Paper 565.) 5¢.
Catalog No. I 28.7 : 565

- Regulations 44 (1944 edition) relating to taxes on gasoline, lubricating oil, and matches under Chapter 29, subchapter A, Internal Revenue Code (part 314 of Title 26, Codification of Federal regulations). 1944. 60 p. (Internal Revenue Bureau.) 10¢.
Catalog No. T 22.17 : 44/5

- Safe use and storage of gasoline and kerosene on the farm. Revised 1945.
14 p. il. (Agriculture Dept., Farmers' Bulletin 1678.) 5¢.
Catalog No. A 1.9 : 1678

- Safety at natural-gasoline plants. 1929. (Mines Bureau, Technical Paper 462.) 25¢.
Catalog No. C 22.5 : 462

- Studies on determination of sulphur in gasoline. 1931. (Mines Bureau, Technical Paper 513.) 5¢.
Catalog No. C 22.5 : 513

- Thermal expansion of gasolines from 0° to 30° C. 1932. (National Bureau of Standards, Research Paper 393.) 5¢.
Catalog No. 13.22/a : 393

- Transportation of gasoline by pipe line. 1932. (Mines Bureau, Technical Paper 517.) 10¢.
Catalog No. C 22.5 : 517

GEM STONES in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 284/940
1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 284/941
1945. [From Minerals Yearbook 1945.] 5¢.
Catalog No. I 28.37/a : G 284/945

GEORGIA. See Clay.**GOLD.**

- Electrodeposition of gold and silver from cyanide solutions. 1919. (Mines Bulletin 150.) 25¢.
Catalog No. I 28.3 : 150

Gold and silver in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/16/940
1940. [From Minerals Yearbook, review of 1940.] 10¢.
Catalog No. I 28.37/a : G 563/16/940-2
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a : G 563/16/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a : G 563/16/945

Gold, silver, copper, and lead in:

- Alaska in—
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 563/17/940-2
1943. [From Minerals Yearbook 1943.] 5¢.
Catalog No. I 28.37/a : G 563/17/943

South Dakota and Wyoming in—

- 1939, in South Dakota. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/9/940
- 1939, in Wyoming. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/13/940

This report does not include lead.

- 1940, in South Dakota. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 563/9/940-2

GOLD.—Continued.

Gold, silver, copper, and lead in—Continued.

South Dakota and Wyoming in—Continued.

- 1940, in Wyoming. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 563/13/940-2
- 1941, in South Dakota. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 563/9/941
- 1941, in Wyoming. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 563/13/941
- 1942, in South Dakota. [From Minerals Yearbook 1942.] 5¢.
Catalog No. I 28.37/a : G 563/9/942

This report also includes zinc.

- 1942, in Wyoming. [From Minerals Yearbook 1942.] 5¢.
Catalog No. I 28.37/a : G 563/13/942
- 1943, in South Dakota and Wyoming. [From Minerals Yearbook 1943.] 5¢.
Catalog No. I 28.37/a : 563/9/943

This report also includes zinc.

- 1944, in South Dakota and Wyoming. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a : G 563/9/944
- 1945, in South Dakota and Wyoming. [From Minerals Yearbook 1945.] 5¢.
Catalog No. I 28.37/a : G 563/9/945

This report also includes zinc.

Gold, silver, copper, lead, and zinc in:

Arizona in—

- 1939. [From Minerals Yearbook 1940, review of 1939.] 10¢.
Catalog No. I 28.37/a : G 563/2/940
- 1940. [From Minerals Yearbook, review of 1940.] 10¢.
Catalog No. I 28.37/a : G 563/2/940-2
- 1943. [From Minerals Yearbook 1943.] 10¢.
Catalog No. I 28.37/a : G 563/2/943
- 1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a : G 563/2/944
- 1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a : G 563/2/945

California and Oregon in—

- 1939, in Oregon. [From Minerals Yearbook, 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/8/940
- 1940, in California. [From Minerals Yearbook, review of 1940.] 10¢.
Catalog No. I 28.37/a : G 563/3/940-2
- 1941, in California. [From Minerals Yearbook 1941.] 10¢.
Catalog No. I 28.37/a : G 563/3/941
- 1941, in Oregon. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 563/8/941
- 1943, in California. [From Minerals Yearbook 1943.] 10¢.
Catalog No. I 28.37/a : G 563/3/943
- 1943, in Oregon. [From Minerals Yearbook 1943.] 5¢.
Catalog No. I 28.37/a : G 563/8/943
- 1944, in California. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a : G 563/3/944
- 1944. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a : G 563/8/944
- 1945, in California [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a : G 563/3/945
- 1945, in Oregon. [From Minerals Yearbook 1945.] 5¢.
Catalog No. I 28.37/a : G 563/8/945

Colorado in—

- 1940. [From Minerals Yearbook, review of 1940.] 10¢.
Catalog No. I 28.37/a : G 563/4/940-2
- 1941. [From Minerals Yearbook 1941.] 10¢.
Catalog No. I 28.37/a : G 563/4/941
- 1943. [From Minerals Yearbook 1943.] 10¢.
Catalog No. I 28.37/a : G 563/4/943

Locations by catalog number and title

GOLD.—Continued.

Gold, silver, copper, lead, and zinc in—Continued.

Colorado in—Continued.

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a : G 563/4/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a : G 563/4/945

Eastern and Central States in—

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a : G 563/5/940

1940, in Central States. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a : G 563/19/940-2

1941, in Central States. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a : G 563/19/941

1941, in Eastern States. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a : G 563/18/941

1943, in Central States. [From Minerals Yearbook 1943.] 10¢.

Catalog No. I 28.37/a : G 563/19/943

1943, in Eastern States. [From Minerals Yearbook 1943.] 5¢.

Catalog No. I 28.37/a : G 563/18/943

1944, in Central States. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a : G 563/19/944

1944, in Eastern States. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a : G 563/18/944

1945, in Eastern States. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a : G 563/18/945

Idaho and Washington in—

1939, in Idaho. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a : G 563/14/940

1939, in Washington. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a : G 563/12/940

1940, in Idaho. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a : G 563/14/940-2

1940, in Washington. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a : G 563/12/940-2

1941, in Washington. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a : G 563/12/941

1943, in Idaho. [From Minerals Yearbook 1943.] 10¢.

Catalog No. I 28.37/a : G 563/14/943

1943, in Washington. [From Minerals Yearbook 1943.] 5¢.

Catalog No. I 28.37/a : G 563/12/943

1944, in Idaho. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a : G 563/14/944

1944, in Washington. [From Minerals Yearbook 1944.] 5¢.

Catalog No. I 28.37/a : G 563/12/944

1945, in Idaho. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a : G 563/14/945

1945, in Washington. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a : G 563/12/945

Montana in—

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a : G 563/15/940

1940. [From Minerals Yearbook, review of 1940.] 10¢.

Catalog No. I 28.37/a : G 563/15/940-2

1941. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a : G 563/15/941

1943. [From Minerals Yearbook 1943.] 10¢.

Catalog No. I 28.37/a : G 563/15/943

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a : G 563/15/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a : G 563/15/945

Nevada in—

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a : G 563/6/940

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a : G 563/6/940-2

GOLD.—Continued.

Gold, silver, copper, lead, and zinc in—Continued.

Nevada in—Continued.

1943. [From Minerals Yearbook 1943.] 10¢.
Catalog No. I 28.37/a : G 563/6/943
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a : G 563/6/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a : G 563/6/945

New Mexico and Texas in—

- 1939, in New Mexico. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/7/940
- 1939, in Texas. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/10/940
- 1940, in New Mexico. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 563/7/940-2
- 1940, in Texas. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 563/10/940-2
- 1941, in Texas. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 563/10/941
- 1942, in Texas. [From Minerals Yearbook 1942.] 5¢.
Catalog No. I 28.37/a : G 563/10/942
- 1943, in New Mexico. [From Minerals Yearbook 1943.] 10¢.
Catalog No. I 28.37/a : G 563/7/943
- 1943, in Texas. [From Minerals Yearbook 1943.] 5¢.
Catalog No. I 28.37/a : G 563/10/943
- 1944, in New Mexico. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a : G 563/7/944
- 1944, in Texas. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a : G 563/10/944
- 1945, in New Mexico. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a : G 563/7/945
- 1945, in Texas. [From Minerals Yearbook 1945.] 5¢.
Catalog No. I 28.37/a : G 563/10/945

Utah in—

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 563/11/940
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 563/11/940-2
1941. [From Minerals Yearbook 1941.] 10¢.
Catalog No. I 28.37/a : G 563/11/941
1943. [From Minerals Yearbook 1943.] 10¢.
Catalog No. I 28.37/a : G 563/11/943
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a : G 563/11/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a : G 563/11/945

Historical summary of gold, silver, copper, lead, and zinc produced in California 1848-1926. (Mines Bureau, Economic Paper 3.) 5¢.
Catalog No. C 22.13 : 3

GRAPHITE. See Nonmetals.**GRAVEL.** See Sand and gravel.**GREENSAND.** See Nonmetals.**GYPSUM** in :

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a : G 998/940
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a : G 998/940-2
1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a : G 998/941
1944. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a : G 998/944

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- GYPSUM in.—Continued.
1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a : G 998/945
See also Cement.
- HANDBOOKS. *See Coal, subheaded Coal fireman; Rescue work; Safety, etc.*
- HEALTH OF MINERS. *See Miners' health, etc.; Safety, etc.*
- HELIUM.
Act [S. 1567] authorizing conservation, production, exploitation, and sale of helium gas, mineral resource pertaining to national defense and to development of commercial aeronautics, authorizing acquisition, by purchase or otherwise, by United States of properties for production of helium gas. Approved Sept. 1, 1937. (75th Cong., Public Law 411.) 5¢. Catalog No. S 7.5/1 : 75/411
- Helium in:
1939. [From Minerals Yearbook 1940, review of 1939.] 5¢. Catalog No. I 28.37/a : H 367/940
1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a : H 367/940-2
1941. [From Minerals Yearbook, 1941.] 5¢. Catalog No. I 28.37/a : H 367/941
- HEMATITE. *See Ores.*
- HOISTING. *See Accidents; Mine hoisting.*
- HOLLAND TUNNEL. *See Carbon monoxide.*
- HOME FIREMAN. Questions and answers for the home fireman. Rev. 1940. 34 p. (Mines Bureau, Questions and Answers Handbook 2.) 15¢. Catalog No. I 28.48 : 2/2
- ICELAND SPAR. *See Nonmetals.*
- IDAHO. *See Gold.*
- ILLINOIS. *See Coal.*
- INDIANA. *See Coal.*
- INJECTORS. Design of injectors for low-pressure air flow. 1945. 50 p. 11. pl. (Mines Bureau, Technical Paper 678.) 10¢. Catalog No. I 28.7 : 678
- IRON.
Iron and steel industries of Europe. 1939. 98 p. map. (Mines Bureau, Economic Paper 19.) 20¢. Catalog No. I 28.38 : 19
- Iron and steel scrap in:
1939. [From Minerals Yearbook 1940, review of 1939.] 5¢. Catalog No. I 28.37/a : Ir 6/2/940
1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a : Ir 6/2/940-2
1941. [From Minerals Yearbook, 1941.] 5¢. Catalog No. I 28.37/a : Ir 6/2/941
1944. [From Minerals Yearbook 1944.] 10¢. Catalog No. I 28.37/a : Ir 6/2/944
1945. [From Minerals Yearbook 1945.] 10¢. Catalog No. I 28.37/a : Ir 6/2/945
- Iron ore in:
1939. [From Minerals Yearbook 1940, review of 1939.] 10¢. Catalog No. I 28.37/a : Ir 6/940
This report also includes pig iron, ferro-alloys, and steel.
1940. [From Minerals Yearbook, review of 1940.] 10¢. Catalog No. I 28.37/a : Ir 6/940-2
This report also includes pig iron, ferro-alloys, and steel.
1944. [From Minerals Yearbook 1944.] 10¢. Catalog No. I 28.37/a : Ir 6/3/944
1945. [From Minerals Yearbook 1945.] 10¢. Catalog No. I 28.37/a : Ir 6/3/945

MINES

27

IRON.—Continued.

Pig iron, ferro-alloys, and steel in:

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: Ir 6/4/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a: Ir 6/4/945

Precipitation of lead and copper from solution on sponge iron. 1928. (Mines Bureau, Bulletin 281.) 35¢.

Catalog No. C 22.3: 281

Red iron ores and ferruginous sandstones of Clinton formation in Birmingham district, Ala. 1926. 41 p. il. (Mines Bureau, Technical Paper 377.) 10¢.

Catalog No. C 22.5: 377

16th census of United States, 1940, manufactures, 1939: Iron and steel foundry products, gray-iron and semisteel castings, malleable-iron castings, steel castings, cast-iron pipe and fittings. 1941. 14 p. (Census Bureau.) 10¢.

Catalog No. C 3.940-18: Ir 6/2

— *Same*: Iron and steel products, miscellaneous, bolts, nuts, washers, and rivets, made in plants not operated in connection with rolling mills; forgings, iron and steel, made in plants not operated in connection with rolling mills; wrought pipes, welded and heavy-riveted, made in plants not operated in connection with rolling mills; springs, steel (except wire), made in plants not operated in connection with rolling mills; screw-machine products and wood screws; steel barrels, kegs, and drums; firearms; safes and vaults; cold-rolled steel sheets and strip and cold-finished steel bars made in plants not operated in connection with hot-rolling mills. 1941. 22 p. (Census Bureau.) 10¢.

Catalog No. C 3.940-18: Ir 6

Strength of ore and top rock in red iron-ore mines of Birmingham district, Ala. 1926. 24 p. il. (Mines Bureau, Technical Paper 379.) 10¢.

Catalog No. C 22.5: 379

Utilization of manganiferous iron ores. 1926. 28 p. il. pl. (Mines Bureau, Technical Paper 393.) 10¢.

Catalog No. C 22.5: 393

See also Copper; and Price lists 15, 37, 62 and 64.

IRON MINES.

Safety organizations at Lake Superior iron mines. 1932. (Mines Bureau, Technical Paper 515.) 5¢.

Catalog No. C 22.5: 515

Wages in iron mining, Oct. 1943. 1944. 14 p. (Labor Statistics Bureau, Bulletin 787.) 5¢.

Catalog No. L 2.3: 787

IRON ORE. *See* Iron.JOSEPH A. HOLMES SAFETY ASSOCIATION. *See* Safety, etc.JUNCTION BOXES. *See* Electric apparatus.KANSAS. *See* Coal.KAOLIN. *See* Clay.KENTUCKY. *See* Coal.KEROSENE STORAGE. *See* Gasoline.KILNS. *See* Coal.KYANITE. *See* Nonmetals.

LAMPS (miners).

Construction, care, and use of permissible flame safety lamps. 1944. 18 p. il. (Mines Bureau, Miners' Circular 44.) 10¢.

Catalog No. I 28.6: 44

Flame safety lamps, devices for detecting fire damp, and miners' electric lamps, technical information for use in vocational training classes. Revised edition. 1931. (Vocational Education Bulletin 42.) 20¢.

Catalog No. VE 1.3: 42

Ignition of mine gases by filaments of incandescent lamps. 1913. (Mines Bureau, Bulletin 52.) 5¢.

Catalog No. I 28.3: 52

Misuse of flame safety lamps and dangers of mixed lights. 1925. (Mines Bureau, Miners' Circular 29.) 5¢.

Catalog No. C 22.6: 29

Order publications by catalog number and title

LAMPS (miners).—Continued.

- Notes on miners' carbide lamps. 1915. (Mines Bureau, Miners' Circular 18.)
5¢. Catalog No. I 28.6: 18
- Permissible electric cap lamps and ventilation in certain California mines and
water-tunnel construction. 1932. (Mines Bureau, Bulletin 359.) 10¢.
Catalog No. C 22.3: 359
- Permissible electric cap lamps, procedure in testing, fees charged, and require-
ments for approval; approved Aug. 26, 1939. 1940. 7 p. (Mines Bureau,
Mines Schedule 6D.) 5¢. Catalog No. I 28.8: 6D
- Permissible electric mine lamps. 1930. (Mines Bureau, Bulletin 332.) 15¢.
Catalog No. C 22.3: 332
- Relative safety of brass, copper, and steel gauzes in miners' flame safety lamps.
1921. (Mines Bureau, Technical Paper 228.) 10¢. Catalog No. I 28.7: 288
- Use and care of miners' safety lamps. 1916. (Mines Bureau, Miners' Circular
12.) 5¢. Catalog No. I 28.6: 12

LAND LEASING ACT. See Oil lands.

LEAD.

- Lead and zinc mining and milling in United States, current practices and costs.
1935. 204 p. il. pl. (Mines Bureau, Bulletin 381.) 15¢.
Catalog No. I 28.3: 381
- Lead and zinc pigments, and salts in:
1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: L 469/2/940
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: L 469/2/940-2
1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a: L 469/2/941
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: L 469/2/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: L 469/2/945
- Lead in:
1939. [From Minerals Yearbook, 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: L 469/1/940
1940. [From Minerals Yearbook, review of 1940.] 10¢.
Catalog No. I 28.37/a: L 469/1/940-2
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: L 469/1/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: L 469/945
- Lead poisoning in mining of lead in Utah. 1926. (Mines Bureau, Technical
Paper 389.) 10¢. Catalog No. C 22.5: 389
- Summarized data of lead production. 1929. (Mines Bureau, Economic Paper
5.) 15¢. Catalog No. C 22.13: 5
- See also Gold; Iron; Silver.
- LEAKAGE** from high-pressure natural-gas transmission lines. 1928. (Mines
Bureau, Bulletin 265.) 25¢. Catalog No. C 22.3: 265
- LEASING ACT.** See Oil Lands.
- LIGNITE** (brown coal). Investigations of preparation and use of lignite.
1918-25. (Mines Bureau, Bulletin 255.) 50¢. Catalog No. C 22.3: 255
- See also Coal; Coal mines.
- LIME** in:
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: L 629/940-2
1943. [From Minerals yearbook 1943.] 5¢.
Catalog No. I 28.37/a: L 629/943
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: L 629/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: L 629/945
- See also Price list 64.

MINES

29

LIMESTONE.

Occurrence, properties and preparation of limestone and chalk for whiting. 1937. 160 p. il. (Mines Bureau, Bulletin 395.) 30¢.

Catalog No. I 28.3: 395

Underground limestone mining. 1926. (Mines Bureau, Bulletin 262.) 30¢.

Catalog C 22.3: 262

LIQUID OXYGEN. See Explosions and Explosives.

LIQUIFIED GAS. See Gasoline.

LITHIUM MINERALS. See Nonmetals.

LOCOMOTIVES (mine). See Storage battery locomotives.

LOUISIANA. See Oil.

LUBRICATING OILS. See Gasoline, subheaded Regulations 44, etc.

MAGNESIUM.

Magnesium compounds and miscellaneous salines in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a: M 274/4/940

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: M 274/4/940-2

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: M 274/4/944

1945. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a: M 274/4/945

Magnesium in:

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: M 274/2/940-2

1941. [From Minerals Yearbook 1941.] 10¢.

Catalog No. I 28.37/a: M 274/2/941

1944. [From Minerals Yearbook 1944.] 5¢.

Catalog No. I 28.37/a: M 274/2/944

1945. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a: M 274/2/945

MAGNESIUM OXIDE. Bicarbonate process for production of magnesium oxide. 1946. 48 p. il. (Mines Bureau, Technical Paper 684.) 10¢.

Catalog No. I 28.7: 684

MANGANESE.

Manganese and manganiferous ores in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a: M 313/940

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: M 313/940-2

1941. [From Minerals Yearbook 1941.] 10¢.

Catalog No. I 28.37/a: M 313/941

1943. [From Minerals Yearbook 1943.] 10¢.

Catalog No. I 28.37/a: M 313/943

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: M 313/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a: M 313/945

Semi-pilot-plant investigations of nitrogen dioxide process for beneficiation of manganese ores. 1945. 26 p. il. (Mines Bureau, Technical Paper 674.) 10¢.

Catalog No. I 28.7: 674

Study of high-manganese slags in relation to treatment of low-grade manganiferous ores. 1932. (Mines Bureau, Technical Paper 523.) 5¢.

Catalog No. C 22.5: 523

See also Electrolytic manganese pilot plant.

MANOMETERS. See Explosions and explosives.

MARIPOSA COUNTY. See Minerals, subheaded Mineral industries survey of United States, etc.

MARYLAND. See Coal.

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MASKS. See Gas masks.

MATCHES. See Gasoline, subheaded Regulations 44, etc.

MEERSCHAUM. See Nonmetals.

MERCURY in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: M 539/940
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: M 539/940-2
1941. [From Minerals Yearbook 1941.] 10¢.
Catalog No. I 28.37/a: M 539/941
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: M 539/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: M 539/945

METAL MINES.

- Drilling and blasting in metal mine drifts and crosscuts. 1929. 170 p. il.
(Mines Bureau, Bulletin 311.) 40¢. Catalog No. C 22.3: 311
- Open-cut metal mining. 1941. 176 p. il. pl. (Mines Bureau, Bulletin 433.)
40¢. Catalog No. I 28.3: 433
- Wages and hours of labor in metalliferous mines, 1924 and 1931. 1933. 64
p. (Labor Statistics Bureau, Bulletin 573.) 10¢. Catalog No. L 2.3: 573
- See also Accidents; Safety, etc.; Ventilation.

METALLURGY.

- Electrical devices applied to metallurgical research. 1944. 30 p. il. (Mines
Bureau, Technical Paper 661.) 10¢. Catalog No. I 28.7: 661
- Metallurgical developments at Mercer, Utah. 1938. 42 p. il. (Mines Bureau,
Technical Paper 588.) 10¢. Catalog No. I 28.7: 588
- See also Electrolytic manganese pilot plant; Mining engineering.

METALS.

- Bolivia, storehouse of metals. [1944.] [12] p. il. (Coordinator of Inter-
American Affairs Office.) 10¢. Catalog No. Pr 32.4602: B 63

Cobalt in:

1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a: C 632/941

Industrial reference service: pt. 11, Metals and minerals. [Issued irregularly.]
Subscription, \$1.50 per volume (one volume a year); foreign subscription,
\$2.00 a volume; single copy, 5¢. Catalog No. C 34.10:

The service provides comprehensive current data on production, distribution, prices,
standards, specifications, export and import trade, foreign tariffs and regulations as
applied to specific commodities, results of domestic market research, foreign market
surveys.

Melting and molding of ferrous and non-ferrous metals and alloys, foundry
manual. [1944.] 157 p. il. (Navy Dept., Ships Bureau.) 45¢.
Catalog No. N 29.6: F 82/944

This manual is intended for use and guidance of advanced base and repair ship
foundry personnel in casting the metals most commonly used by the Navy.

Minor metals, beryllium, bismuth, cadmium, cobalt, selenium, tantalum, tel-
lurium, titanium, zirconium, [and others] in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: M 666/940
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: M 666/940-2
1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a: M 666/941
1944. [From Minerals Yearbook 1944.] 10¢.
Catalog No. I 28.37/a: M 666/944

Secondary metals, nonferrous, in:

1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: Se 24/940-2

MINES

31

METALS.—Continued.

Secondary metals, nonferrous, in—Continued.

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: Se 24/944

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a: Se 24/945

See also Minerals; and names of metals.**METHANE.**

Critical study of Burrell indicator for combustible gases in air [discussion of Burrell methane indicator for combustible gases, and especially its use for determination of methane in mine air]. 1925. 40 p. il. (Mines Bureau, Technical Paper 357.) 10¢.

Catalog No. I 28.7: 357

Permissible methane detectors. 1930. (Mines Bureau, Bulletin 331.) 10¢.

Catalog No. C 22.3: 331

MEXICO. Mining and manufacturing industries in Mexico. 1946. 103 p. (Tariff Commission.) 25¢.

Catalog No. TC 1.21: M 57

MICA.

Color standard for ruby mica. 1946. p. 245-256, il. (National Bureau of Standards, Research 1671.) 5¢.

Catalog No. C 13.22/a: 1671

Mica in:

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: M 581/940-2

1941. [Foreign Minerals Yearbook 1941.] 10¢.

Catalog No. I 28.37/a: M 581/941

1944. [From Minerals Yearbook 1944.] 5¢.

Catalog No. I 28.37/a: M 581/944

MICHIGAN. *See* Ventilation.**MINE DUSTS.** *See* Coal dust.**MINE FIRES.**

Anthracite mine fires, their behavior and control. 1944. 206 p. il. pl. (Mines Bureau, Bulletin 455.) 40¢.

Catalog No. I 28.3: 455

Fifty-nine coal mine fires, how they were fought, and what they teach. 1927 (Mines Bureau, Bulletin 229.) 40¢.

Catalog No. C 22.3: 229

Procedure in sealing and unsealing mine fires and in recovery operations following mine explosions. Revised 1938. 80 p. il. charts. (Mines Bureau, Miners' Circular 36.) 15¢.

Catalog No. I 28.6: 36

See also Rescue work.**MINE GASES.** *See* Gases.**MINE HOISTING.**

Inspection and maintenance of mine hoisting ropes. 1939 [reprint 1940.] 27 p. il. (Mines Bureau, Technical Paper 602.) 5¢.

Catalog No. I 28.7: 602

Safe practices in mine hoisting. 1946. 55 p. il. (Mines Bureau, Miners' Circular 6L.) 15¢.

Catalog No. I 28.6: 61

MINE ROOFS. Study of mine roof in coking district of western Pennsylvania. 1935. (Mines Bureau, Technical Paper 563.) 5¢.

Catalog No. I 28.7: 563

See also Coal mines; Roof supports.**MINE SAFETY.** *See* Safety, etc.**MINE TIMBERS.**

Coal-mine timbering, technical information for use in vocational classes. 2d revised ed. 1935. 1935. 100 p. il. (Vocational Education Bulletin 40.) 10¢.

Catalog No. I 16.54/3: 40

Some information on timbering bituminous-coal mines. 1939. 37 p. il. pl. (Mines Bureau, Miners' Circular 40.) 10¢.

Catalog No. I 28.6: 40

Some suggestions on safety in timbering anthracite mines. 1939. 21 p. il. (Miners' Circular 38.) 10¢.

Catalog No. I 28.6: 38

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MINERAL LAND LAWS. *See* Oil lands.

MINERAL PIGMENTS. *See* Ochres.

MINERAL WOOL. *See* Nonmetals.

MINERALS.

Employment and accidents in the mineral industries:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.
Catalog No. I 28.37/a: M 662/2/940
1940. [From Minerals Yearbook, review of 1940.] 5¢.
Catalog No. I 28.37/a: M 662/2/940-2
1941. [From Minerals Yearbook 1941.] 5¢.
Catalog No. I 28.37/a: M 662/2/941
1942. [From Minerals Yearbook 1942.] 5¢.
Catalog No. I 28.37/a: M 662/2/942
1943. [From Minerals Yearbook 1943.] 5¢.
Catalog No. I 28.37/a: M 662/2/943
1944. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a: M 662/2/944
1945. [From Minerals Yearbook 1945.] 10¢.
Catalog No. I 28.37/a: M 662/2/945

Future problems of the Nation's critical and strategic minerals and metals industry, preliminary report of subcommittee on mining and minerals industry, pursuant to S. Res. 66 (extending S. Res. 298, 76th Congress), to appoint special committee to study and survey problems of American small business enterprises. 1944. 24+A1-A8 p. (Special Committee to Study Problems of American Small Business, Senate.) 10¢.
Catalog No. Y 4.Am 3/5: M 66/2/prelim.

Senate subcommittee print No. 7, 78th Congress, 2d session.

Mineral industries, 16th Census of United States, 1940, Mineral industries, 1933: v. 2, State and county statistics. 1944. 333 p. (Census Bureau, Cloth, \$1.75.)
Catalog No. C 3.940-5: M 66/939/v.2

Mineral industries survey of United States, California (Calaveras County, Mother Lode district (south), mines of southern Mother Lode region):
Pt. 1, Calaveras County. 1938. 140 p. il. maps. (Mines Bureau, Bulletin 413.) 30¢.
Catalog No. I 28.3: 413

Pt. 2, Tuolumne and Mariposa counties. 1940. 179 p. il. pl. maps. (Mines Bureau, Bulletin 424.) 60¢.
Catalog No. I 28.3: 424

Mineral industry of Alaska in:

1944. [From Minerals Yearbook 1944.] 5¢.
Catalog No. I 28.37/a: M 662/4/944
1945. [From Minerals Yearbook 1945.] 5¢.
Catalog No. I 28.37/a: M 662/4/945

Mineral resources of region around Boulder Dam. 1936. 197 p. il. maps (3 in pocket). (Geological Survey, Bulletin 871.) 45¢. Catalog No. I 19.3: 871

Mineral resources of United States: (Cloth bound).

1924. Pt. 1, Metals; pt. 2, Nonmetals. 589+728 p. il. Each pt., \$1.00.
Catalog No. C 22.8: 924
1925. Pt. 1, Metals; pt. 2, Nonmetals. 768+615 p. il. Pt. 1, \$1.25; pt. 2, \$1.00.
Catalog No. C 22.8: 925
1926. Pt. 1, Metals; pt. 2, Nonmetals. 774+675 p. il. Pt. 1, *exhausted*;
pt. 2, \$1.00. Catalog No. C 22.8: 926
1927. Pt. 1, Metals; pt. 2, Nonmetals. 782+687 p. il. Pt. 1, \$1.25; pt. 2, \$1.00.
Catalog No. C 22.8: 927
1928. Pt. 1, Metals; pt. 2, Nonmetals. 910+801 p. il. Pt. 1, \$1.50; pt. 2, \$1.25.
Catalog No. C 22.8: 928
1929. Pt. 1, Metals; pt. 2, Nonmetals. A123+968+858 p. il. Pt. 1, \$1.50;
pt. 2, \$1.25. Catalog No. C 22.8: 929
1930. Pt. 1, Metals; pt. 2, Nonmetals. A123+1142+876 p. Pt. 1, \$1.50;
pt. 2, *exhausted*. Catalog No. C 22.8: 930

Nonmetallic mineral resources of eastern Oregon. 1937. 180 p. il. maps (4 in pocket). (Geological Survey, Bulletin 875.) 30¢. Catalog No. I 19.3: 875

MINES

33

MINERALS.—Continued.

Prospecting for mineralization in steeply dipping beds covered by glacial till, talus, and weathered zones. 1946. 19 p. il. (Mines Bureau, Technical Paper 694.) 10¢. Catalog No. I 28.7: 694

Review of mineral industries in 1944. [From Minerals Yearbook 1944.] 10¢. Catalog No. I 28.37/a: M 662/5/944

16th Census of United States, 1940, mineral industries, 1939: V. 1, General summary and industry statistics. 1944. 876 p. (Census Bureau.) Cloth, \$2.75. Catalog No. C 3.940-5: M 66/939/v.1

Standards and specifications for nonmetallic minerals and their products. 1930. 680 p. il. (National Bureau of Standards, Misc. Publication 110.) Cloth, \$2.75. Catalog No. C 13.10: 110

Statistical summary of mineral production (general United States summary and detailed production by States):

1939. [From Minerals Yearbook 1940, review of 1939.] 10¢. Catalog No. I 28.37/a: M 662/940

1940. [From Minerals Yearbook, review of 1940.] 10¢. Catalog No. I 28.37/a: M 662/940-2

1942. [From Minerals Yearbook 1942.] 10¢. Catalog No. I 28.37/a: M 662/942

1944. [From Minerals Yearbook 1944.] 15¢. Catalog No. I 28.37/a: M 662/944

See also Metals; Nonmetals; names of minerals; and Price list 15.

MINERALS YEARBOOKS.

Minerals yearbook, 1941. 1,573 p. (Mines Bureau.) Cloth, \$2.25. Catalog No. I 28.37: 941

Minerals yearbook 1942. 1943. 1,574 p. il. (Mines Bureau.) Cloth, \$2.25. Catalog No. I 28.37: 942

Minerals yearbook 1944. 1946. 1,636 p. il. (Mines Bureau.) Cloth, \$3.00. Catalog No. I 28.37: 944

Separates from Mineral yearbooks are listed in this price list under their specific subject headings.

MINERS' HEALTH AND DISEASES.

Anthraco-silicosis (miners' asthma in anthracite mines), its cause and prevention. 1935. 4 p. (Labor Standards Division, Industrial Health and Safety Series 2.) 5¢. Catalog No. L 16.9: 2

Dental status of adult male mine and smelter workers. 1942. 11 p. (Public Health Service, Reprint 2355 from Public Health Reports.) 5¢. Catalog No. FS 2.7/a: 2355

National Silicosis Conference: (Labor Standards Division, Bulletin 21.) Catalog No. L 16.3: 21/(pt.)

Pt. 1, Report on medical control, final report of Committee on Prevention of Silicosis Through Medical Control. 1938. 112 p. 15¢.

Pt. 2, Report on engineering control, final report of Committee on Prevention of Silicosis Through Engineering Control. 1938. 62 p. 15¢.

Pt. 3, Report on economic, legal, and insurance phases, final report of Committee on the Economic, Legal, and Insurance Phases of the Silicosis Problem. 1938. 86 p. pl. 15¢.

Pt. 4, Report on regulatory and administrative phases, final report of Committee on the Regulatory and Administrative Phases of the Silicosis Problem. 1938. 64 p. il. chart. 15¢.

Review of literature on effects of breathing dusts with special reference to silicosis. 1937. 305 p. (Mines Bureau, Bulletin 400.) 30¢. Catalog No. I 28.3: 400

Silicosis, cause and prevention. 1943. 4 p. (Labor Standards Division, Industrial Health and Safety Series 9.) 5¢. Catalog No. L 16.9: 9/4

MINERS' STATUS. *See* Bituminous-coal miners.

Order publications by catalog number and title

- MINERS' STRIKES.** Collective bargaining in anthracite coal industry. 1916. 171 p. (Labor Statistics Bureau, Bulletin 191.) 20¢. Catalog No. L 2.3: 191
- MINES BUREAU.** For general information regarding films of the Bureau of Mines write to U. S. Department of Interior, Bureau of Mines Experiment Station, 4800 Forbes St., Pittsburgh, Pa.
- MINING ENGINEERING.** Handbook of descriptions of specialized fields in mining engineering, petroleum engineering, and metallurgy or metallurgical engineering. 1946. 17 p. (Employment Service.) 10¢. Catalog No. L 7.17: M 66
- MINING EQUIPMENT.** Flame-arresting limitations of flat joints and plain bearings in explosion-proof mine equipment. 1935. 26 p. il. (Mines Bureau, Technical Paper 566.) 5¢. Catalog No. I 28.7: 566
- See also* Electric apparatus and equipment.
- MINOR METALS.** *See* Metals.
- MISSOURI.** *See* Coal.
- MOLYBDENUM, TUNGSTEN AND VANADIUM** in:
1939. [From Minerals Yearbook 1940, review of 1939.] 5¢. Catalog No. I 28.37/a: M 739/940
1940. [From Minerals Yearbook, review of 1940.] 5¢. Catalog No. I 28.37/a: M 739/940-2
1941. [From Minerals Yearbook 1941.] 10¢. Catalog No. I 28.37/a: M 739/941
- This report does not include tungsten.
1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: M 739/944
- This report does not contain tungsten or vanadium.
1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: M 739/945
- This report does not contain tungsten or vanadium.
- MOLYBDITE.** Recovery of molybdate from the ore. 1926. (Mines Bureau, Technical Paper 399.) 5¢. Catalog No. C 22.5: 399
- MONAZITE.** *See* Nonmetals.
- MONTANA:** *See* Coal; Gold.
- MOTHER LODE REGION.** *See* Minerals, subheaded Mineral industries survey of United States, etc.; Slimes.
- MOTOR FUELS.**
- Analysis of effects of fuel distribution on engine performance. 1946. p. 425-439, il. (National Bureau of Standards, Research Paper 1712.) 5¢. Catalog No. C 13.22/a: 1712
- Motor fuels from farm products. 1938. 129 p. il. pl. (Agriculture Dept., Misc. Publication 327.) 15¢. Catalog No. A 1.38: 327
- Single-cylinder engine tests of substitute motor fuels. 1945. p. 1-37, il. (National Bureau of Standards, Research Paper 1660.) 10¢. Catalog No. C 13.22/a: 1660
- Trends and seasonal variations in factors influencing domestic motor-fuel demand. 1940. 65 p. il. (Mines Bureau Economic Paper 21.) 10¢. Catalog No. I 28.38: 21
- Use of alcohol from farm products in motor fuel, hearing before subcommittee, 76th Cong., 1st sess., on S. 552, bill to provide that gasoline mixed with 7 per centum of ethyl alcohol shall not be subject to the tax imposed by section 617 of the Revenue Act of 1932, as amended, and amendment intended to be proposed to an appropriate House revenue bill to provide that gasoline mixed with 10 per centum of ethyl alcohol shall not be subject to the tax imposed by law, May 23, 24, 25, and 29, 1939. 1939. 207 p. il. (Finance Committee, Senate.) 25¢. Catalog No. Y 4 F 49: A1 1/6

MINES

35

MOTOR FUELS.—Continued.

Use of alcohol from farm products in motor fuel, letter from Secretary of Agriculture transmitting, in response to S. Res. 65, submitted by Senator Shipstead, report pertaining to practicability and advantages to agriculture of using alcohol manufactured from corn and other farm products in motor fuel. 1935. 55 p. (73d Cong., 1st sess., S. doc. 57.) 5¢.

Catalog No. 73-1: S doc. 57

MUCK. *See* Peat.NATIONAL BITUMINOUS COAL COMMISSION. *See* Coal.NATURAL GAS. *See* Air flow; Gas; Petroleum.NEVADA. *See* Coal; Gold.NEW LONDON, TEX. *See* Explosions and explosives.NEW MEXICO. *See* Coal; Gold.NEW YORK (SOUTHWESTERN). *See* Gas.**NICKEL in:**

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a: N 532/940

This report also contains cobalt.

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: N 532/940-2

This report also contains cobalt.

1941. [From Minerals Yearbook, 1941.] 5¢. Catalog No. I 28.37/a: N 532/941

1944. [From Minerals Yearbook 1944.] 5¢.

Catalog No. I 28.37/a: N 532/944

1945. [From Minerals Yearbook 1945.] 5¢.

Catalog No. I 28.37/a: N 532/945

See also Dikes.**NITROGEN COMPOUNDS in:**

1944. [From Minerals Yearbook 1944.] 5¢. Catalog No. I 28.37/a: N 638/944

1945. [From Minerals Yearbook 1945.] 5¢. Catalog No. I 28.37/a: N 638/945

NONFERROUS METALS. *See* Metals.NONMETAL-MINE ACCIDENTS. *See* Accidents, subhead Metal- and nonmetal-mine accidents in United States, etc.

NONMETALS. Minor nonmetals, graphite, greensand, kyanite, mineral wool, monazite, olivine, strontium minerals, vermiculite [and others] in:

1939. [From Minerals Yearbook 1940, review of 1939.] 5¢.

Catalog No. I 28.37/a: M 666/2/940

This report also includes carbon dioxide, andalusite, dumortierite, lithium minerals, meerschaum, pinite, serpentine, and topaz.

1940. [From Minerals Yearbook, review of 1940.] 5¢.

Catalog No. I 28.37/a: M 666/2/940-2

This report also includes carbon dioxide, lithium minerals, meerschaum, andalusite, dumortierite, serpentine, topaz, Iceland spar, and quartz crystal.

1941. [From Minerals Yearbook 1941.] 5¢.

Catalog No. I 28.37/a: M 666/2/941

This report also includes graphite, greensand, kyanite, andalusite, dumortierite, lithium minerals, mineral wool, monazite, olivine, quartz crystal, strontium minerals, topaz, and vermiculite.

1944. [From Minerals Yearbook 1944.] 10¢.

Catalog No. I 28.37/a: M 666/2/944

This report also includes lithium minerals, andalusite, dumortierite, topaz, radio-grade quartz, mineral earth pigments, and wollastonite.

1945. [From Minerals Yearbook 1945.] 10¢.

Catalog No. I 28.37/a: M 666/2/945

This report also includes andalusite, dumortierite, lithium minerals, mineral earth pigments, perlite, radio-grade quartz, topaz, and wollastonite.

See also Minerals.

Order publications by catalog number and title

- OTHERS** and mineral pigments of the Pacific Northwest. 1929. (Mines Bureau, Bulletin 304.) 15¢. Catalog No. C 22.3: 304
ODORS. See Gases.
OHIO. See Accidents; Coal.
OIL.
 Canol project, agreement between United States and Canada, effected by exchange of notes signed at Ottawa June 27 and 29, 1942, effective June 29, 1942. 1944. 3 p. (State Dept., Executive Agreement Series 386.) 5¢. Catalog No. S 9.8: 386
 Canol project areas, agreement between United States and Canada, effected by exchanges of notes signed at Ottawa, Jan. 18, Feb. 17, and Mar. 13, 1943. 1944. 4 p. (State Dept., Executive Agreement Series 389.) 5¢. Catalog No. S 9.8: 389
 Canol project exploratory wells, agreement between United States and Canada, effected by exchange of notes signed at Ottawa Dec. 28, 1942 and Jan. 13, 1943. 1944. 2 p. (State Dept., Executive Agreement Series 388.) 5¢. Catalog No. S 9.8: 388
 Canol project pipeline, agreement between United States and Canada, effected by exchange of notes signed at Ottawa Aug. 14 and 15, 1942. 1944. 2 p. (State Dept., Executive Agreement Series 387.) 5¢. Catalog No. S 9.8: 387
 Canol projects. Revision of Canol projects, agreement between United States and Canada, effected by exchange of notes signed at Ottawa June 7, 1944. 1944. 6 p. (State Dept., Executive Agreement Series 416.) 5¢. Catalog No. S 9.8: 416
 Correlation index to aid in interpreting crude oil analyses. 1940. 34 p. il. pl. (Mines Bureau, Technical Paper 610.) 10¢. Catalog No. I 28.7: 610
 Engineering report of Cotton Valley [oil] field, Webster Parish, La. 1931. (Mines Bureau, Technical Paper 504.) 30¢. Catalog No. C 22.5: 504
Federal Oil Conservation Board, Report to President:
 Pt. 1, Sept., 1926. 26 p. il. 10¢. Catalog No. I 1.67/1: 926
 Pt. 2, Jan., 1928. 40 p. 10¢. Catalog No. I 1.67/1: 928
 Pt. 3, Feb., 1929. 218 p. 30¢. Catalog No. I 1.67/1: 929
 Pt. 4, *exhausted*.
 Pt. 5, Oct., 1932. 61 p. il. Cloth, \$1.00. Catalog No. I 1.67/1: 932
 Fuel and vegetable oil, agreement between United States and Argentina, effected by exchange of notes signed at Buenos Aires May 9, 1945, effective May 9, 1945. 1946. 17 p. (State Dept., Executive Agreement Series 495.) 10¢. Catalog No. S 9.8: 495
 English and Spanish.
 Fuel oils. 5th edition. 1940. 19 p. (National Bureau of Standards, Commercial Standards 12.) 5¢. Catalog No. C 13.20: 12/5
 Gains in oil and gas production refining and utilization technology. 1941. 39 p. (National Resources Planning Board, Technical Paper 3.) 15¢. Catalog No. Pr 32.309: 3
 Geology and oil resources of Elk Hills, Calif., including Naval Petroleum Reserve No. 1. 1932. 82 p. il. maps, 6 in pocket. (Geological Survey, Bulletin 835.) 60¢. Catalog No. I 19.3: 835
 Manual for oil and gas operations, including Operating regulations to govern production of oil and gas under the acts of Feb. 25, 1920, June 4, 1920, and Mar. 4, 1923, and under special agreement by United States. 1923. (Mines Bureau, Bulletin 232.) 40¢. Catalog No. I 28.3: 232
 Methods for increasing recovery [of oil] from oil sands. 1st ed. 1917. 128 p. il. pl. (Mines Bureau, Bulletin 148.) 15¢. Catalog No. I 28.3: 148
 Oil conservation through interstate agreement. 1933. 398 p. (Federal Oil Conservation Board.) Paper, 45¢; cloth, \$1.00. Catalog No. I 1.67/2: In 8
 Oil-field emulsions. 1926. (Mines Bureau, Bulletin 250.) 25¢. Catalog No. C 22.3: 250