NEWS PICTURES

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Author of *News Photography;* Lecturer on Pictorial Journalism; Editor of Photographic Column in *Editor and Publisher*

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ACKNOWLEDGMENTS

WERE it not for the fine open-handedness of the Associated Press, International News Photos, Times Wide World and Acme News Pictures this book would not be the generously and uniquely illustrated book that it is; nor would its text be so complete a presentation of the technical and procedural phases of newspaper photography.

To these services, to many newspapers, to the *Editor and Publisher* and to a numerous group of newspaper photographers the author expresses a warm gratitude for their encouraging cooperation in his preparation of *News Pictures*.

JACK PRICE.

AUTHOR'S NOTE

REVIEWING the changes in pictorial journalism that have occurred since the author's earlier work, *News Photography*, appeared in 1932 it was thought advisable to prepare an entirely new treatment of the subject rather than attempt to incorporate these changes in any revision of that work.

During the five years that have elapsed press photography has been vitally affected by several revolutionary factors. Modern technology has disturbed the old order and relegated to oblivion equipment and practices that once represented perfection. The mutations in mechanics and chemistry have imposed upon newspapers some physical changes in their photographic plants and somewhat revised the operating technique of their camera staffs.

To the training in journalism offered by numerous universities has been added a course in news photography. Thus the whole theory and practice of newspaper work receive academic endorsement and support. The trial-and-error school of instruction, the rugged old school of experience, and education by hard knocks must inevitably surrender to the dawning era that demands scholastic as well as practical training from the beginner.

The resistless forces of a new dynamic progress are making themselves felt in the entire newspaper structure. Their effect upon its photography and its camera personnel are here considered in the light of what they have accomplished to improve the quality and volume of news pictures.

The work is dedicated to the instruction of the lads of the country whose goal is the camera staff of a newspaper. I wish them all good luck.

J. P.

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INTRODUCTION

For many journalistic years the large function of the newspaper photographer was to furnish "art" to brighten up pages. The news value of the picture—if any—was too frequently secondary. On the modern newspaper, alert to its possibilities and responsibilities, that day has passed.

The news picture has become as essential an ingredient of today's newspaper, as is cable news or the local news coverage. The recent flock of news picture magazines with their promises of financial success, have awakened newspaper publishers to a realization of the extent to which they have been sleeping on their opportunities for development of a branch of their public service which has long been treated like a poor relation. America is news picture-conscious, and the alert newspaper publisher is no longer blinking at the undeniable fact. Today the job is not complete when the editor has said it in type. He must repeat and amplify the news by saying it with pictures—good pictures shot from the news angle and produced with the speed of a news bulletin.

This development is not unnatural. The rapidly-accelerating tempo of American life is largely responsible. With so many other forms of diversion—radio, talkies, etc.—to lay claim to his attention, the reader demands not only that his news be served quickly, but he wants the printed word amplified and expanded with the accompanying visualization that is inherent in a spot-news picture of the event. News stories must be brief —and good pictures make textual brevity possible.

The Hindenburg disaster of 1937 is a perfect case in point. No writer, had he written with the pen of a genius, could have portrayed the horror of that holocaust with anything approximating the realism of the pictures taken at the very instant when the probable death-knell of lighter-than-air aviation was being rung above Lakehurst field.

As the news picture has come into its own, Jack Price, one of the country's outstanding news photographers, has kept abreast of the new order. He has not only noted the developments but he has pioneered in them and made valuable contributions to these developments. His new book *News Pictures* is particularly timely, and will have an especial appeal to anyone interested in the general subject which he discusses with the authority of one who "knows how."

ROY W. HOWARD,

President and Editor, New York *World-Telegram*, and Chairman of Executive Committee of the Scripps-Howard Newspapers.

Chapter I

GENESIS

Photography, after a generation of trial and error, during which its bid for recognition as a department of journalism fought the stubborn forces of reaction, finally achieved for itself the position that it desired and deserved. During the early years of this empirical era the struggle was with an apathy rooted in the tradition that most innovations were heresy and consequently tabu in the old and orthodox composition of a paper. Those venturesome publishers who presumed to illustrate the news with an occasional wood or line cut were the pioneers who sowed in the minds of a foresighted few the seed of picture potentialities.

It is debatable whether, during the years first succeeding these abortive beginnings, the creeping technical advances in photography and the arts of reproduction imparted the stimulus to a broader use of illustrations, or whether this technical progress was inspired by a recognition of the groping but growing popularity of pictures. Which preceded, and whatever the source of inspiration are matters of historical and debatable interest only as demand and production eventually coordinated their steps and moved forward to achievements that revolutionized journalism.

Certainly during the last decade science has devoted more thought than ever before to the discovery of new principles and processes; and industry has been both ingenious and quick in adapting them to the speed needs of the press. Within this

period there has been notable improvement of everything in every division of photography, and correspondingly impressive progress in high-speed methods of transmitting and reproducing prints.

Today the occurrence and its photographic reproduction are almost coincident. The brief time-lapse between a happening in any part of the world and the pictorial reporting of it throughout the world is little less than miraculous. Before the invention and application of the technical magic that makes this possible such pictures were transported by every courier distinguished for superspeed, from relays of horses and carrier pigeons to motorcycle and aeroplanes.

A lone illustration of what once constituted journalistic enterprise and speed in the transportation of news photos was the ocean-going tug chartered by the Hearst newspapers during the Spanish-American War. Fitted out as a floating darkroom it landed a contingent of cameramen at a Cuban port. Ashore they shot their battle pictures, returned to the tug, developed and printed them at sea, rushed them to the city room in New York, and thus beat their less fleet contemporaries by weeks. Today this work of a month or more is literally accomplished in a flash by wire and radio transmission of photographs.

One has but to compare the newspapers of twenty years ago with the papers of today to note this accelerated pace of news portrayal. Any such comparison must impress the reader with the late and meager layout of pictures at that time as opposed to present-day timeliness and liberality in the matter of news illustrations. The obvious difference is impressive, and significant of a trend that now makes the use of pictures mandatory. Yet, astonishingly, there are still some few papers that cling to a colonial conservatism in their attitude toward pictures. They are the die-hards who adhere stubbornly to a tabu that

their more enterprising contemporaries long ago discarded as a demonstrated danger to circulation—the life blood of any publication.

To observers who have followed the evolution of new photography it must seem euphemistic to stress "scientific" development when so much of the major work in photographic research has been performed by unscientific news cameramen. Their contributions have resulted from tireless thinking and tinkering, and have been the admitted inspiration of many important inventions and numberless improvements of existing devices and formulas. Assuredly such sound help deserves acknowledgment and some modest place in the searching contemplations of science, as no very broad line separates these empircists from their more academic collaborators.

To the unity of purpose that inspired both groups must be credited every step in the big parade of progress to which the journalism of today owes the technical perfection of its pictures and its high-speed facilities for receiving and reproducing them. And keeping these miracles in mind it is easy to believe that we may yet witness other phenomena that will make the amazing speed of the present appear just as much of a plodding pace as the once thundering speed of the pony express.

Who knows!

Chapter II

CAMERAMAN

The news photographer of the tin type era was a sturdy lad who carried around a dog house facetiously called a camera. He also toted a trick tripod, a supply of window-size dry plates, some heavy hardware known as a flash gun, and enough high-explosive magnesium powder to blow his whiskers off—whiskers being the vogue during the era when he flourished.

After a day on assignments he turned up in the city room with broken arches and a dozen exposures. And not until he developed the plates did he know whether or not the results justified the physical misfortunes that he suffered. If he was an ace technician and abundantly endowed with luck a fair proportion of his plates revealed some hits. The off-shots were written off against allowable error—the error being allowed because there was no known way of preventing it.

This is not a thrust at the news cameraman of the Nineties but a brief of him as a much handicapped and misunderstood grown-up in an infant department of journalism that was just beginning to look at life through the lens of a camera. With his primitive equipment it was natural that there should be some faults in his work, and, considering his undefined place in news, more than a little editorial indifference to his shortcomings. To indict him on any count was unthinkable.

It was not until his work commanded some slight public respect that any serious thought was given to him as a part of the paper; and with this recognition came a dawning under-

standing of the utter inadequacy of his paraphernalia if he was ever expected to assume a still undetermined but vaguely sensed role of importance in journalism. Nevertheless he was launched as a newspaper adjunct. His accomplishments in the interval between this dubious beginning and the present are tributes alike to his intelligence and the technical progress that made them possible.

Today this work of his that was once just a stumbling expedition on the trail of news is very much of a career, and as thoroughly systematized as any of the mechanized departments of a newspaper. Once considered the sole prerogative of men the field has to some slight extent been invaded by women. The feminine idea of news and the peculiarly feminine angle from which to shoot it have developed some interesting departures from the standard type of man-made photographs.

As a career news photography is interesting because news in its great variety offers an endless variation of assignments, ranging from the commonplace to those with all the overtones of romance and adventure. The work is a composite of the uninteresting, the unexpectedly dramatic, and sometimes the perilous. The cameraman differs from the reporter in that he is both photographer and reporter; not in the sense that he turns in the script known as the story, but a story nevertheless that is more descriptive than any written narrative. His work is restricted to cold realism—the portrayal of anyone or anything that momentarily steps out of character and in so doing assumes the characteristics of news. His shots are sketches that he cannot, as the reporter sometimes can, retouch with a rhetorical stroke.

The factual and spot-action nature of his work permits him little artistic latitude and practically no allowance for delays or mistakes. He cannot memorize and later translate his impressions. He must record what he sees when he sees it or not at all.

The leap from a burning building and the aeroplane in flight are literally gone with the wind. They are occurrences that are not rehearsed, nor can they be reenacted for a retake by the press. To record them requires a fine coordination of mind and hand, and this the amateur must develop if he ever hopes to find a berth on the photographic staff of a paper. It would be misleading to state that anyone can acquire this dexterity without serious study of the theory of the subject and close application to its practice. No treatise, no matter how painstakingly planned and soundly written, can give to the student more than that clear exposition that helps to an easy understanding. What use is made of this depends entirely upon the individual.

Not a few non-professional photographers are just as good and perhaps better than the average professional. Their camera technique is all that could be desired; but until they are newspaper trained they cannot qualify as news cameramen. It should not be inferred from this that there is no opportunity for the amateur without a newspaper background. Because of the expanding demand for pictures there is a proportionately expanding demand for qualified cameramen; and these can be drafted only from the ranks of proficient non-professionals. They represent a potential photographic staff reserve for the good reason that it is less of a job to train a man in newspaper routine than to instruct him in the complexities of a camera or the diabolism of the darkroom.

It is only the metropolitan papers that insist on post-graduate service stripes as a requirement of employment as they have neither the time nor the will to instruct even the most promising man. Newspapers in the smaller cities offer a better chance to the beginner as they are not as exacting, operate at a slower tempo, pay a little less and expect no miracles of performance. Yet in no major respect does their procedure differ from that

of papers in the large circulation group. Furthermore the newcomer's work suffers less by contrast as he is not in direct competition with the big city cameramen nor is he impelled by the same editorial high-voltage that energizes them.

Quite capable news cameramen are being developed in increasing numbers by American universities and colleges, some of which have established separate departments or created special courses for instruction in this type of photography. Some of those teaching journalism include it in the regular curriculum, others have instituted a special study of the work. In all respects this instruction parallels actual newspaper working routine, even to the extent that real assignments are covered under agreements with local papers. The University of Oklahoma, first to introduce a short three-day summer course in pictorial journalism, attracted students from many states, including beginners, semi-trained and professional cameramen. The attendance was addressed by several outstanding editors and newspaper photographers.

The fact that the institutions of higher learning are teaching the subject is in itself evidence of its growing importance. The prediction is warranted that at no distant day the newspapers will requisition these schooled graduates to the exclusion of the self-taught cameraman, just as many industries now preempt the services of promising technical students even before they graduate. Those students who find positions with papers will discover (as all graduates do) that the working newspaper world does not any too closely follow the scholastic formula. Their post-graduate work starts with the first job, and they progress precisely according to the manner in which they apply their school acquired knowledge to the highly practical business of interpreting and photographing news.

Because the news sense and photographic technique are so

interdependent the competent cameraman must be able to judge news as expertly as he can time an exposure or guess-focus distance. He must also be familiar with his paper's policy regarding both news and pictures. Although the more sensational shots are obviously out of place in the make-up of those newspapers that lean toward conservatism in pictures and text, the responsibility for their acceptance or rejection is the editor's. In the matter of choice the cameraman's safe guide is the standard set by his paper. If he is working for a sheet that does not discriminate, whose slogan is "anything goes," he enjoys unrestricted license in his pursuit of pictures and may resort to any strategy to get them as there are no editorial precepts to consider before he shoots.

The extreme and the conservative in pictorial journalism are altogether matters of opinion and standards; but the cameraman is permitted no opinion in obeying the standards established for him. Cameramen should, therefore, not pre-edit their assignments, that is they should not approach a job predetermined to shoot only certain aspects of it or to limit their shots to a minimum. It is quite natural for any photographer to be influenced in these respects by his personal opinion of the suitability and number of pictures to be taken for adequate coverage; but any such opinion may be in conflict with the opinion of the desk which requires the fullest possible spread of pictures from which to select shots that best illustrate the story.

To stipulate that arbitrary discrimination must not govern the cameraman does not deny him the free exercise of judgment. It simply asks that he apply this judgment on the broadest possible scale to the task in hand so that nothing in the assignment is overlooked. Photographically skimming a story is poor policy and poorer journalism. Any such economy may at any time slight the most vital news detail of an event simply because

the photographer thought it of no particular moment at the time. But such trivia have a habit of developing into items of first importance. To disregard them leaves the paper without a picture record which, when wanted, is badly wanted.

Good procedure requires that the cameraman photograph everything with even the remotest bearing on the assignment, irrespective of its apparent immediate value. He thus fully covers the subject, protects himself and provides his editor with an array of pictures from which to make desired selections. Photographers for the picture syndicates have a finer respect for this requirement than the strictly one-paper cameraman, as the syndicates service papers of many types, each with some characteristic preference for pictures. Their coverage must, therefore, provide for a variety of tastes and fully blanket a story. The student press photographer will help himself if he will follow the dictum to "shoot the works" when experimentally covering a real assignment in the course of his practice. A film more or less is not to be considered by either the professional or the cub when it represents insurance against potential oversight.

Press photographers have no official standing anywhere on assignment. Certain unusual privileges like police cards, internal revenue and many other passes are issued to them simply because they represent a newspaper, which is never more than an individually or corporately owned and operated enterprise. The fact that a paper is an instrument of first importance in keeping the public informed and shaping its opinions requires that the cameraman follow some high-minded principle in his work. Questionable news and pictures are accepted by readers because they have no way of distinguishing between the true and the false, and consequently digest their newsprint with an unquestioning faith in the honesty of newspapers. Directing

public opinion in the light of such blind confidence is a responsibility that calls for honesty on the part of those engaged in gathering and presenting news.

Dr. Glenn Frank, noted educator and former President of the University of Wisconsin, summarized what should be the newspaper's devotion to truth when he told the Ohio State Convention of editors among other things that "Journalism rises to its greatest heights when its loyalty is first and last to the truth, and when it refuses to sell its soul to the single-track interests of any party, class or creed." He further declared that "A great newspaper that expects to profoundly and practically affect the thought and action of its readers in the interest of community, state and nation will keep itself vibrant with a living sense of social responsibility. . . . And the greater its power grows the more stubbornly will it persist in giving truth the right-of-way ever expedience."

The beginner in newspaper camera work is soon impressed with several vital rules of conduct. He learns that full loyalty is demanded of him, that his personal convenience is of no importance whatever when his work requires that he sacrifice it, that even when off duty he is on reserve and subject to call, that the acceptable excuse for not covering an assignment has yet to be invented, that the city editor knows all the answers and alibis, and that disposing of the pictures he is assigned to make to rival sources is high treason for which the penalty is dismissal. Experience soon teaches him that he must be alert and resourceful enough in any emergency to make pictures in the face of all sorts of obstacles, from unlooked-for natural conditions over which he has little or no control to legal restraints and the personal opposition of his subject; and that almost every assignment, even the routine ones that are so much alike, presents its own little problems for which there is no answer in any

manual of procedure. The press photographers who survive are those who can "take it" and produce results.

The amateur making his debut in the ranks of newspaper camermen should bring to his job a good reserve of adaptability, affability, self-confidence, determination and enthusiasm. These are attributes that will help him very much to overcome most of the real difficulties that attend his work. His contacts are so diverse that he encounters all sorts of people, temperaments and conditions. He cannot, therefore, employ any form of stereotyped approach but must adapt himself to a variety of moods, natures, and situations. The amiable man of today may be Old Sourpuss himself should the photographer have occasion to shoot him at a later date under less happy circumstances. The defeated political candidate may not be the same hand-shaking fellow after election that he was before, and the dramatic star of a "flop" show is seldom a particularly happy subject for a shot after the fiasco.

He has but to look at any daily newspaper to get some idea of the trouble likely to stalk him. There are the pictures of criminals and all sorts of court litigants, some muffled to the ears, women heavily veiled, others hiding their features behind hats, handkerchiefs and newspapers or being protected by attorneys and friends who interpose themselves between the camera and the subject. To get even these commonplace shots calls for no mean agility and strategy. But they are not a circumstance to photographing men and women who scoot about in curtained cars, emerge from secret exits and disappear mysteriously through anything from a revolving door to a coal hole in the sidewalk before the photographer can spot them or unlimber his camera.

The father of the present J. P. Morgan was perhaps the most artful cameradodger of all the historic tribe of elusive subjects,

His antipathy to being photographed amounted to a phobia, and the precautions that he adopted to prevent it make the side-stepping strategy of Greta Garbo look like clumsy footwork. The reigning Morgan inherited little of this paternal aversion. He is an amiable man who occasionally consents to being photographed by the press. In the picture of him with a midget on his knee, made at a Senate hearing, he could be mistaken for a ventriloquist with his dummy. It reflects more than Mr. Morgan's willingness to oblige some Merry Andrew cameraman inasmuch as it is typical of the present-day policy of big men to run with rather than from the newspapers. Some surrender because the hide-and-seek involves too much plot and counter-plot or because the vigilance and persistence of the press photographers sooner or later overtakes them anyhow.

It is just this ability to run down a picture that distinguishes the good from the not-so-good cameraman. It is a talent that the tyro in newspaper work should cultivate. Through persistent pursuits of this sort he will soon develop his own technique. Any number of typical cases that called for some special ingenuity might be cited but they would have little value as a guide because each presented its own problem requiring its own solution. Actual experience in this field is the only worth while help in developing the required ability.

Not all news pictures are made by full-fledged news cameramen. The "morgues," of practically every newspaper in the land hold some fine examples of press pictures with a high news content made by rank amateurs who were alert enough to take them when no professional cameramen were present. But for these quick-acting amateurs every one of these pictures would have been lost to posterity. There was, perhaps, never stronger recognition of the value of amateur cooperation in a public service than in the appeal issued by the Board of Inquiry investigating the disaster to the dirigible *Hindenburg* at Lake-

hurst, New Jersey, in 1937. The substance of this appeal as broadcast by the press appears in the following quotation from the New York *Herald Tribune:*

> "Commander Rosendahl and Lieutenant George Watson, press liaison officer at the Navy airship base, indicated that the news reels threw little light on the Hindenburg's destruction not already available from eyewitnesses stories, because none of the cameras was trained on the craft until the fire was well under way. Lieutenant Watson appealed to amateur motion-picture photographers or still camera enthusiasts who may have been at Lakehurst last Thursday and filmed the tragedy from beginning to end to send in their pictures to him to assist in the current investigation and in the one that will be resumed by the Navy, when the Department of Commerce has finished its inquiry."

This official request for photographic evidence is high endorsement of the value of chance shots made by amateurs. The same disaster also again illustrated the press appreciation of such pictures and threw one amateur into high relief. The New York *Daily News* published a double-truck of miniature pictures made by an amateur who shot a strip of excellent films showing progressive stages of the catastrophe.

There is a natural and understandable timidity on the part of most non-professionals to submitting their work to the newspapers. This would not exist if they knew how well all such pictures with a definite news interest, irrespective of the source, are regarded by editors. That many editors consider amateurs a valuable source of picture supply is illustrated by the fact not a few of them keep an index of such amateurs and not only publish their pictures now and then but occasionally delegate them to cover assignments in their immediate territories. More than a few of these reservists have distinguished themselves in such work and eventually found their way into the regular army of newspaper cameramen.

Chapter III

ASSIGNMENT

That news has a way of losing its vitality when not rushed to press is a fact so generally known to newspaper publishers that they employ every mental and mechanical expedient to speed it from the wires to the street. The city room of a metropolitan paper is a trigger-sensitive organization equipped with every known device for receiving and translating news into reading matter with incredible speed. Wire flashes have been converted into paragraphs and the papers put on the street within two minutes of the time they were received.

The telegraph, telephone, teletype, cable and radio are the instruments that flash world news to the "desk," whose high interpreter is the city editor. It is he who analyzes it, plans the follow-up, if any, and hands out the assignments to reporters and cameramen. Until wire and wireless transmission of news pictures was introduced, prints from points beyond a limited radius seldom appeared in conjunction with the news despatches to which they related. Arriving late, they were reproduced in later editions. Sometimes those from the remoter points arrived so much later than the despatches that the events they illustrated were almost forgotten incidents, and the papers published them in a better-late-than-later-still spirit solely as a concession to some surviving public interest. Now the arrival of despatches and pictures is so synchronized that their publication together is routine procedure.

Undoubtedly this is the factor that erased the once prevailing

inequality between news and pictures and established the present parity of both. As a result the cameraman has automatically attained a stature second to none in the reportorial scheme of things. His pictures are now considered spot news, and he is delegated to cover an assignment just as the reporter is. Sometimes he works with the reporter; more often alone. In the reporter-cameraman combination he is theoretically under the direction of the reporter. When operating independently he is sole judge of what should be photographed, and alone responsible to the city desk for the manner in which the assignment is pictorially covered. Before assigning him the editor may instruct him to cover specific angles of a story. These are his first concern, and the related phases of it his second. However, the cameras and technique required for the job are details determined altogether by the photographer. Editors, not being photographers, make no recommendations in these respects.

Fundamentally the procedure in covering average assignments is the same, although circumstances sometimes require a variation of the routine; to this the cameraman automatically adapts himself. He approaches a job with its high spots in mind and an eye open for the incidentals that sometimes crop out and make the headlines. Such a turn-about is particularly likely to occur in homicide cases where at first all is confusion and the obvious often misleading. As the analysis of evidence and the search for motive proceed the investigation may resolve itself into a study of previously disregarded details. A celebrated case of this type was the murder of a woman of culture in a fashionable section of New York City. After an unusually diligent and critical search for evidence a previously ignored length of cord provided the solution and resulted in the speedy arrest, conviction and execution of the man who "discovered" and reported the crime. The six-inch strand that figuratively

hanged him thus leaped into the limelight of pictorial importance.

It is customary for cameramen to cover assignments of this sort for days, sometimes weeks. There may be a dozen or more of them representing newspapers, press bureaus and the photo syndicates. Regular reports are made to the city room and instructions on follow-up received. The extent of this is entirely a matter of who was murdered and how. Homicides involving victims of no particular celebrity and executed without murderous finesse seldom rate more than perfunctory police attention and comparatively little in the way of type and pictures. They are headlined in an edition or two, then treated to gradually diminishing space, relegated to the inside pages and soon forgotten. The more glamorous killings are spreadeagled in edition after edition. Every suspect, every circumstance, every item, everybody even remotely identified with them is relentlessly followed by reporters and cameramen until the crime is solved or pigeonholed among the unsolved but ever-pending mysteries.

The press enjoys no advantage in the matter of advance knowledge of murder and holds no patent right on coverage. In a few celebrated cases certain highlights that no longer existed when the newspaper contingents arrived were photographed by on-the-spot amateurs. Any amateur lucky enough to scoop the press on coverage acquires a little bonanza for which there is an immediate sale. He should hurry his undeveloped exposures, properly identified, to the nearest big city paper, press or photo bureau; failing this he can sell them at an attractive price to almost any cameraman or reporter covering the assignment.

Catastrophes, such as explosions, wrecks, riots, floods and fires demand a high degree of staff organization for thorough and immediate coverage. They occur with breath-taking sud-

denness, and the aftermath is a whirl of speed and confusion. To arrive too late on any such scene is to miss the drama of it. All subsequent photographs combined could not, for instance, outpoint in news interest those first few magnificent shots of the *Hindenburg* tragedy, one of which is reproduced in these pages. In one incredible moment a routine assignment for some forty-odd cameramen and reporters was transformed into one of the most dramatic and appalling news stories of modern times. While still transfixed with the horror of it and not fully comprehending the epic drama being enacted before their eyes these trained photographers instinctively went into action and with poised cameras and nerveless fingers made some classic shots during the few seconds intervening between the first burst of hydrogen fire and the air liner's drift to earth, a flaming sarcophagous.

Photographically the tragedy ranks as the greatest story of all time. The wealth of extraordinary pictorial material that it provided gave editors a chance for smashing picture spreads. After the first flash the newspapers, press and photo associations quickly mobilized scores of cameramen and reporters and rushed them to Lakehurst, thereby increasing the original forty to four hundred within two hours. Extra lines were strung into the area by the wire utilities. Portable picture transmitting machines appeared miraculously and sped photographs of the tragedy to the far corners of the country and the world beyond. In all pictorial and reportorial respects the fiery doom of the *Hindenburg* holds, perhaps, the most distinguished place among the notable examples of high-speed coordination in news gathering known to modern journalism.

Fire is admittedly the only regularly-recurrent destructive force in our economic life. Its annual "take" of life and property is staggering, and the investment in manpower and equip-

ment needed to fight it is colossal. While the very frequency of fires drops them into the index of commonplace happenings, the newspapers cannot discount them as commonplaces for the reason that, potentially, a fire may be anything from a false alarm to a holocaust.

Press cards pass the photographer through the fire lines established by the police. Once beyond them almost anything within range of his lens is an appropriate picture. Drawing distinctions and not shooting promiscuously demands here, as on all assignments, a proper appraisal of news values. The first logical exposure is an overall of the blaze and after that any incident with a news angle. Rescues thrill newspaper readers quite as much as they do the actual spectators. The photographer must be on the alert for them, taking care to fully identify everyone involved and briefly noting the circumstances of the rescue. Resuscitations and emergency treatment of the injured are hardly less interesting and should be photographed.

Fires of suspicious origin, particularly those set by professional incendiaries, sometimes center about obscure details of no noticeable significance to anyone but fire officials. Ingenious mechanical contrivances, special inflammable compounds, time fuses, smashed valves on standpipes, are just a few of the many devices employed. When these are discovered pictures of them should be taken. Where loss of life occurs the cameraman should, if possible, determine and photograph the cause. This may rest in a faulty structural detail, improper electric wiring, a violation of the laws covering the construction and occupancy of buildings, illegal storage of inflammables, criminal disregard of proper precautions. Pictures of this sort have figured in news of the fire as well as in subsequent civil litigation for recovery of damages and criminal prosecutions for negligence.

At night fires there are usually people who escape in various stages of undress. Pictures of them always arouse sympathetic interest. One such fire resulting in three deaths was caused by the admitted carelessness of a drowsy cigarette smoker. Pictures of him in overcoat and no trousers while being questioned by the fire marshal illustrated the story of the fire. Frantic people who attempt to reenter a burning building to rescue a person, pet or treasure make good pictures, especially when being restrained by firemen or police. The body of a boy who lost his life in a fire was photographed by a news cameraman while being removed by firemen. The manner in which they handled the body was highly improper. It aroused a storm of public protest and drew the wrath of the fire commissioner who ordered the bungling firemen back to the fire college to learn how to do it right.

Winter fires usually present more difficulties and hardship than those occurring during other seasons. Ice-coated buildings, firemen and apparatus, shivering spectators and victims are the outstanding subjects for pictures at such blazes. The port cities that maintain marine fire-fighting equipment every now and then offer the cameraman something spectacular in the form of a waterfront fire. The fireboats in action make more than ordinarily interesting pictures.

Cameramen on all big fires hurry their films to the city room, make occasional telephone reports and sometimes stand by to cover the search of ruins and the removal of the dead. Almost any lively blaze provides the amateur with good opportunities for a practical photographic workout. Not being able to get within the fire lines, he is compelled to do long range work. This should help to perfect his sighting and focusing technique. Night fires sometimes provide their own illumination for photographic purposes. If not, the amateur has a chance to experi-

ment with his speed flash, something every amateur who aspires to become more than an amateur should perfect himself in.

The courts provide a high percentage of the news appearing in the daily press, and staff men are regularly assigned to cover their proceedings. The criminal courts are a source of consistent sensational interest. The police courts and the courts of domestic relations offer much of the drama of life. There are also the federal courts for offenders against the government, the civil courts, the appellate courts, the supreme courts and courts of special jurisdiction. In those courts that tabu picture taking, the cameraman's assignment is one not to be envied. For violating the tabu newspaper photographers have on many occasions been ejected from trial hearings, openly rebuked, held and fined for contempt and even jailed for short terms as a matter of discipline. There are, of course, exceptions galore to these judicial severities. One Arizona judge obligingly recessed court to permit an Associated Press photographer to make a picture of the jury hearing a Mormon polygamy trial. The cautious cameraman will, nevertheless, learn in advance just what the Court's attitude toward court photography is. If agreeable or only questionable he is reasonably safe if he operates without undue ado. If hostile he must take a chance and its consequences. Good cameramen are so adept at surreptitious work that they repeatedly cover cases without detection.

Where the official ban is in effect the miniature cameras are employed to outwit it. Highly effective undercover work can be done with them when operated by an expert. When no ban exists the photographer is free to operate with any camera, his preference usually being for the Graphic equipped with a speed-flash synchronizer. Whether operating with or without authority he plays doubly safe by not violating court decorum. The logical position for him is at the reporter's table before the

bench. Expedience, however, may suggest some more strategic position. He should move to it as casually and unobtrusively as possible. Whatever the point of vantage it should be as near to the witness chair as possible as this is the focal point of all interest. Once established in a satisfactory position he can make whatever camera adjustments are necessary and hold them throughout an entire session.

The city desk usually wants a liberal variety of pictures of important trials. The defendant, naturally, is the outstanding photographic subject. The witnesses, prosecutor, judge, jury, defense attorneys, exhibits and spectators follow as appropriate camera copy. A defendant's natural nervousness when under examination demands that the photographer watch him intently and shoot him during some fractional interval when he is composed enough to sit still. He should also be watched for the inevitable moment when he loses control of himself. At such times he provides some fine facial studies or novelties in tense attitudes. The same thing is true of witnesses who lose their repose under legal fire. The judge's professional placidity is always a classic of composure. A good picture of him is a study in judicial dignity. "Feeling" the aspects of the trial that are most likely to appeal to popular taste is as much the cameraman's job as pictorially reporting it. An indiscriminate lot of pictures, all wanting in human interest values, is just an indiscriminate lot of pictures for which the editor will have no use. His use for the photographer taking them will be still less. It is only during sessions that dignity pervades the courtroom. During recess and after adjournment there is general relaxation and informality. The cameraman may, during these intervals, move about with more freedom, personally contact the actors in the trial and persuade some of them to pose.

In the police magistrate's courts the press photographer has

a much easier time of it as there is seldom any opposition to his presence or his purpose. This is understandable as proceedings in these courts deal with run-of-the-mill offenders whose cases are quickly and arbitrarily disposed of. The bigger sinners are sometimes admitted to bail or remanded to jail without it and their fate left to the courts of higher jurisdiction. Magistrate's courts are criminal clearing houses for offenders of high and low degree. The parade of derelicts, rogues, rowdies and unfortunates passing through them provides the cameraman with a rich source of pictures depicting human character and life's miseries. Unhampered as he is in the higher courts, he may shoot whenever and whatever he pleases. It is his custom at the more important trials to send his exposures to the office at intervals. If something unusual occurs a special messenger for a special trip is employed.

There is no finer arena than these courts for amateur practice, particularly with miniature cameras. Apart from providing a splendid selection of subjects, their variously lighted interiors enable the amateur to perfect his appraisal of light and its effect on his exposures. He needs no card of admission, may sit almost anywhere and putter at timing and distance to his heart's content. It is strongly recommended that he spend an occasional hour or so attending a session.

Wrecks are many and varied. There are shipwrecks, train wrecks, automobile wrecks, plane wrecks and plain wrecks. Assuming them to be of equal importance as news they nevertheless present great differences when it comes to camera coverage. Obviously wrecks at sea are decidedly out of the picture as picture subjects unless, as occasionally happens, there is a wide-awake amateur somewhere in the offing to take them. The sinking of the *Vestris* off the Virginia Capes in 1928 was photographed with a kodak by an amateur aboard the founder-

ing liner. His series (sold sight-unseen to the New York *Daily News*) has never been surpassed by any close-ups of a marine disaster. Obtaining such pictures is entirely a matter of happy chance so far as the newspapers are concerned. They consequently pay well for them.

Land wrecks provide more in the way of control over coverage than those at sea, as covering them is simply a matter of knowing where they occur and how to get there in a hurry—seldom a difficult problem in this age of rapid transportation. The most disastrous wrecks are railroad wrecks because in the very nature of things they involve terrific impacts of heavy speeding bodies usually carrying a cargo of human beings. The destruction is shattering and loss of life inevitable. The extent of either or both determines the volume of write-up.

It is the cameraman's first job when covering such an assignment to photograph it from all angles unless something of more sensational interest arrests his immediate attention. Such overall shots always provide a good illustration of both the extent and nature of the damage. Like any other catastrophe they are attended by a hundred and one off-side details, some of which make excellent news pictures. The experienced cameraman will know and photograph these when he sees them. The newspaper photographer must exercise the reportorial instinct in taking each such picture. A good man never wastes a film on a random shot. His logical procedure blankets the wreck. He then proceeds to the work of rescue, photographing the dead, the injured and the rescuers. If the cause of the wreck is apparent he takes a picture of it. If anything conspicuously heroic has been done by anyone he photographs that person. He will also photograph the train and the wrecking crew, officials, the bystanders, physicians attending the wounded and anything else that appeals to his judgment as a suitable picture.

Having done this and properly identified every exposure (being particularly careful about the names of all involved) he will get back to the darkroom as quickly as possible. Should he be required to remain he will telephone his report, despatch his films by messenger or transmit them by wire if transmitting apparatus is available and the wreck important enough.

While speed in getting to a wreck as soon as possible after the first wire flash is standard practice, an alert cameraman for the Nashville (Tenn.) *Banner* established a new high for such speed by paradoxically reaching a wreck before it happened. He was covering a routine assignment in his car when a driverless switch engine thundered past him at fifty-five miles an hour. Rapidly calculating where it would pile up he stepped on the gas until he reached a string of freight cars on the track ahead. Then he jammed on his brakes, leaped out of the car with his camera and got an exclusive shot just as the runaway "donkey" slammed into a rear freight car loaded with logs.

That's enterprise.

Wrecks of all sorts are constantly occurring almost everywhere. The thorough coverage outlined for railroad wrecks affords a broad indication of the type of reporting expected of the cameraman assigned to them. It can be applied with required modifications to any wreck, big or little. The routine may be followed to advantage by any amateur equipped with any type of camera and eager to improve his technique in this type of work.

Floods when they occur demand more in the matter of territorial coverage than any other natural disaster. In the very nature of things they overrun vast areas, do untold damage and spread with startling rapidity. No newspaper staff is big enough to cover them in their entirety; therefore all available cameramen, reporters and feature writers are despatched to important

points reported in danger. The cities in the path of any such flood are always rich as a source of news and pictures. Dams, levees and other artificial and natural embankments are carefully observed. Planes carrying cameramen and reporters patrol the areas for pictures and stories. These aerial shots give an authentic and comprehensive idea of the flood's extent. With wires down, bridges washed out, roads under water and transportation generally crippled the news men must make shift to get their pictures and stories and route them through to the home office. Portable radio sets, planes, picture transmitting equipment, even pigeons are used to accomplish this. The photographer's problems are many, and he must exercise all the ingenuity at his command to get through and around.

To particularize as to what constitutes camera copy in any such disaster would require an enumeration of everything, from its origin to its ebb, and even the ensuing clean-up of waist-high muck. Some cameramen are so steeped in routine that their performance seldom soars above the stereotyped. This is well enough for the man without imagination or aspiration. But there are men whose wits are at work on all assignments, who seek, and consequently find, drama in the drab. A classic example of this is the now famous Associated Press picture of the chain gang trio toting sandbags to bolster an embankment during the Ohio River flood of 1937. Here is scholarly composition and splendid photography. And of what? A sordid subject that undoubtedly passed in review before many cameramen, only one of whom sensed the vitality and the artistry of it. Another such flood picture depicts a stranded and distracted mother nursing her baby amid the welter and desolation surrounding her. It is a masterpiece of mother love and vast personal detachment during a deluge. Yet only one cameraman

recognized and recorded it. Both of these pictures appear elsewhere in this work.

Any embryo news photographer may have within him the stuff of which such distinguished cameramen are made. Only by sensing news in his surroundings, analyzing the commonplace incidents of daily life, inquiring into the who, why and wherefore of happenings and then taking pictures of what he believes to be the news in all of this, can he perfect himself in pictorial reporting. He may give himself valuable practical exercise by covering a neighborhood fire, writing the story of it, taking pictures of it, and then comparing these with the tailor-made job turned out by his daily newspaper. He can then check his deficiencies and resolve not to make the same mistakes again.

Chapter IV

COVERAGE

Camera coverage of news is now very much a matter of compulsory response to the awakened picture-consciousness of readers. There is proof of this in the existence and international operating scope of such organizations as the Associated Press, Times Wide World, Acme News Pictures, International News Photos and the foreign controlled photo agencies scattered throughout the capitals of the world. Supplementing the picture service provided by these organizations are the many photographic units operated by individual newspapers. While these latter are principally for local coverage they nevertheless sometimes extend their field of operations to include territory beyond any loosely established home limits. The syndicate services are usually depended on to supply their subscribers with pictures of events beyond the local outposts, but when there is a "break" and the importance of an occurrence warrants it some papers assign anywhere from one to a score of staff cameramen to cover a story.

The 1937 floods in the Ohio and Mississippi Valleys provide an illustration of this once common but now not-so-common practice. Many papers big and little then threw every available staff photographer into the inundated area on the theory that no superficial pictorial treatment of the disaster would satisfy a public hungry for graphic details of the greatest such catastrophe in the history of America. Obviously, more than a few panoramic views were needed. Intimate close-ups of the

flood's harvest of life and property, and its complete disruption of normal existence were wanted. Death, destruction and destitution were the toll of the Niagara that descended upon the valleys, and these the news cameramen shot by the thousands in all their varied aspects of tragedy, pathos and humor.

However, the trend is not so fanatically in pursuit of more and more pictures that it neglects the search for new ways of presenting them. One such innovation is the recently introduced feature-picture treatment of news. In this, photographic spreads similar to those used to illustrate feature stories by special staff writers and contributors are employed. Grouped to show continuity they present a more integrated story than scattered and unrelated shots do. In these the pointed news interest is sometimes subordinated for the express purpose of featuring something of the background of the individual or incident consituting the story.

Not a little of this sort of treatment followed a jewel robbery in New York City simply because the victim, a burlesque "strip" actress, was a somewhat colorful character whose sensational stage performances were a matter of current discussion. Thus, in addition to pictures of her, the scene of the holdup and her escort at the time, the newspapers published a veritable gallery of photographs of the actress in progressive stages of her strip, and in dressing-room and boudoir poses, together with galleys of yarns about her career and philosophy. By all sound journalistic standards this extraneous matter was just unadulterated buncomb but its appeal to readers as a portrayal of the personal profile of a lady whose personality and private life had, until then been debatable matters, was undeniable. No text could have portrayed these as effectively as the picture broadsides did.

To further illustrate the flair for the broadest possible pic-

ture coverage, and the entrenched position of photography in today's journalism, the growing practice of providing reporters with small, easily-operated cameras is cited. The theory of this is that the reporter so equipped may, on or off assignment encounter something that would make a good news photograph. With no camera and no cameraman available to record it any such morsel is a lost item. That this is a wise provision is proved by the sheaves of such prints turned in by legmen with cameras and reproduced by their papers. Newspapers in the smaller communities are rapidly adopting the idea, and in the light of its very satisfactory results wondering why they neglected to do so sooner.

This practice is sporadically opposed by a minority group of newspapermen who believe, as one editor expressed it, that there is "a different psychological approach" by reporters and cameramen because of a "divergence" in the type of work required of each. This reasoning is difficult to reconcile with the fact that they are both in pursuit of news, the one reportorial and the other pictorial. News being well defined it logically follows that there should be no difference in either's intepretation of it, and consequently no difference in their psychological approach to a story despite a divergence in the nature of the work of each. The criticism is undoubtedly based on a misunderstanding of the *contingency* character of the reporter-photographer, and perhaps some editorial impatience with the quality of his photography. But this is offset by the reflection that any picture, good, bad or indifferent, is better than no picture at all if it covers an item of news.

Specially designed high speed, light weight motion picture cameras in several hand operated designs have been perfected by the syndicates and big city papers to insure the fullest picture coverage. With a finger on the spring film release of such

a box a cameraman can run off an action strip of any desired length from which the editor may clip what in his opinion are the best shots for publication. His choice is necessarily wide as each 35 mm. frame is a "still" in itself, and there are approximately 8 such frames to a foot of film. Furthermore the cameraman can release a dozen feet, the equivalent of ninety-six single exposures, in about the time ordinarily required to pull a holder slide, focus and readjust his shutter for a second average shot. Mathematically computed he thus steps up his picture production or, inversely, reduces his operating time proportionately.

The miniature, so-called "Candid" cameras carried by many newspaper photographers have also proved helpful against any oversight in pictorial reporting. Easily concealed and practically noiseless they can be smuggled into situations and brought into unobserved action in many instances where the photographer with any other type of camera would not be admitted. Using supersensitive film, averaging 30 exposures to a roll, many pictures otherwise unobtainable are captured by these lynx-eyed midgets, and enlargements up to any desired size are easily made from them.

While not an entirely new medium in the field of pictorial reporting, aerial photography has been quite generally adopted in the last few years for certain types of speedy and difficult coverage. Much of this is due to the development of long-range precision cameras that are masterpieces of design and sturdy construction. They combine the accuracy of a fine scientific instrument with the ruggedness and reliability of a machine tool. The reason for this is that dangerous, difficult and costly missions cannot be entrusted to the hazards of doubtful camera operation. Skillful maneuvering and perfect coordination are required of both pilot and cameraman to plot

locations before aerial shots are fired. Flying speed, altitude, visibility, atmospheric temperature, light velocity, speed of lens and film all enter into their calculations. Some of these cameras are adapted for both manual and automatic operation.

While automobile camera coverage is not a novelty something new in the speed-up of motorized coverage is the recently introduced all-steel, high-powered "Auto Darkroom." This mobile equipment has a roof platform sturdily built to eliminate vibration and spacious enough to permit a number of cameramen to operate without interference. It is also rigged with safety belts and a powerful searchlight for night operations. The interior is a duplicate of any well designed darkroom. All equipment fits into specially constructed compartments to prevent slipping or falling. The required ruby and green lights are supplied by the car's lighting system, and water is carried in a conveniently built-in tank. Portable picture sending instruments for electrical transmission of prints complete the equipment of this ultra-modern studio. Its usefulness must be apparent to anyone familiar with what can be accomplished with it in getting to fires, riots, etc. and for a follow-through on parades, police motorcycle escorts and similar events that require speed and flexibility of movement.

What has been said covers the major photographic resources brought to bear upon news for the purpose of helping readers to quickly visualize it in all its broader aspects. Contrasting these resources with the meager facilities of the photographer of a generation ago provides incontestable proof of the established position of pictures in the press of today.

Chapter V

GENERAL NEWS

Copyreaders do not tap their expansive and scholarly foreheads to put a top hat on general news. The banner headlines are written only for episodes more startling than the monotonously repetitious verities of life that comprise the great common category into which most news falls. This medley of matters is predigested by the press for easy mass consumption, because in its essence it is the life of the masses.

A review of almost any edition of any newspaper discloses a significant disproportion between major (dramatic) and minor (general) news, the odds preponderantly favoring the latter. Practically eighty per cent of a paper's composition, exclusive of departments and advertising, is general news. The following headlines from a single page of a metropolitan daily illustrate the volume and miscellaneous character of all such matter:

> Son Incurable, Physician Kills Him, Then Self; Convict Says He Wrote O'Connell Ransom Notes; Shots Fired at Officer Renew Arizona Feud; Alighting Seaplane Plows Into Ferry, Injures Six; Bank Official is Suicide in His Maryland Home; Scotsboro Conviction Predicted by Defense Attorney; Rattlesnake Kills Self; Milk Cooperative Wins Suit to Keep Supply; Dog gets Traffic Ticket But "Outtalks" Officer; Routs Thief With a Fried Chicken; Mother Kills Four and Self; Family of Twelve Bail Enough for Fraud Suspect; Fire Company 125 Years Old; Ticket Broker Pleads Guilty; Missing Physician Found; Grounded Cruiser Lightened; State Postmasters Told to Prosecute Lotteries.

This is but a fraction of the irrational and unpredictable

daily grist. Some of it is razzle-dazzle but most of it is as humdrum as the shuffling rounds of a night watchman. Photographing it is the news cameraman's job. A seeker of facts, his work is fundamentally factual. Hit-'em-in-the-eye visualization of the cosmic ho-hum, so that the man who runs may read, is what he strives for. There is nothing stylistic about his portrayals. They require no interpretation beyond the brief definitions printed below them. Much less imagination is needed to understand news pictures than is required of the cameraman who takes them. He, at least, must recognize in any composition that he shoots something of that nebulous quality called human interest—the very marrow of news.

The ragtag in the bull pen of any police court is general news; so is the "stuffed shirt" whose Mercedes fractures poor Mrs. O'Mahoney's leg, or the cloak and suit entrepreneur who defies the walking delegate to strike his sweatshop. The tatter-de-malion sandwich man who found a bale of debentures in Wall Street and turned them in to a jittery bond house was rewarded with a haircut, a clean shirt and a new job. He was general news until transmogrified into a hybrid of the man Diogenes sought and an emancipated bum. Then he became heroic and a headliner. After two weeks of newspaper glorification he collapsed, scared a Bowery crony to death with his shenanigans and landed in the psychopathic ward.

All told, this derelict, between the time that he tripped over a racketeer's ransom and his commitment for observation, received more newspaper space than is alloted to most financial tycoons in a lifetime. He became human interest plus, because, theoretically, he resisted temptation, although the bonds he found were as worthless to him as Confederate scrip. He was a natural for the cameraman. They posed him in before-and-after shots, had him reenact his discovery at the scene, and put him

through other antics that any performing ape would have shied at.

A well-known woman novelist who with her escorts allegedly attempted to storm a New York hot spot at an unseemly hour landed in the Night Court line-up with the usual contingent of blowzy drunks and homeless harridans. The fracas was a controversial one shot through with heated charges and counter-charges of assault and battery. Here was a celebrity involved in a brawl with broken-nose bouncers. The flash went out and the press converged on the feudists with crayon and camera and followed them up until the case was dismissed with mutual tongue-in-cheek apologies.

Now a truckman with a black eye is no novelty, neither is he news, but hang one on the optic of a literatus and you have the color and composition for a photographic masterpiece. Ordinarily such piffling business is ignored by the newspapers as too picayune for even a general news paragraph. It attains this distinction only when the principal is someone not in the habit of cultivating shiners.

Vandals wrecked the life work of a noted sculptor. To the world of art this was sacrilege. To the newspapers it was borderline news because, while the tragedy of it impinged on the spectacular, public ignorance of the nuances of art held the story to the layman's level. Had the newspapers played up the incident as major news the reader reaction would have expressed itself in the opinion that much ado was being made about a matter of no world-shaking importance. The space given to the vandalism was about equally divided between text and pictures, the latter portraying, as no word painting could, the nature of the destruction.

During a spell of Sahara heat in New York City a little girl decided to go nudist and cool off in the stream of a fire hydrant.

She was having the time of her baby life until a big blushing cop spied her and decided that this was carrying the burlesque strip business just a bit too far. How he managed the delicate situation is shown in the reproduction elsewhere of the illustration of this charming comedy published in the New York *Daily Mirror,* one of whose wide-awake cameramen took it.

In subject, timeliness and undeniable appeal the picture deserves a high award in any exhibition of prints portraying the amusing incidents of everyday life. It also illustrates the photographer's fine appraisal of general news, and distinguishes him from those unseeing drones who cover only what they are assigned to cover.

All news, dull or dramatic, is taken in the daily stride of the news photographer. While much that must be covered is devoid of all apparent interest it is nevertheless of decided interest to the man covering it. On an off day the editor may send him to the zoo to browse around and get something on the animals, or inflict on him a luncheon meeting of lady vegetarians. Not infrequently he covers the railway or plane hoopla arrival of some cinema or stage favorite, knowing deep down in his heart that all the whoopee is a setup by some crafty press agent.

A fire in a delicatessen store, a drunk who beats up his wife or the motorist who insults a cop are not happenings designed to fire the photographer with any feverish enthusiasm, but they are the sort of things that sharpen his wits and improve his technique—a fact that every cadet in the camera corps should paste in his hat.

On many such seemingly stupid stories photographers have done notably good work. Not long ago a cameraman assigned to a second-rate labor disturbance emerged from the melee with camera shots that made the front page and paid him a bonus.

He passed up the murmuring and milling crowd until he saw a policeman hit with a brick. Stung to fury the officer, gun and club in hand, charged the man who threw it. Then he did an extraordinary thing. He clenched the gun and club in one hand and went to work with his fist on the brick tosser and everybody else within his range. One classic shot of this battle received a high award in an annual exhibition of news photographs.

A police headquarter's cameraman in the West was brutally beaten by the muscle men of an arrested thug for taking his picture. This photographer had a long personal acquaintance with the entire headquarter's staff, yet the police not only refused to help him but did everything they could to hinder him in his work. They betrayed an open and significant solicitude for the mobster. Fortunately things like this seldom happen. When they do the cameraman usually out-generals the opposition to get a picture, regardless of consequences.

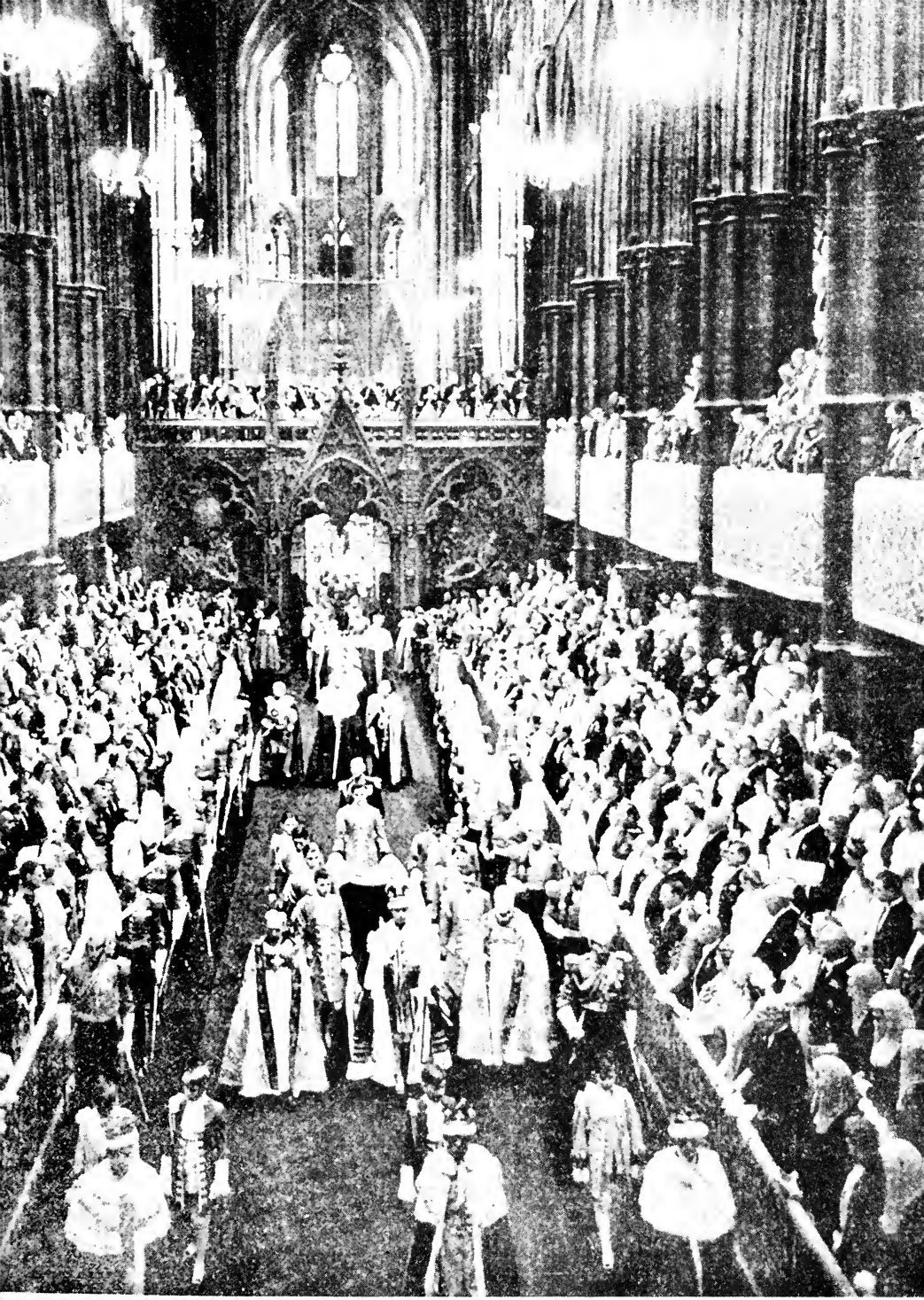
Small suburban fires are small business for the press photographer; nevertheless one such fire aroused artistic inspiration in a cameraman. Seeing no news in the fire (it was out when he arrived) he turned his attention to some ice-plated apparatus and firemen who had been sprayed by water from a broken hose line. As it was late in the day he shot them with a speed flash from odd angles. The editor thought his prints too arty for the news pages and turned them over to the Sunday department which reproduced them in the gravure supplement. Later when some artistic ability was needed in the Sunday department the man who took the fire pictures got the job, also more pay and a by-line.

A pedestrian killed by an automobile is an hourly occurrence and rates low as a news item, yet several cameramen erected such an accident into a telling and dramatic picture that carried the legend "Sudden Death" and was widely acclaimed for

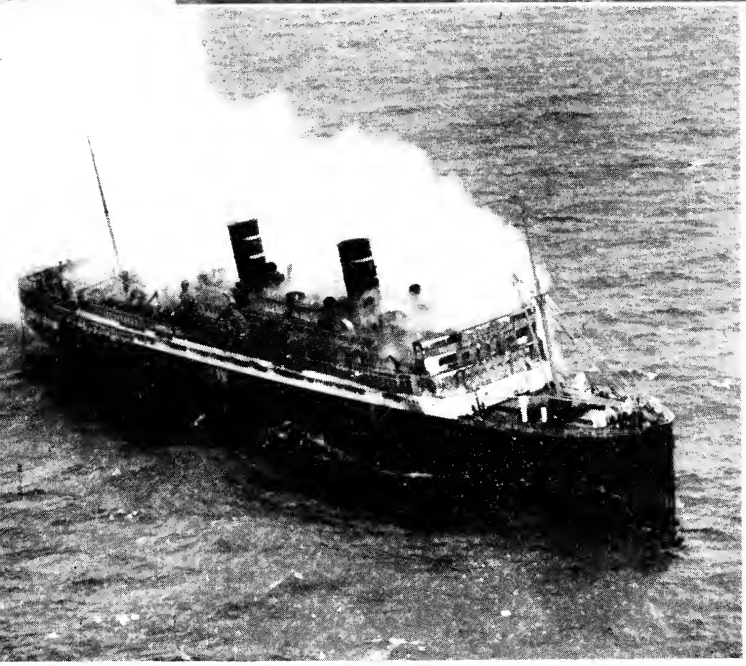
MAN BITES DOG. The camera glimpses President Roosevelt in a private mood. An informal and unusual shot suitable as a straight news or feature illustration. Composition represents the work of an alert photographer and clever captioning. Photograph by John Thompson of Acme Newspictures.

Above.—Franklin Delano Roosevelt taking oath of office for his second term as President of the United States. Photo made in heavy rain under adverse lighting conditions. International News photo.

Below.—Umbrellaed throng watching the President's induction. Newspaper photographers are shooting the ceremony from unprotected stand in background. Acme photo.



For the first time in history the camera records the coronation of a British king. Royal procession with King George VI leaving Westminster Abbey after ceremony. Picture flown to United States immediately after coronation. International News photo.



Above.—Extraordinary photograph of Steamer "Eastland" capsized in Chicago River. Loss of life 812. Picture by Frederick C. Eckhardt, staff cameraman of the Chicago "Tribune."

Below.—The burning liner, "Morro Castle," photographed from the air near Asbury Park, N. J., by cameraman Barron of International News photos.

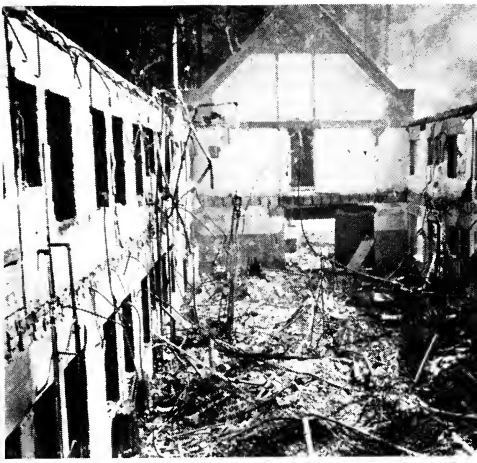
A classic shot of the "Hindenburg" holocaust at Lakehurst, N. J., made by Gus. Pasquarella, staff photographer of the "Philadelphia Evening Ledger," using standard newspaper camera equipment only.

Above.—LIFE. Policeman breathes life into infant pronounced lifeless. Act won citation for officer. Picture won second award for "New York Daily Mirror's" staff cameraman William Stahl in "Editor and Publisher's" 1936 News Picture Contest. International News photo.

Below.—DEATH. Public arch enemy Dutch Schultz on hospital cot after being machine gunned. Photo by free lance cameraman John Dolbear. International News photo.

ASSASSIN'S TARGET. Photo by William F. Warnecke, staff photographer of the "New York World-Telegram" and the former "New York Evening World," a split second after madman's shot hit New York's Mayor Gaynor.

Chicago's Mayor, Anthony Cermack, who stopped bullet intended by assassin Zangara for President Franklin D. Roosevelt. Photo by Samuel Schulman, staff photographer of International News photos.



FIRE! Upper left.—Ladder rescue at piano factory fire in Atlanta, Ga.

Upper right.—Fireman felled and injured by thrashing broken hose at fire in Jersey City, N. J.

Lower left.—The winter hazards of firefighting. Photo of blaze in New Haven, Conn.

Lower right.—Fire-ravaged interior of tavern at Mount Lowe, Cal. Associated Press photo.

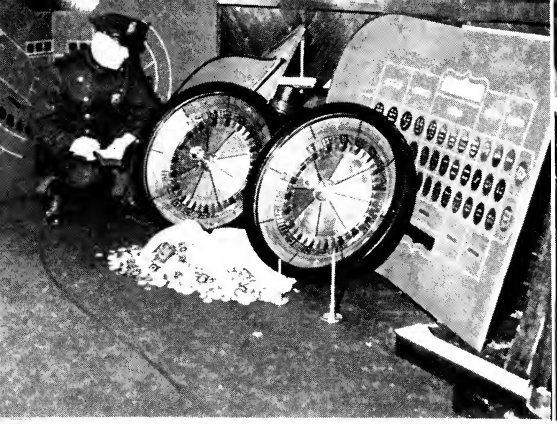
FIRE VICTIM. Gruesome, heart-clutching picture of girl killed in Atlanta, Ga., factory fire. Taken by Daniel Lane, staff photographer of the "Atlanta Georgian-American," and awarded third prize in "Editor and Publisher" 1936 News Picture Contest. International News photo.

Aerial shot of Main Street, Metropolis, Ill., at height of 1937 Ohio River flood. Note ferryboat washed into principal thoroughfare. Acme News photo.

Marooned victims of flood being rescued by Cincinnati, Ohio, firemen. Associated Press photo.

Above.—"WORKING ON THE LEVEE." An arresting and artistically composed photograph depicting chain gang repairing broken levee. Taken by John Lindsay of the Associated Press.

Below.—"LOWLAND MADONNA." A photo classic of maternal devotion during disaster. A flood picture by James M. Keene, staff cameraman of the Associated Press.



CRIME AND CRIME'S PENALTY.

Upper left.—Gambling paraphernalia seized by police in raid.

Upper right.—Loot. One hundred thousand dollars worth of it recovered by San Francisco's police.

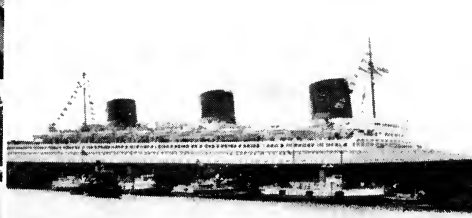
Center left.—Death sentence being meted out to stick-up killers in Court of General Sessions, New York City.

Center right.—Burglar gun trap that accidentally killed man who set it. International News photos.

Lower left.—Oklahoma's first victim of the "Lindbergh" kidnap law. Acme News photo.

RIOTS. Left.—Dramatic picture of police in action during Denver's 1934 Relief Riots. Photo by H. G. Eisenhand, staff photographer of the Associated Press.

Below.—Two were killed, scores injured in this riot clash of steel strikers and police outside of Chicago, Ill. Braving barrage of bricks and bullets Cameraman Carl Linde of the Associated Press succeeded in taking this picture.



SHIP NEWS. News photographers boarding U. S. cutter for trip to Quarantine in New York harbor.

Cameraman boarding liner via ladder.

Jungle explorers Mr. and Mrs. William La Varre exhibiting specimens of their zoological catch.

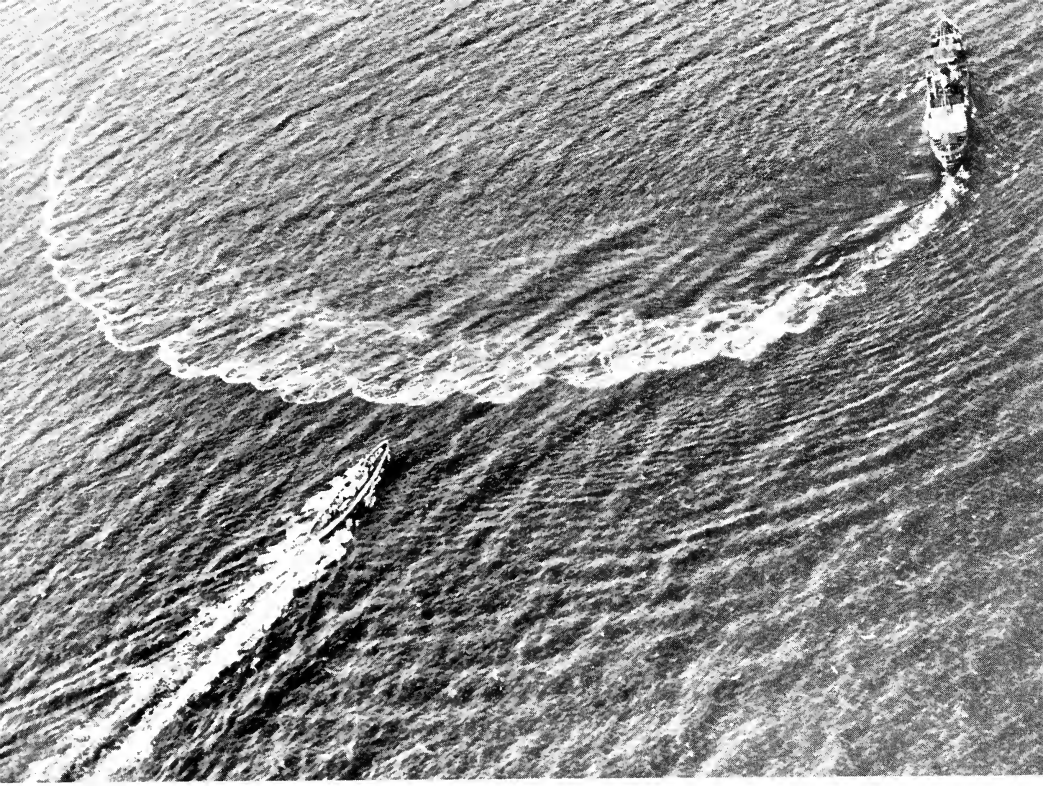
The assignment, the SS. "Normandie."

Photographers picturing royalty on liner's deck

Typical ship news picture of Riabichanska, famous Russian ballet dancer.

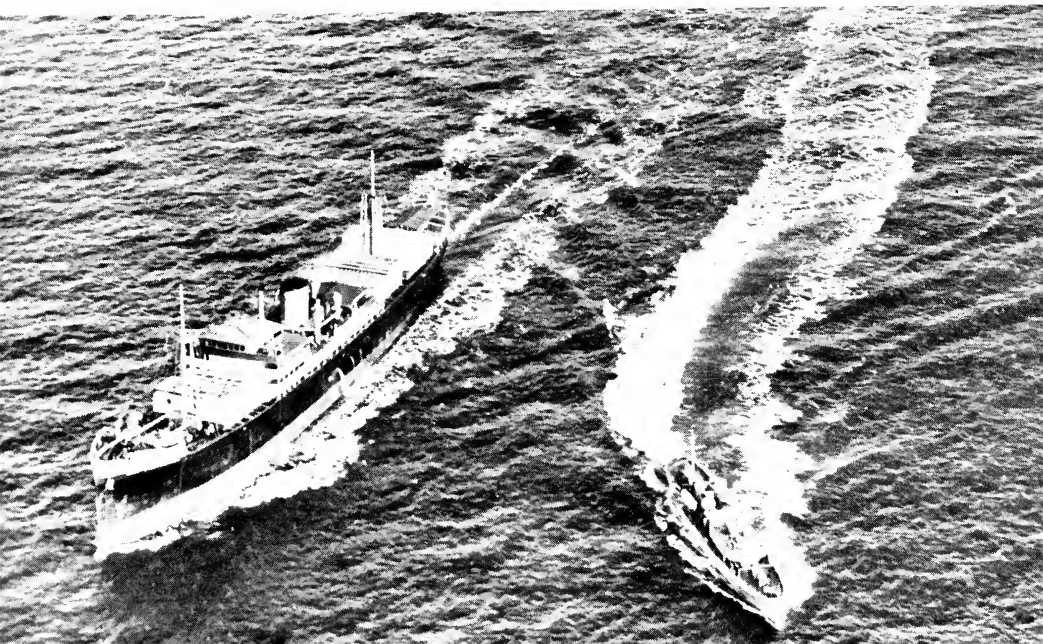
Arrival of Lily Pons, opera star, enthroned on first repeal shipment of French cognac.

Price Picture News photos.



A STORY IN TWO PICTURES. Above.—Revenue cutter overhauling SS. "Mar Antonio" outbound for Spain with war planes.

Below.—Freighter allowed to proceed, beating embargo on war shipments by moments. Cutter seen veering off for return to base. Aerial photos by Patrick Candido, staff cameraman of the New York "Daily News."



SOCIETY ON PARADE. Above.—Debutantes on Southampton's exclusive beach. International News photo.

Multimillionaire John Jacob Astor leaving Bailey's Beach at Newport, R. I. Acme News photo.

Below.—Social registerites on Fifth Avenue after Easter. Acme News photo.

Dick Sarno of the "New York Daily Mirror," obtaining name of socialite whom he has just photographed.

news value and photographic composition. They saw the husband of the woman who had been killed standing nearby and gently maneuvered him closer to the body. The published print showed a grief-stricken man with hands covering his face and his wife in the background lying beside the truck that killed her. A captious few may criticize this as questionable practice but it is justified by the urge to dramatize, and so stimulate interest in, accidents that the public accepts with too much apathy. Reproductions of this picture were widely distributed in "Safety First" campaigns throughout the country.

The *Hindenburg* arrival at Lakehurst was a routine general news assignment until disaster projected the dirigible into an all-time dramatic major story. The photographers on the spot shot many pictures of it that will never be surpassed for appalling magnificence.

Equipped with a pound of liver and a bright idea a cameraman who had been assigned to cover the eviction of a woman who harbored a brood of cats built up his own story. When he arrived the eviction had been stayed by a court order. That killed the news story. So he went to a nearby butcher shop, bought the liver, gave it to the cats, fifteen of them, and photographed them on a table as they devoured the feast. He also got some good pictures of the cat-conscious woman who owned them. The reporter who accompanied him caught the spirit of the scene and did a good page-one story, illustrated by some of the shots.

And so ad infinitum. These incidents could be multiplied in endless number and variety. In essence one is but a repetition of another, and all combined reflect what good headwork can do to salvage a general news assignment and get pictures.

The cameraman assigned to general news must be sturdy of leg, stout of heart and nimble of wit to do it, as in covering

much of it he is poaching on posted territory or infringing the constitutionally guaranteed right of every citizen to a vested interest in his own face. He must pursue the camera-conscious and shun the camera courter. In a riot he must be among the rioters; in a parade, one of the paraders; at a feast, often the unbidden guest. He sizzles at a fire and gets chilblains in a flood. He has been insulted and assaulted so often that some sympathetic states have enacted special legislation to protect him. Judges have frowned upon him, fined him and thrown him into the hoosegow, only to have him bob up again.

He is that suspicious character you see skulking in the shadows waiting for a surreptitious shot of you. He is the privileged individual with a press identification card in his hat who crashes the gate. Besides being a ubiquitous bird, an ace strategist and an untiring worker he is a master technician with perfect control of the mechanisms that he operates. To the citizen who does not want his picture in print the news photographer is Public Pain in the Neck No. 1; to others he is the symbol of opportunity. His body belongs to the city editor, he has no soul, and his life is lived between the pulmotor and Paradise. But without him all news would be colorless and the newspaper just a broad expanse of funereal type.

Covering general news requires of the man on the assignment a power of penetration that frequently enables him to see a picture where no picture is visible to the naked eye. It is up to him to get an interesting photograph of an uninteresting event. If any postulant for a job as news cameraman thinks this easy it is suggested that he cover some home-town occurrence to which the local paper devotes a stick of type and build it up photographically into an item of greater interest. Good newspaper photographers do this sort of thing almost every day by exercising their ingenuity and news sense.

Chapter VI

SHIP NEWS

Laymen and even the youngsters among newspaper photographers are rather inclined to look upon the ship news assignment as something of a marine frolic topped off by gastronomic chef d'oeuvres with champagne served in the liner's dining saloon. They regard the regular ship news cameramen as a merry crew of salty freebooters who come ashore bulging with contraband Coronas and queer looking bottles. This is the fictional conception of a job that means getting up about five o'clock in the morning for a trip to Quarantine in a revenue cutter, boarding a liner by way of a gangplank or ladder that tosses with the swell of the sea, and then scampering fore and aft, deck by deck, to locate somebody who may be hiding in a ventilator or wearing false whiskers.

The veterans among the cameramen have no such foolish ideas of romance associated with the work. To them it is a job of straight pictorial reporting no more glamorous or adventurous than most shore assignments. During the years devoted to it they acquire an acquaintance with the regulars among transoceanic passengers, and develop a sure-shot routine for photographing them. They know all the ship's hiding places and all the dodges employed to outwit the camera. They are systematic in their routine as they have comparatively little time between boarding and docking in which to work.

On almost every such assignment they look for designated people, getting advance information of their arrival from either

the published passenger lists or the press releases of the line's publicity department. Every coast port of importance is a source of ship news, and the method of coverage is substantially the same in each. New York being the port that berths the heaviest passenger tonnage is cited as a pattern of the picture taking procedure generally practiced.

The initial step is getting a six-months pass from the Collector of the Port. This little document is the cameraman's authority for going aboard the customs cutter that meets incoming liners at Quarantine. The photographer is required to sign it when issued and as many times thereafter as his identification demands. The regulations governing its use are plainly stated. It is distinctly non-transferrable under penalty of immediate cancellation and forfeiture of all official courtesies. It must be presented on every trip no matter how well known the cameraman may be to the cutter crew.

Quarantine in New York Harbor is about seven miles from the Barge Office at the Battery, Manhattan Island's tip-end, and the point of embarkation for officials, cameramen and reporters. Arriving at Quarantine the cutter is hove-to until the yellow jack is lowered from the liner's foremast to indicate that the port health officers have completed their routine inspections and given the vessel and passengers a clean bill of health. The cutter contingent consisting of internal revenue officers, immigration inspectors, representatives of the Department of Agriculture, the working press and sometimes secret service operatives and the local or out-of-town police clamber aboard when the flag is run down. If foreign diplomatic agents arrive representatives of the State Department go aboard to receive them.

This business of boarding the liner may be anything from a ship-to-ship saunter or just another narrow escape, depending on the height of the ship's gangway above the cutter deck and

the condition of the sea. If the boat's gangway is reasonably level with the cutter a plank is run from the former to the latter; if not then the cutter is maneuvered into position alongside the liner and a ladder erected for the visiting firemen to climb. There is nothing in the records to show that any of them ever tumbled overboard.

Incoming liners usually time their arrival for early morning, and the cutter shoves off from the Battery promptly at seven o'clock. It waits for no one. If the cameraman misses it he may travel by land and water to the Quarantine Station across the bay to Staten Island and there take the health cutter. If he misses that he is out of luck as he cannot get aboard by any other means. What liberties he enjoys aboard an inbound liner are altogether matters of company courtesy. Breakfast is served to the newsmen; and if the docking is delayed beyond noon, luncheon is also provided. If still further delayed they dine again as the company's guests. The line's press representative usually accompanies the newspaper delegation to facilitate its work. He and the photographers round up the subjects and escort them to some well lighted deck spot with a good background.

Two types of passengers who plague the ship news cameramen are those who won't pose and those over-anxious to pose. The former decline for a variety of reasons, some logical, some purely capricious. The latter belong to a breed of egomaniacs who get a psychopathic kick out of being photographed, particularly by a newspaper photographer. These pests when too persistent are usually humored and diplomatically disposed of by pretending to take their pictures. No exposure is made as the slide is not withdrawn from the holder.

Those opposed to posing can be coaxed into position if the cameraman is good at cajolery—and most of them are. Such

people generally respond to the suggestion that a carefully posed picture is better than a shot made surreptitiously. It is a veiled threat that hits their vanity. If they are subborn about it and flatly refuse, the cameraman can fire his undercover shot even while the parley is on. This is brash work calculated to provoke a complaint and is seldom resorted to. A better place to quietly shoot such an oppositionist is under his or her particular customs letter on the pier while waiting for the inspectors to examine the luggage.

Agreeing or refusing to pose are matters usually influenced by the sort of publicity associated with people. If favorable there is seldom much resistance; if unfavorable they are unanimously opposed to the cameraman. The publicity pig is not particularly governed by any such moral considerations. Reluctant exceptions are extradited criminals in the custody of detectives to whom they are handcuffed. They have no choice in the matter and are arbitrarily posed by the officers sent abroad to bring them back.

Celebrities in the professions are accommodating subjects; so are most of the important men and women in society, finance, industry, commerce, the diplomatic, military and naval services, explorers, athletes, aviators, sportsmen and those in many other categories. The prince of smiling posers is Charles M. Schwab, chairman of the board of the Bethlehem Steel Corporation. He is always good for any number of shots and a just-around-the-corner prediction of prosperity. Flash photography with bulbs is permitted aboard ships and on the piers.

The passengers are not by any means all that engages the cameraman's attention. Incidents of the voyage may be of superseding news interest. The death of a passenger or an operation at sea; a mysterious disappearance; a stowaway; collision with another vessel, a submerged derelict or an ice-

berg; an ocean rescue and the survivors; a stormy trip; a severely cold passage and the fantastically frosted superstructure; that hardy perennial, the sea serpent periodically seen by sober passengers and the always veracious seamen, and the pier reunion of family members, friends and sweethearts, are among the tales reported by the press and pictured by the ship news photographers. Typical headlines to such sea stories are:

> "Deutschland In with Tale of Bright Aurora. Most Brilliant in 25 Years, Captain Says." "Python Loose Aboard Ship. Escaped Star of Wild Animal Cargo gives Passengers the Jitters." "Radio Advice to Ship's Surgeon Saves Oiler's Life. Shore Specialist Guides Knife in Mid-ocean Appendectomy."

Sometimes the cameramen who cover the principals in these incidents also provide the stories. Not a few of them are good at this sort of double duty. When a wanted passenger attempts to hide out the cameramen combine in a game of hide and seek to locate him. The man who finds him shoots him and gives copies of the print to the other photographers. When royalty is on the arriving list, the major-domo of the titled person is approached for consent to get a picture of the subject in some characteristic pose. Such passengers are ordinarily quite good-natured about it and indulgently go through the monkeyshines suggested by the photographers. They look upon this liberty with their persons and their dignity as typically American and something to which they are required to submit in a democracy that supposedly recognizes no class distinctions.

Incoming foreign and domestic beauties and those in the international galaxy of best-dressed women are hardly ever coy when it comes to being pictured for the press, although it happens now and then that one of them demurely protests against posing. "What!" exclaims the amazed cameraman,

as he folds up his Graphic. "You don't want your picture taken!! Odds fish!!!" "Dear me!" says the lady to herself, "Now what have I done? He isn't going to take my picture." And in no time at all it develops that she was only fooling, as she poses thus and so at the direction of the photographer.

There are other people who don't want to be photographed and mean it. They are determined enough and influential enough with officers and crew to make it tough for any cameraman bent on getting the picture. Typical of this group was a woman who shied at publicity with good reason. The ship news photographers engaged in a little collective snooping to find her. A visit to her stateroom drew a blank. They separated to comb the ship. The result was negative. They suspected that she had filed the required declaration of dutiable baggage aboard ship, and was therefore exempt from being present during the customs inspection of it on the pier.

When a liner docks, three gangplanks are lowered, in order, for first, second and third class passengers. Two more take care of the baggage. Occasionally another is shoved out from a gun port to permit someone to come ashore unnoticed. The woman in question employed this strategy to escape. However, an alert photographer on the pier, familiar with all the getaways, noticing the plank and the small group gathered about it, suspected that some sculduggery was afoot. He hailed another cameraman. In background positions they covered both sides of the plank. When the woman descended one of them fired a flash. The startled woman instinctively turned away from it, whereupon the other cameraman shot her. Both pictures were good and both were published, to the great dismay of the elusive subject.

A crochetty financier returning de luxe on a super-super liner was big game for the marine camera expedition. His pet

aversion was publicity, and photographers were the poison in his cup of happiness. Knowing this they covered him like a circus tent, some at the door of his suite, some behind ventilators, some in the passages, and others on deck abaft the bridge and behind lifeboats. It was Mr. Big's custom between Quarantine and the dock to engage in a snappy constitutional on the promenade deck during which he took deep sniffs of vitalizing ozone.

A deck photographer shot him bow on, whereupon Old Croesus abandoned his road work and chased the lad, brandishing a gold-inlaid, ebony war club. At this critical point another renegade cameraman shot him in the act with mouth wide open and his mustache bristling like quills upon the fretful porcupine. As Josh Billings would have it this was 2-mutch, so he started in pursuit of the second Sioux only to be shot in the back by the brave who started all the trouble.

He was an elderly and apoplectic gentleman, big of paunch and with a wheezy respiration. Two adolescents of the press outwitted and outran him. They knew the range of his power and feared his fury. So they slithered into the ship's hold and fraternized with the freight until midnight. Then, entrusting their cameras to a horny-handed stoker, they tucked their 4 x 6 plate holders under their shirts and over their honest but palpitating hearts and nonchalantly sauntered ashore, mingling with the departing guests of a late ship's party. When an inquisitive pier guard stopped them they fled into the black and silent waterfront night, leaped into a taxicab and escaped.

Huddled over their pirated plates incubating under the warm glow of the ruby light in the darkroom they felt like boy scouts with a daily good deed to their credit. But two of the negatives died in the soup. The good shot was swabbed, dried and cradled like the first born of a royal marriage. The next morn-

ing it was so much pulverized glass sprinkled like sand on a barroom floor. Some clown of an early-bird photographer had accidentally knocked it down and stepped on it.

If any White Hope in the preliminary light-weight division of press photography thinks that all is merriment on the marine assignment let him ponder arising before dawn year in and year out, trips to sea in blizzards, scampering about acres of deck space, manipulating a camera with frozen digits and the heartache in incidents such as the broken plate, when hard and heady work goes to pot.

Chapter VII

SPORTS

The term "sports" embraces so many in and outdoor activities and involves so many human, animal and mechanical factors that no one rule of procedure can be established for the cameraman assigned to cover them. Reporting sports pictorially has in some respects become a matter of photographic specialization that occasionally calls for apparatus not usually included in the standard equipment of news cameramen. These exceptions are noted a little farther on.

In no other field of news photography is there a need for the same constant and instantaneous reaction to action that is demanded of the cameraman assigned to sports. It is his job to stop action in flight, to arrest motion that occurs with the speed of light. From the start to the finish of any contest he must concentrate on its progress, as the deciding moment may be any moment. The knockout in a prizefight, the pin fall in wrestling, the goal in polo, the deciding run in baseball or the nose finish of a horse race are all unpredictable as to the moment of occurrence. To miss them is to muff the high spot of the assignment.

Baseball, the national sport, because of its appeal to the millions, rates more coverage than any other. Season passes are issued by the various leagues to the press photographers who usually arrive somewhat in advance of the scheduled opening of a game to shoot pictures of the practice, familiarize themselves with the line-up, scan the attendance for celebrities and

whatever else is relevant. Here the photographer's difficulty is not so much a choice of subjects as his ability to cover them in the limited time at his disposal.

When the game is called he takes up his position in the "coop" reserved for press cameramen. If covering the game for an afternoon paper he will hurry his exposures, properly captioned, to the office early in the game in order to catch an early sports edition. If he represents a morning paper he may remain until the end of the game and still be ahead of the deadline for the first press run. The men assigned to ball games know the game thoroughly and consequently know how to interpret it in terms of news pictures. All the generalities characteristic of the attendance, such as the crowd itself, demonstrations, disorders and the like also engage their attention if they think them worth photographing.

Covering a game is not particularly difficult as the press and syndicate photographers are well equipped for the purpose. For close-up work the speed Graphic is used, and for the action shots a specially designed and fitted Graflex known as either the Long Tom or Big Bertha. When covering major league games the cameramen operate from the coop, taking action shots. Although provided with passes they occasionally buy a seat located near first or third base for better shots of action at these strategic positions. When two men are assigned to cover a game as in the World's Series, one of them manipulates the Graphic and the other the Long Tom.

The less important big and bush league games are easily covered with the speed Graphic alone. Its focal plane shutter provides all the speed required. If a long-focus lens is brought into play the camera should be provided with a special front board to permit interchange of lenses. When this is done a scale for each lens should be fastened to the front bed. With

a seven- or eight-inch lens the cameraman may shoot pictures from the side lines near first and third bases with perfect confidence. The home plate may also be covered with good assurance. The Graflex with a medium-focus lens will also cover every angle of any game.

Automobile, horse, motorcycle and motorboat racing as well as aerial speed contests and stunting exhibitions tax the cameraman's abilities as no other coverage does. To follow them calls for the highest degree of all that is expert in alertness and technique. The pictures of meteoric racing cars and cycles colliding, blowing up, hurtling through the air, over fences and into spectators at such tournaments are no chance shots, but a reflection of the keen watchfulness of the sports photographer. He knows that they are seldom run without some such mishaps and consequently keeps an unfailing eye on them.

His routine is substantially the same on all these assignments. The contenders, their cars and mechanics are covered first. The start and finish of the race are next. The ovations following victory are never without interest as camera subjects. Naturally the cameraman will include among the items photographed the racing officials, the crowds and all related people and incidents. What to cover in these respects easily recommends itself to the experienced man.

These events are best covered with the speed Graphic and the Graflex. The important factors are the speed and focal length of the lens. Much, too, depends on how close the cameraman is permitted to operate. At horse races held on the big association tracks photographers are allowed to work from only certain designated positions. However, they may operate from the rail, using the speed Graphic, for start and finish shots and be assured of excellent results. If the Graphic is fitted with a lens of medium focal length a fairly good size image on

the negative is obtained. Because of its construction the Graflex is easily fitted with a long-focus lens. So equipped, the photographer obtains still larger images. In this respect the Graflex has a decided edge on the smaller cameras for work from the grandstand.

If the cameraman is required to work from any considerable elevation it is recommended that he use the Graflex with the longer lens because of its greater range. However, it is not the ideal camera when emergency action is required. When something unexpected occurs crowds form quickly and the photographer with a Graflex is at a disadvantage because the box is cumbersome and cannot be operated above waist-high level. The Graphic being a light, easily manipulated guess-focus box is the better camera in such situations. Practically the same procedure detailed here is employed for most of the mechanized races. Lone cameramen rarely carry two cameras. A single box and interchangeable lenses are the standard equipment. They provide for effective work at all medium ranges.

Fighting and wrestling are sports of such widespread interest that they are relatively interesting to the press. Once generally outlawed they are now just as generally legalized. Even the ladies attend them—that genteel are they in comparison with what they were in the good old rough-and-tumble days when the photographer had to strong-arm his way to the ringside. As a further indication of their refinement special provision is usually made for the press photographers. The promoters of today are business men who know the value of publicity. Fights are covered by from one to many cameramen. A New York City newspaper assigned thirty photographers to cover the Louis-Schmelling heavyweight championship bout. The coverage with motion picture and still cameras was plotted like a military maneuver. Nothing was missed.

Ordinarily two to four men are considered enough for the purpose, the number depending on the expected attendance, importance of the bout and the size of the photographic staff. Small-time fights are covered from the press row by a single photographer operating either a flash-equipped speed Graphic or the Magic Eye. The rapidity of ring action demands unremitting watchfulness, with the camera in constant readiness to record the unexpected. When a blow is starting or landing less speed is required to stop action than is necessary to film its progress. A stumble, the fighter getting to his feet and a knockout are slow motion in comparison with an exchange of blows, and are consequently shot at less speed. The cameraman assigned to cover the ringside is safe in working with the speed Graphic or a miniature. Here, too, the all-important factor is speed of lens. Before the advent of the miniature night fights were covered from the ringside with a Graphic fitted with a short-focus f. 4.5 lens. This was superseded by the f. 3.5. Present-day practice employs lenses with a speed of f. 1.5 and extremely rapid panchromatic emulsions. With the powerful lights and this combination of fast lens and film, exposures at 1/100th of a second are routine work. Much depends on the alertness of the operator.

When the slower lenses and emulsions were used action could be stopped at certain moments with an exposure at 1/35th of a second—slow and unsafe work in comparison with contemporary practice. With the modern combination of rapid lens and film under a powerful light battery, stop action shots have been made at 1/300th of a second. However, a fast film and lens do not necessarily guarantee perfect results if the operator is inexpert or careless in employing them. Regardless of the outfit, good results depend altogether on good judgment.

Focusing is another matter to which careful thought must be

given. Although the miniature camera provides a high speed of lens it is not adapted for quick focusing. The faster the lens the more accurate must be the point of focus. The photographer operating a properly scaled Graphic fitted with either an f. 3.5 or 2.9 lens enjoys an advantage. Knowing the size of the ring and with his focus set at, say, twelve feet he is able to cover the center of the ring or any twelve-foot distance along the ropes without changing focus. If the action is too close it is lost, a contingency that cannot be provided against. Should it occur at the other side of the ring he instantaneously readjusts his focus to bring it within range. The experienced cameraman keeps his eye on the action and not on a focusing device. For this work the guess-focus type of camera is far superior.

At championship matches camera stands are erected for the special accommodation of the press photographers. At the ringside only a few cameramen can be accommodated because most of the seats are occupied by sports writers. Consequently the majority of photographers work from this platform which is sufficiently elevated to clear all interference. Most of them operate with a Graflex fitted with a long-focus lens. For best results nothing shorter than a 17-in. lens is used. The slowest lens used on these assignments is the f. 5.6, and the fastest on the Long Toms an f. 3.5.

The most effective series of fight pictures is made with the Magic Eye. This camera records every action, even to the rippling of the gladiators' muscles. In all respects it is a small, high-speed hand-operated motion picture camera using 35 mm. film and equipped with an f. 1.5 lens. With it an action strip of any episode of the combat is recorded in continuity form. From these strips the more telling shots are selected and enlarged for reproduction. Its advantages over the one-shot still cameras are perfectly plain.

Wrestling assignments are a lot less trouble to the cameraman than the boxing bouts. In speed they are comparatively slow; consequently the photographer is not particularly concerned about the speed of his shutter or the time element in focusing. If he operates a speed Graphic with an f. 3.5 lens he is practically assured of good results. It is a simple matter to readjust the focus when the action moves out of range, as the assassins are usually wrapped around one another and in a state of relative rest. In such circumstances the required focal change is easily made.

If the match is covered with a miniature the operator should use a sun-shade over the lens to provide against the haze caused by the lights. As the seats are below ring level all shots are necessarily upward and directly into the light. The standard oblique shot can, however, be dispensed with by standing up and shooting from an eye-level. This is a straight and perfectly safe horizontal shot.

The miniature is really the better camera for wrestling as the action gives the operator enough time to sharpen his focus. The roll of film calls for thirty exposures. Some of its advantages are offset, however, if the developing and printing must be rushed, as these processes require more time where the miniature is concerned than with films made by the Graphic and Graflex. Speed of lens is of vital importance. With an f. 3.5 lens exposures at the average match may be made as slow as 1/20th of a second. Employing an f. 1.5 lens sometimes results in overexposure. This and underexposure are responsible for grain in the negative, a technical fault that no developer can fully correct.

Polo and hockey have something in common as both are noted for high and erratic speed, and plays in scattered or massed formation. They are played out as well as indoors. Hockey

has been professionalized and has the greater following. Polo is, and probably always will be, an uncommercialized sport in society brackets. One requires as much vigilance as the other. It is the cameraman's custom when covering polo to single out and photograph the players with ten and nine-goal ratings as they are, without exception, international celebrities. Group pictures of the teams are also taken. The attendance is almost one hundred per cent "upper-class" and good for as many pictures of the socially distinguished as the photographer cares to take. The fashions of the women are always of interest to other women. The foreign teams offer much in the way of color, particularly the visitors from India whose visits are sometimes subsidized by a glamorous maharaja, accompanied by his picturesque native entourage. These are always good camera studies.

Polo is generally covered with either the Graflex or the speed Graphic. If the photographer is assigned to produce action shots only, his coverage is best done with the Graflex fitted with a fairly long-focus lens. With this equipment he works from the stand, the higher the better. If centrally located, better still. He should be in the clear and free from interference. The distance from the stand to the play is considerable, and unless the riders bring the action close-up the cameraman must content himself with long-range shots. The Graflex being essentially a distance camera the operator is always governed by considerations of distance. It is, however, occasionally used for short-range work as in cup presentations and group shots of the players and ponies. These are usually posed pictures. The general-utility speed Graphic, using a 6-in. f. 3.5 lens, is better for all-round polo coverage than the specialized Graflex. It is perfect for close range action shots and is more easily manipulated and broader in scope.

At practically all but the international championship matches the cameraman is permitted to wander up and down the boards. Successful coverage is altogether a matter of luck. The photographer may remain in one spot and get enough action shots for a splendid layout. He may pick one end of the field only to find that all the action takes place at the other end. Irrespective of where it occurs he must always keep his eye on the ball. This is his focal point. At some matches the cameraman is permitted to operate from behind the goal posts. Here the safe distance is about twenty-five feet. The ponies sometimes overrun the fields at the ends and bear down on the photographer in this position. They will avoid him if he stands still as they are well trained.

The most difficult part of a polo assignment is proper focusing. When equipped with a guess-focus box the cameraman cannot wait for the play to meet his focal adjustment. The action in one exposure may occur at twenty feet and in the next instant shoot up to thirty or fifty feet. Stopping action in these games depends largely on the light. If this is strong it is easy to shoot at the high speed of 1/1000th of a second. Waning light calls for compromises. Shooting at less than 1/350th of a second results in movement in the negative. Diminishing light, does not however, slow down the game. Nevertheless, there are moments when the action slows appreciably. During such brief intervals the players and ponies are comparatively at rest and offer a good target for a sharp negative despite the failing light.

Covering hockey demands practically the same technical routine followed on the polo field. The cyclonic speed of the game and the utter lack of predictable direction of the players keep the cameramen guessing from beginning to end. Collisions, intentional and accidental, are many, and fights frequent.

Scrambles at the goals to prevent scoring result in huddles and arrested action. This is always a good time for a group shot at a telling point in the game. Here, if the cameraman is near enough, he can get a better picture with his speed-flash synchronizer than otherwise.

Night coverage of either polo or hockey calls for a broader watchfulness than a fight does as the action takes place all over large arenas. Unlike a fight that is held in a small ring between but two contestants and under a powerful concentration of light, the illumination in these arenas is just so-so. Frequently it is barely enough for a good picture at close range, even when using a fast lens and film. Here the speed flash-lamp is indispensable; and even this is ineffective if the range is too long. Accordingly the cameraman waits until the play is within effective range for a good clear shot.

Football and tennis are fast games, too, but the speed is essentially that of humans. Both sports have, to some extent, fallen into the commercial category, thus lifting them out of the collegiate and opening them up to the great hoi polloi. Both are played day and night, and both get generous attention from the sports sections of the daily press. Football is best covered from the side lines, the photographer moving up and down the field with the game to get the required action pictures. Neither snow, nor rain nor gloom of night stops a football game; all of which multiplies the cameraman's difficulties and calls for numerous adjustments to meet the ever-changing light that prevails during the Fall of the year.

Tennis is followed from some predetermined point commanding a full sweep of the courts. Once suitably situated the cameraman seldom finds it necessary to shift his position. Having adjusted his camera he can cover the action with ease as the play takes place within a comparatively small area. It is fast

and needs careful watching. But here as in fights attention is focused on either two players in singles or four in doubles and there are no scrimmages as in football, hockey and polo. His equipment and methods of operating are the same as for other sports, depending, of course, on whether the matches take place during the day or night.

The aquatic and ice sports such as diving, swimming, water polo, sculling, yachting, ice boating, skating, skiing and tobogganing call for attention to strongly reflected light from water, ice and snow. Here the speed of lens and film must be carefully considered and due thought given to timing as this is always decidedly less than normal, depending on the intensity of the light.

Diving and skating exhibitions are the more picturesque and rate higher as picture subjects, particularly if the performers are girls. Dives should be photographed from below the spring-boards or obliquely from moderate elevations the better to catch the diver in descent with the body fully extended. This and the pose before the take-off are always decidedly graceful shots. More speed is required for the dive than for the other water sports.

Yacht races are necessarily long range work because no boats other than the challenger and the defender are permitted within the triangular course whose limits are indicated by buoys. Press photographers operate from the press yacht. They are consequently as close to the contest as it is possible to get. The naturals for picture purposes are the contenders, their skippers, the owners, designers, crews, judges, start, finish, capsizes, collisions and the gallery following the event in all manner of craft. The race itself is mostly covered by cameras operated from planes.

The photographer must always be prepared to adapt himself

to conditions irrespective of the type of sports assignment he receives. If the coverage involves long distances as in football, races, fights and polo he is best off with a long-focus lens. The average assignment, however, is effectively covered with the speed Graphic. It is always prudent practice to be prepared for any emergency. His equipment should include the speed-flash synchronizer and two lenses. By means of adapter rings these lenses are easily interchangeable on the same front board. Accurately aligned scales for each are important.

A handy and ingenious accessory is the auto-focuser. Operating a Graphic equipped with this device the cameraman is able to make needle-sharp posed pictures at close range. It is splendid for any sport where a real close-up of a contestant is wanted. Should the photographer desire a feature showing the technique of the screw ball he can get a perfectly sharp negative of the pitcher's hand at a distance of three feet. Without this device he is required to guess the range, or use a tripod.

It will greatly facilitate the work of the photographer assigned to sports for the first time if he will study the sports he covers. There are many simple and instructive manuals covering them. By studying these the cameraman learns much about what is expected from him. He should learn to keep out of the line of action and never to interfere with the players and judges. He should determine in advance what and where to shoot from. By consulting programs he learns much that is helpful. When in doubt he will play safe by consulting the officials.

That practically all sports provide the amateur with a thousand and one opportunities to test his ability with any and every conceivable type of camera must be apparent. There are not too many restrictions to be observed, and the conditions to be contended with cover the whole roster of photographic troubles

to be overcome. It is strongly recommended that amateurs attend these events as often as possible and compare their later work with their earlier efforts to determine the degree of improvment in their ability. Such comparisons are always of interest as they indicate what mistakes may have been made and how they were subsequently corrected.

Chapter VIII

SOCIETY

The reputed inaccessibility of people "in society" is no myth, as any newspaper photographer can testify. The sense of class superiority has little to do with this. The trouble lies in locating them as they flit from town house to country seat, from north to south and from country to country. And even when located the business of photographing them is further complicated by their household staffs. Acting under instructions the servants are stiffly set against any invasion of madame's or the master's privacy, and consequently stand off the cameraman's approach to these stately personalities with an icily polite routine that no persuasion can break down for the purpose of bringing the isolationists out into the open for a camera shot.

There must be no confusion between the work of the society reporter and the photographer assigned to society, as the former has the entree and the latter not even a syllable of the open sesame required to get into the citadel above the cellar. To get through, under or over these carefully guarded portals some newspapers employ cameramen with something of a social background. This device usually succeeds in beating the opposition and has resulted in good pictorial coverage of social events that would otherwise have passed uncovered. When the bars are up, the position unassailable and no pedigreed photographer available, strategy not unlike that employed on any other tough assignment is resorted to by the news cameraman. This is warranted when it is considered that if the newspapers

accepted and printed only what was handed to them on a tray by the butler the reading public would be served much prefabricated and practically no spot news.

What has been said applies only to those who seek sanctuary in their homes. In public they are as wide open to the photographer as anybody else. In such circumstances the man who knows them has a relatively easy time of it as he is not required to guess or ask others to identify them. Even when in doubt he photographs the doubtful subject, hoping that the office will provide the identification.

Action, not posed, shots are the rule in outdoor work. If made during the day these offer no difficulty. At night the subjects are not so easily recognized and close-up work with a speed-flash is necessary. This requires tact. Such shots are not always made for the purpose of photographing the individual. Sometimes it is the companion (perhaps a celebrity, but a plebeian, nevertheless) of the socially prominent person who is wanted. Or it may be an evening wrap, not the subject, that the photographer thinks of greater news interest. There is so much that is both novel and bizarre in society that the cameraman assigned to the thoroughfares and resorts frequented by the fashionables must practice nice discrimination in his choice of camera material.

Great weddings, charity bazaars, garden parties and similar events come within the open-to-the-press category. They are invitation affairs and ample provision is made to facilitate the work of the photographer. He enjoys the status of a guest and is free to shoot at random. The men receiving such assignments are generally selected because in appearance, intelligence and behavior they fit into the scene, and consequently know how to handle themselves and the vintages and perfectos set before them.

The most recent such event was the Du Pont-Roosevelt wedding at Wilmington, Del., to which more than a thousand of the kith and kin of both dynasties were invited. The occasion was alive with vibrant news because of the fabulous wealth of the bride and the social-political consanguinity of the bridegroom. To attempt to throw the mantle of privacy over any such ceremony would be to deny its international social, financial, political and industrial significance—the very factors that invested it with that common news interest which afflicts all readers beyond the pale and which it is the newspapers business to gratify. It was thrown open to the press and splendidly and accurately covered in text and pictures without recourse to the piracy of both that would have resulted had the wedding been "private."

Society news, like sports, finance, the theatre, fashions and such is served up by the metropolitan dailies in a separate section devoted to it exclusively. Because society news touches people of wealth and consequence it is handled with exceptional care to avoid inaccuracies in published paragraphs and pictures. Much of it, such as the items about personal movements, engagements, births and debuts is submitted to the papers by the individual or a secretary. If these particulars are thought of more than passing importance more information is required to build them into a story, for which purpose a reporter and perhaps a cameraman are assigned to get additional facts and pictures.

Almost every city of any size still observes Easter Sunday as inauguration day for the new Spring fashions in apparel. Even the men step out in frock coats and top hats. How many of them do this in deference to their ladies ye scribe knoweth not. But the day is dear to the hearts of the debs as well as the dowagers, to the maids as well as their mistresses, and the

cameraman assigned to "the avenue" is at his wits-end differentiating between them. It is the modes that matter, not the mannequins. Nevertheless he is after society and prefers shooting the ladies of quality as he is then reasonably sure of recording something exclusive in both gown and subject.

The original "400" of American society are now, by natural extension, something like 4000, all duly catalogued in that tight little work on peerage, the *Social Register*. But what of that numerous aristocracy that cares not a hoot for this authority and considers its lineage no less noble? Almost every community in the land has its lords, ladies and untouchables despite the shibboleth of democracy. And each such community is no whit less interested in its tank-town Brahmins than are the metropolitans in their fashionables. The small city paper must report the doings of its local aristocracy because the lust for news of it is as keen in Kitsap as it is in New York or Boston.

Almost any camera except the bulky Graflex may be used for society work, most of which is done at close range. Operating a Graflex requires that the focusing be done through the hood. By the time this can be done on a crowded thoroughfare the subject might be obscured by others passing between the camera and the subject. It is further objected to because while concentrating on the ground glass the photographer is oblivious of what goes on around him. A much more satisfactory camera for this coverage is the speed Graphic in either the 4 x 5 or smaller size. As it is an easily manipulated guess-focus box the operator is in a postion to sight it without interference. His shots are usually made at ten feet, and real close-ups at six feet.

When society and fashions are coupled the close-up is resorted to because detail is wanted. Whether at a race track, a polo match, on the avenue or other places where society is encountered the cameraman's difficulty is the intrusion of others. In

such situations the man who knows the socialites has an advantage over others less well informed as he is able to shoot at sight, thus reducing the interference to a minimum. The less experienced men are often puzzled in distinguishing Who's Who from the social climbers, as in dress and deportment they are very much alike. Foreign automobiles and other de luxe trappings are no safe indication of social position as the noveau rich are more likely to possess and parade them than the blue-bloods.

In almost all large cities there are certain logical positions from which a cameramen assigned to cover the social implications of the Easter Parade previously referred to may operate. In New York City, as an illustration, there are the churches of St. Thomas and St. Bartholomew and St. Patrick's Cathedral. A practical point of vantage at any of these places of worship is the special entrance reserved for pew holders. Stationed at one of these doors the photographer eliminates the multitude of church-goers and may shoot the elite as they enter. Should he arrive late he can photograph them as they leave.

The well-born people of society, like everyone else, are usually more approachable and democratic at Easter than usual and cooperate with the press cameramen assigned to take their pictures. The amateur who does not know them is wise if he follows in their wake and shoots what they shoot. This spirit of cooperation extends even to rival newspapermen who usually work in concert and exchange prints when any of them miss out on a celebrity. Some photographers, however, assume the role of lone wolf and do their hunting independently. As a rule such men are on specific assignments to cover only certain people. As they know their subjects they move and work fast, not even stopping to get names.

After church services the cameramen separate and move along

Fifth and Park Avenues, sometimes alone, sometimes in pairs. It happens now and then that they encounter people whom some sixth sense tells them "belong" but whom they do not recognize. In such cases they photograph the doubtful ones and then request their names. There are always individuals who never smile and some who do not want their pictures taken, the latter usually refusing to identify themselves. This reluctance is usually overcome by stating that the paper the photographer represents is preparing a special Easter layout of the socially prominent and that it would be incomplete without them. It is a half truth that flatters and generally works.

On one such Easter assignment a pair of strolling photographers on the alert for the unusual spotted John D. Rockefeller, and his young sons sauntering directly toward them. It was a perfect set-up and the cameramen lost no time shooting it. Mr. Rockefeller approached them and asked whether they had taken photographs of his little group. When told that they had he said: "I am going to ask you boys to do me a favor." "Surely," said the cameramen. "You see," said Mr. Rockefeller, "these boys of mine have never had their pictures in the newspapers and I would like to keep them out as a matter of simple protection. If published the boys will become game for the many cranks that are always annoying the family. As a father may I ask that you suppress the pictures."

The photographers, though mindful of the importance of their shots, appreciated this simple statement of a father's solicitude for his sons, and after a hurried conference agreed not to use the pictures. It was their good deed for Easter Sunday. In return for this Mr. Rockefeller promised that thereafter he would pose for them any time for as many shots as they cared to take. He has religiously held to that promise, easing the opposition of many other prominent men to being photographed.

The spreading vogue of the miniature camera has somewhat simplified society work, as this type of photography is less conspicuous than that in which the larger cameras are needed. Much of it can be done surreptitiously. Moreover so many people in all walks of life have become candid addicts that the man or woman whom the news cameraman is photographing is as likely as not to be carrying a miniature, thus becoming one of the clan, and quite in sympathy with the professional.

Not so many years ago the newspaper photographers were decidedly tabu at Newport and Southampton. Today, while not exactly received with open arms, they are tolerated and permitted to work without the interference of guards. Bailey's Beach at Newport, the private Atlantic swimming hole of society, is still among the holy of holies to which cameramen are not admitted. However by posting themselves at its entrance they get all the pictures they care to take. Many of the fashionables good naturedly pose for them.

At any of the less important and less exclusive resorts the work of the newspapermen is comparatively simple as they are wide open to the press. The larger of the second-string resorts generally employ publicity directors and have their own photographic departments to feed the press with pictures of socially prominent people. Sometimes such pictures are used in either the society or resort pages of the papers.

The National Horse Show at Madison Square Garden is the society photographer's most welcome assignment as he is cordially received and every convenience provided to facilitate his work. There can be no doubt about identities as the names and box numbers of all subscribers appear in the special program issued for the event. While the cameraman usually operates with the flash-equipped speed Graphic the Garden lighting is intense enough for miniature photography without the flash.

Speed flashes are permitted for everything but the jumps as the flashes blind the riders and stagger the horses.

There are no restrictions, the cameraman being permitted to shoot where and whom he pleases. He wanders about exposing continually. People in the boxes, at the rails and in the arena are all safe shots from a social point of view as practically all of them "belong." Children contestants in their riding togs, the foreign competitors, usually cavalry officers, the judges, the mounts, even the great unsocial gallery of horse lovers, are all perfect shots for the footloose cameraman. Photographers usually do their initial work as the guests alight from their cars in evening gowns and "tails," or as they proceed through the lobby to their seats. At outdoor shows the same easy-going spirit and welcome prevail.

The Opera is another society-subsidized and patronized function to which the press gives much attention. Here the cameraman's early procedure is the same as at the Horse Show. Arrivals in evening clothes are shot first. The premiere is a brilliant social event attracting everybody who is anybody in society, the arts and finance. An always interesting picture is the long queue of gallery gods stretching for blocks outside the opera house. Speed flashes are the rule.

In recent years press photographers have been permitted to operate in the theatre. Flashes are not allowed in the auditorium but may be made in the foyer and at the bar. Occasional pictures of the opera stars in costume are sometimes also permitted. The pose for these, however, is attended to by the publicity director or his aides. No photography is permitted back-stage without a special dispensation. Interior shots are allowed from places where the cameraman does not interrupt the performance or disturb the audience. All such pictures are made with either the Graphic fitted with an extra fast lens or a miniature.

Chapter IX

FEATURES

There is some little confusion in the public mind as to the precise definition of a picture feature. In its simplest form it is a photographic composition of almost anything that is not spot news. Features are nothing new in conception or execution. Professionals and amateurs alike produce them. They fall into various groups which include short pictorial narratives of people, localities and occurrences; those which have neither form nor continuity; strictly local features, and those of national or international interest. Almost anyone, any place or anything can be developed as a feature if the cameraman is ingenious and imaginative enough to approach the subject from an original angle.

Judgment is required to create good features. Taking pot-shots at this, that and the other thing in the belief that something original or unusual will result is anything but thoughtful and systematic procedure. Some program must be followed and a potential market for the sale of the pictures considered. A miscellaneous group of photographs, with or without continuity, is not necessarily a feature. Sequence, or the want of it, has no bearing on the acceptability of such pictures as a feature. It is the thought that inspired them, the nature of the subject and the manner in which it is presented. A highly colorful feature that appeared in the gravure section of a Sunday paper, and the method of producing it is presented to illustrate a really worthwhile feature.

The Museum of Natural History in New York City decided to reproduce marine life in spun glass, for which purpose it enlisted the services of a celebrated glass blower. His duplications were marvellously beautiful and realistic. Directed by the museum's ichthyologist his glass reproduction of fish and marine vegetation were microscopically perfect replicas of the originals.

The Sunday gravure editor of a paper was of the opinion that the subject could and should be treated from an artistic point of view. He accordingly assigned a cameraman with a reputation for artistic work. The resulting pictures of the glass blower at work and various examples of his art made a splendid feature when properly grouped and reproduced in the roto pages.

A feature that was both informative and picturesque consisted of a series of photographs depicting the activities of the harbor police of a coast city. The fact that the city operated a seagoing fleet of police boats equipped with machine guns and crews that were both cops and tars was a matter of considerable interest to many citizens who never heard of the harbor police. Progressively this feature was handled by first getting official permission to take the pictures, then conferring with the commodore of the fleet, later boarding one of the boats while covering its marine beat and photographing the crew, the boat and its equipment. The resulting feature was perfect in continuity and photography.

The layout as it appeared in the Sunday supplement consisted of a dozen selected shots although three times that number were taken on the coverage. Points of police interest along the shore, such as suspected dens of waterfront thieves, small boats that had been stolen, and recovered by the marine patrol, cap-

tured smuggling craft and the various stations of the harbor police were included.

An indifferent or slow-thinking photographer can kill a perfectly good feature by covering only the high points of it and deliberately overlooking or not recognizing some colorful undercover details that may be of much greater importance than the obvious overtones. The truly analytical cameraman looks for the underlying interest, knowing very well that the obvious will hit him in the eye.

Private enterprise offers a wealth of material for excellent features. Scientific cow milking recently provided a splendid series of pictures of a highly interesting nature. It all centered in the Rotolactor, a mechanical milker used in the New Jersey Walker-Gordon Laboratories. This is an electrically-operated vacuum device of rather complicated design. The cows to be milked take their places in individual stalls on a turntable after being sprayed with body temperature water and dried with sterilized towels. The milking apparatus is then attached to the udders and milk delivered to sealed Pyrex glass containers, one to a cow. It is unsurpassed for quality and purity. Several other aspects of this remarkable dairy have been the subjects of other excellent pictorial features; proving that a one-time coverage does not always exhaust the possibilities.

The market for features is always in need of good, new material. Where and how to get it are tests of the cameraman's resourcefulness. The daily papers, class journals and magazines of general circulation are good sources of information. Any feature hunter will profit by reading them. The heavy industries such as steel, iron and mining have been done from numberless angles and should not be attempted unless the photographer's conception of treatment is entirely new. Conditions, local and otherwise, offer many possibilities if carefully studied.

Graft investigations as reported by the daily press have sent cameramen off on little explorations that yielded some startling information. One such investigation of civic corruption disclosed an extensive illegal use of public property. In photographing some of it the news photographer stumbled upon a ramshackle structure that had been the house of a national celebrity. Instead of reporting the find as spot news he made a picture feature of its exterior and interior. It went over big.

A junkyard proved a treasure trove to another cameraman with a wide-angle eye. He saw a man towing an automobile that looked like the wreck of the Hesperus, and wondered why. He scraped up an acquaintance with the chauffeur of the towing car and took a ride with him. The trip ended on the outskirts of the city in a junkyard that was a veritable jungle of dilapidated and dismantled automobiles. "How come?" asked the inquisitive cameraman. "I buy 'em and knock 'em down," replied the junkman. "What for? What I get out of 'em. And that's plenty. I pay whatever they're worth as scrap. Sometimes a few dollars; sometimes a good deal more. I get some for nothing, and even get paid to take 'em away. Funny thing about this business is the people who sneak up in the dark with one of them cans and leave it in the yard, then sneak away. That's plain velvet. I'm the biggest buyer of cars in the country. There they are, count 'em, thousands of 'em."

Further conversation developed the interesting fact that he salvaged the rubber and shipped it to China and other countries where they made rubber soles for shoes and sometimes shipped them back to this country. The steel and iron were sold to Japan, and other foreign nations to be fabricated into armament and other articles for more peaceful pursuits. This was a hot find for the photographer who developed it into a picture campaign including everything from the purchase to loading

the scrap into the holds of vessels for shipment abroad. It was an answer to the question "What becomes of all the old cars?"

The author, tired of looking at the knotty, clowning behemoths in a wrestling ring, decided to take the sport apart for a look at the springs. He selected as his subjects two young wrestlers with splendid physiques and a reputation for knowing what it was all about. The resulting feature, entitled "Pain Preferred" was sold to a major syndicate and widely distributed in full roto pages.

All shots were posed, with the actual holds highlighted and the rest of the picture subdued. Of the ninety holds in wrestling only the bonebreakers that pained the most were photographed. The captions explained the holds, and what they did to the other fellow. They were just as important as the pictures. The spotlighting of the holds was the novelty in this feature and proved that even an overdone bromide will respond to original treatment.

Animals and flowers, if half-way intelligently handled, are good feature material at all times. Here, as in all feature photography, the cameraman must invest the subject with novelty. A variety of animals listening to a strange noise, and their features and reactions while doing so should make a zoological record well worth running as a feature.

Any keeper in a menagerie will confirm the statement that all but the lowest order of animals are rugged individualists. Some, like the lion and the monkey, are distinct personalities with preferences and prejudices that often assert themselves in extraordinary ways. When caught in a mood they offer strange studies in expression.

That all expression is not facial was demonstrated by a feature covering the inmates of a prison. In this series only the impassive faces of the guards appeared. The originality rested

in portraying the shuffling feet of the convicts, with just enough of the prison bars to impart the required dramatization. They registered despair, defiance, defeat, sloth and weariness according to a criminologist who presumed to interpret them. Other pictures in the same series showed the men in the dining hall. Only their backs, with an occasional indistinguishable profile, were photographed.

The photographer with a feature up his sleeve should remember that numberless dailies as well as the Saturday afternoon and Sunday papers run them. Because of space limitations the dailies hold their features down to a few pictures with appropriate captions. But they are features nevertheless and the demand for them should be considered when scanning the market for the sale of such pictures. They can be made with any camera and without too much devotion to impressionistic effect. Newspaper photographers as a rule shoot such pictures with the speed Graphic and a flash synchronizer.

The features appearing in the dailies, while not in conformity with high artistic standards, must be virile in action and detail. However, when a cameraman has the time and no restrictions exist to cramp his style he should operate with an appropriate camera, lighting apparatus and the like as all of these details have a direct bearing on the appeal, suitability and salability of pictures intended as gravure or color features.

It is always well to portray the happy and amusing rather than the depressing aspects of life for feature purposes. Pictures of girls should incorporate plenty of zip. Appropriate composition is everything. Perseverance, ability, judgment and planning all enter into the production of a good feature. It should be well researched before undertaken and then executed with great care.

Chapter X

PICTURE MARKET

Anyone operating a camera for the mere fun of it is overlooking an opportunity if he or she does not get some occasional revenue out of the sport. If the pictures are good then enough of them can be sold to help pay something on the cost of the amateur's equipment or at least defray some of the cost of the materials needed in taking and making photographs. The market for them includes all publications that use pictures. It is therefore a prodigious market, and approximately eighty percent of it depends quite exclusively on amateur, free-lance or other non-professional and semi-professional sources for the photographs it reproduces.

Unquestionably the best, biggest and most profitable outlet for such pictures is the press of the country. Thousands of dollars are paid to outsiders annually by the newspapers for photographs. In many instances the prices paid for exclusive pictures that come within the definition of a scoop are much in excess of what the person taking them ever expected to receive for photographs. To overlook this potential source of income is plain folly.

No more than passing thought is given here to those countless weekly, semi-monthly, monthly, quarterly, semi-annual, annual, and now-and-then publications that cover every conceivable subject from accidents to zoology. Their number is legion, and every one of them is always in the market for pictures with a direct bearing on its specialty. But no such periodical is even

remotely interested in material foreign to its field. In the aggregate they cover subjects that any amateur may take anytime, anywhere. Selling such photographs is simply a matter of knowing where to submit them.

In addition to these there are the strictly commercial outlets. These are the advertising agencies, manufacturers and others who are constantly in the field for unusual photographs with which to illustrate their commodities in display space, pamphlets, broadsides, house organs and other trade literature. Trade and civic organizations, engineering societies, industrial associations are just a few more of the thousands of consumers of the photographs that amateurs take. The recent influx and phenomenal popularity of all-picture weeklies such as *Life* and *Look* may well be considered as a further outlet, although they are highly critical as to the technique and subject matter of the photographs they accept for publication.

The newspapers, because of the very universality of news, limit the amateur to nothing in particular. They are just as likely to buy a picture of a spavined horse as one of the Aurora Borealis. If either is news and no staff photographer has covered it the amateur submitting such pictures is reasonably sure of a sale at a satisfactory price. Certain definitions of the sort of photographs that the newspapers use are presented with the suggestion that the amateur consider them carefully before contacting this outlet for his work:

Any picture portraying an event, individual, group or scene of current news interest is a news picture. It may be used to illustrate a news story, or appear without text other than an explanatory caption or legend.

Pictures of events, persons and things not classifiable as news are feature pictures. They are run in the special supplements of Saturday and Sunday papers.

Photographs of news (but not spot news) value are special story pictures. They serve as illustrations for special articles that appear in almost any daily, Saturday, Sunday or special edition, but not in the supplements.

Photographs of the unusual, oddities of any description, may find their way into the news columns or any other department of a paper, provided they have a specific bearing on the routine text of such departments.

It will thus be seen that almost any type of picture is used by the newspapers. Its acceptance is altogether a matter of suitability to some definite need. Yet no matter how appropriate the picture submitted may be it is absolutely without value if not properly captioned. Captions are indispensable and should briefly but explicity tell the story. They should be written or typed on a strip of paper and pasted across the back or at the bottom of a print. Never pencil the description as the pencil strokes may leave surface imprints that make the photograph useless for reproduction. Protect pictures in transit by enclosing them in a cardboard tube or between two board sheets. Mark the envelope "Photographs; do not bend." The preferred prints are 8 x 10 glossies.

The amateur who curls up simply because his first few submissions are rejected does himself an injustice. The rejections may be due to the fact that he selected the wrong medium, his photography may be at fault, his descriptive matter insufficient or incorrect. Perhaps the photo wasn't news, a feature an oddity or anything else that the paper might use. If he will remember that thousands of amateur photographs are used by the press yearly and that very few cameramen are ever successful in their first contacts with the papers he will be correspondingly less discouraged. Nor should he ever feel that he is technically unable to produce pictures good enough for publica-

tion. Photographic perfection has little to do with the editorial acceptance of prints. If they are reasonably good and meet a requirement they can always be worked up with pen and brush by the art department. However this is a detail that need not concern the person submitting them. That the amateur's work is welcomed by the newspapers has been repeatedly stated in this book, and many citations offered in support of it.

The photo syndicates that have offices in all large cities must not be overlooked in the amateur's scheme of picture distribution. They are no less anxious than the newspapers to receive and consider all photographs that the papers use. When the amateur sells his negatives to either a newspaper or an agency he quite definitely relinquishes all right to them unless he specifically reserves that right by agreement. Moreover, he must not, under any circumstances, dispose of the same pictures to any two purchasers, as both agencies and papers prefer exclusive photographs and accept them as such unless there is a stipulation to the contrary.

There are numerous strictly commercial picture agencies that either buy outright or place the photographs submitted to them on a percentage basis. They have broad contacts, know the needs of their customers and save much time by presenting their wares only to logical buyers. Very often they are called upon to submit single pictures or a series covering some particular subject or requirement.

The larger syndicates issue a regular picture service to their subscribers. Such services include spot news as well as feature photographs. Much of this material is distributed in mat form to papers with stereotyping equipment. Full-, half- and quarter-page mats are provided. As these services reach all over the country pictures submitted to them must be of national, rather than sectional, interest. As any local happening may have a

national appeal pictures of it would be acceptable to such a syndicated service.

The sales value of spot news pictures depends altogether on the story. Had a lone amateur secured exclusive photographs of the *Hindenburg* disaster he could have demanded, and received, almost any price for them. As many newspaper and syndicate photographers were present when the tragedy occurred the best any amateur could hope for was to beat the regulars on coverage—an exceedingly difficult thing to do.

A good illustration of the sales opportunities that confront the person with an exclusive picture was the recent purchase and publication of the photograph of a mother and her baby. The mother was a young woman of high social position who married a distinguished band leader. She died as a result of child birth. The picture in question showed her and the baby and was the only such photograph in existence. How or by whom it was made and under what arrangement it was obtained and reproduced are unknown matters. But the chances are that a handsome price was paid to someone if it was bought.

A word of caution concerning the sale of some pictures is in order. Before disposing of the photograph of an individual or group, when such photograph is intended for commercial reproduction, the photographer should obtain a signed release from the subject or subjects. This is not always an easy matter as most people are aware that advertising copy has a price and usually demand that they be paid when they are to be exploited. When intended for straight news publication no such release is necessary. Nevertheless care should be taken to get all names and facts associated with it correctly. Releases are also necessary with all pictures intended for any sort of propaganda, commercial or otherwise. If the release does not accompany the pictures the photographer should obtain a signed agreement

from the purchaser that he will secure it before using the prints. Law suits are thereby avoided.

The all-picture publication run pictures of every description. Unless submitted as a special assignment all pictures are sent to them on approval. It is poor policy to write to the editors detailing an idea for a picture or series and requesting an opinion of its value. If the cameraman likes the idea he should shoot it and submit the results. Such ideas frequently sound great but when pictured fall far short of expectations. Editors prefer to scan the finished product rather than venture an opinion on the feasibility or desirability of an idea. When pictures are exceptional it is well to protect them by copyright. When sold, a release of copyright is given to the purchaser, the photographer still retaining ownership of the copyright. This protects his pictures against unauthorized reproduction during the life of the copyright, and with each sale he issues a separate release.

With the telephone handy the photographer is seldom isolated. The distance between himself and a newspaper or syndicate is the distance between himself and a telephone instrument. If something worthwhile happens and he covers it he should report full details over the wire and make a spot deal for the delivery of his negatives or prints. A rewrite man will take his story and the paper will pay him for both story and photographs. All such deals should be negotiated with the city editor or some other responsible head as agreements made by unauthorized employees have, on occasions, been repudiated and payment refused.

The professional and semi-professional photographic periodicals, the most recent and successful of which is *Popular Photography* offer boundless opportunities to the amateur and free lance. As every conceivable angle of photography is treated by them for the information of photographers in general

they are naturally interested in pictures and articles of everything relating to the subject. Home-made devices, original photographic compositions, something new in technique, any and everything of interest to all photographers is the sort of material they accept, publish and pay well for.

Making money with the camera is largely a matter of being alert. This was demonstrated by the young fellow who while motoring along a highway stopped to take a few miniature shots of a minor motor collision. He left his card with the colliding motorists and went his way. Sometime later his pictures were bought by an insurance company and introduced as evidence in a suit for recovery of damages.

As a matter of record and simple protection an acknowledgment of receipt should be requested from those to whom pictures are submitted. A stamped and addressed envelope should be enclosed for this purpose. Return postage should also accompany any picture consignment to insure its return in case of rejection. When pictures are personally delivered to representatives of a paper or syndicate they should be signed for. Agreements of any nature should be simple, specific and in writing. The four major syndicates are the Associated Press, International News Photos, Acme News Pictures and Times Wide World. They have offices in all large cities throughout the country and their managers have authority to negotiate agreements for the purchase of photographs.

It should be remembered that if news pictures are sold they must be sold while hot. Speed is essential for the reason that the life of news is a quickly perishable commodity. Undeveloped film and prints should be submitted immediately by the speediest means of transportation available. Contact the nearest logical source of sale—always.

Chapter XI

ADVENTURES

Behind repeated beats on news pictures are many tales of photographers who showed a reckless disregard of life to carry their cameras into the smoke of strike, riot and revolt. Some were killed in action and many injured; but these mishaps are the occupational hazards of the craft and are no more to be anticipated than the lightning stroke, or the falling gargoyle that brains a passing pedestrian. Venturesome they must be, foolhardy they sometimes are, but it is not written into the specifications of any assignment that a man shall sacrifice either life or limb. Whatever they do that is rash must be imputed to some impulsive and impish zest for the work in hand.

Stepping into the path of a thunderbolt for a head-on shot of it is not in the blueprint of any job of coverage. It cost one cameraman his life at motor speed trials on Florida's Daytona Beach. Another spilled out of a plane when the machine banked steeply to enable him to draw a finer bead on an incoming air armada. Others, plenty of them, have been hurt in strange ways. The uncontrollable professional itch for close-ups causes most of these things, and others like them, to happen. In witness whereof some documented real life adventures of press cameramen are presented:

WU 37NP KN DPR COLLECT
CHICAGO ILL 203P JUNE 2 1937

O S GRAMLING
ASSD PRESS NYK

WITH ONE REGULAR STAFFER ABSENT ON OHIO STRIKE ASSIGNMENT AND TWO OTHERS IN INDIANAPOLIS ON RACE, DAY PHOTO

DESK EDITOR ANTHONY BEMBEN ASSIGNED STAFFER CARL E. LINDE AND SUBSTITUTE STAFFER JOHN PUSLIS (REGULAR DARK ROOM EMPLOYE) TO SCHEDULED DEMONSTRATION BY STRIKERS AGAINST PICKETING RESTRICTIONS INVOKED BY POLICE. ALTHOUGH PROSPECT WAS PEACEFUL BEMBEN ALSO DISPATCHED MOTORCYCLE MESSENGER HENRY MOULDERS TO SCENE TO STAND BY. BETWEEN THEM LINDE AND PUSLIS ARRANGED FOR LATTER TO SHOOT FROM STRATEGIC NEARBY PORCH ROOF WHILE LINDE CIRCULATED AMONG POLICE AND STRIKER FORCES ON GROUND. PUSLIS CAUGHT FIRST FLAREUP AND SUBSEQUENT DEVELOPMENTS IN GENERAL VIEWS TAKING IN FULL SCENE WHILE LINDE DODGED HEAVY HURLED MISSILES AND HEARD BULLETS WHISTLE PAST EARS WHILE FIGHTING WENT ON WITHIN FEW FEET ALL ABOUT HIM. FIRST MOMENTS LETUP ENABLED BOTH TO GET HOLDERS TO MOULDERS WHO RACED SIXTEEN MILES THROUGH SLUGGISH SUNDAY TRAFFIC TO GET TO OFFICE IN TIME FOR FIRST PICTURE TO BEGIN MOVEMENT HOUR AND TWENTY MINUTES AFTER RIOT BEGAN. NEW YORK MONITORS LOG WILL SHOW HOW MANY AND WHAT PICTURES FOLLOWED.

STAFF WRITER H D WILHOIT WAS ON SCENE THROUGHOUT RIOT AND PHONED STORY IMMEDIATELY. OTHER STAFFERS RUSHED TO AID HIM AND CHECK HOSPITALS KEEPING STORY FLOWING ON WIRES. AIR MAILING ACTION PICTURES SHOWING LINDE AND WILHOIT ON SCENE.

SHELBY THOMPSON. . .

The foregoing is a telegraphed brief to the Associated Press in New York of the manner in which its Chicago bureau covered the bloody Memorial Day riot at the Republic Steel plant in South Chicago. It is factual and barely suggests the perils encountered by the men on the assignment. However, graphic proof of the bombardment they faced is offered by the splendid action shots of the slaughter turned in and relayed over A-P's wirephoto network.

The Chicago *Herald and Examiner's* staff cameraman, Paul K. Burgess, ran this same sanguinary gauntlet and emerged with both pictures and story. Burgess covered the strikers' mass meeting preceding the trouble and followed them to the battlefield. In a memorandum he said:

"The boss told me to hustle out to South Chicago with the big box and a candid camera. I got into the shooting and the gas at the same time. I'd open and shut my eyes and between blinks make pictures with the candid. The police were driving the crowd forward, men, women and kids. The ground was covered with the dead and wounded, and blood ran all over the place."

. . . . .

Prosecutor Duncan McCrea, of Wayne (Detroit) County, in demanding that Harry Bennett, head of the Ford service department, produce all employes who took part in another riot, sent a communication to Mr. Bennett which read in part as follows:

"I am enclosing several newspaper photos taken at the scene to aid you in determining the identity of some of the principals I wish to question.

In addition, I ask you to produce Charles Grundish, Michael Denlin, and Stanley Perry, who identified themselves as Ford service men after their arrest by Melvindale police. These three, I am informed, chased newspaper photographers at a speed of 70 miles an hour, apparently in an effort to seize photographic proofs of the disorders and forced the newspapermen to seek haven in the Melvindale police station. Their instructions, according to their own assertions, were to prevent photographs from being taken.

This is, of course, in direct contradiction to your public statement that you ordered your service men, or private police, to refrain from interfering with the distribution of handbills which had been approved by the Dearborn City Council."

(Signed) DUNCAN MCCREA.

This is some of the aftermath of a labor flare-up at the River Rouge plant of the Ford Motor Company. The photographers referred to in the prosecutor's communication are Al Haut of Wide World Photos, James Patrick, Roland Ransom and Milton Brooks of the *Detroit News,* and Frederick Arnold of the *Detroit Times.* Haut was overhauled by a strong-arm squad and stripped of his negatives. Patrick, Ransom and Brooks were similarly treated but contrived to turn some plates over to a

news chauffeur. Arnold driving to the scene of the main riot encountered a group of union women being rushed by some stalwarts in an attempt to take away the literature they were distributing. His story follows:

"I was passing in my car, and when I saw the affair starting, jumped out with my camera. One of the men, not a union man, hollered to two others, 'There's a guy with a camera, get the ————.' My driver picked me up and the three followed us in a Ford, with one of them hanging on the running board. We drove all over Dearborn, it seemed, without finding a policeman, and finally pulled up at the police station in Melvindale. When the three got there the police arrested them. We left. The funny part of it was that I didn't get a chance to take a picture, but they didn't know that."

The chase which lasted several miles, at times reached a speed of 80 and 85 miles per hour. *Free Press* photographers, who did not arrive on the scene until after the riot started, were not molested. All three dailies ran full art coverage, both on page one, inside, and on the photo pages of the *News* and *Free Press.*

. . . . .

The subjoined is an excerpt from a letter by Horace W. (Tubby) Abrams, cameraman covering the Spanish Civil War for Keystone Views of London and International News Photos of America:

"Many thanks for your letter. I know I am a little sensational, but this war makes one jumpy. They (Government) have started air-raids in Burgos, trying to get the aerodrome, and these bombs and machine guns, plus anti-aircrafts get on one's nerves. They come over every day. All the lights go out at 10 P.M. and we use candles.

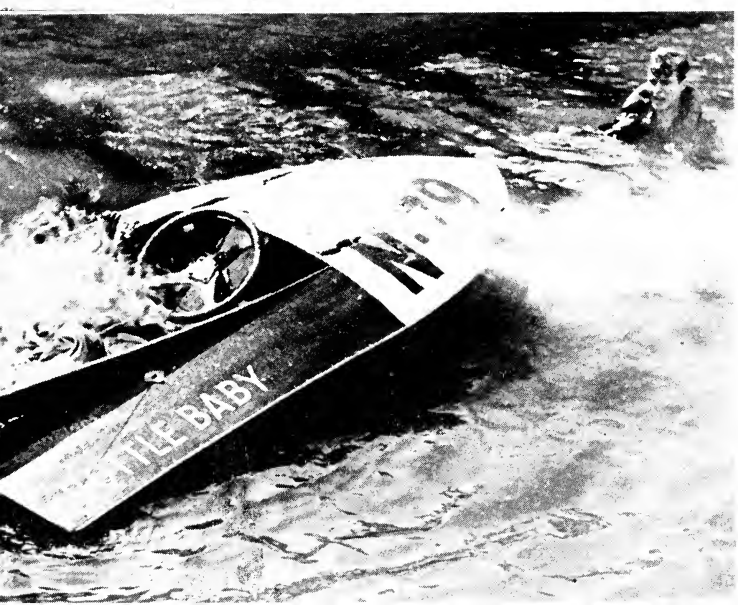
I went up to Hendaye for two things: To get my eye seen to as last week when I was with Sefton Delmar in that ambush at Andain, a bullet struck a wall and I got a tiny splinter of stone in my eye. At the time I thought I was shot in the eye, it came with such force.

The second reason was to see if I could make pictures of the Irun attack. Well the rebels are not doing so hot there. They are in a valley

ROOSEVELT - DUPONT WEDDING. Upper left.—The bride, the former Ethel DuPont; the bridegroom, Franklin D. Roosevelt, Jr., posing for the press.

Upper right.—Bride and father, munitions maker, Eugene DuPont, arriving at church.

Lower.—The family group. International News photos.



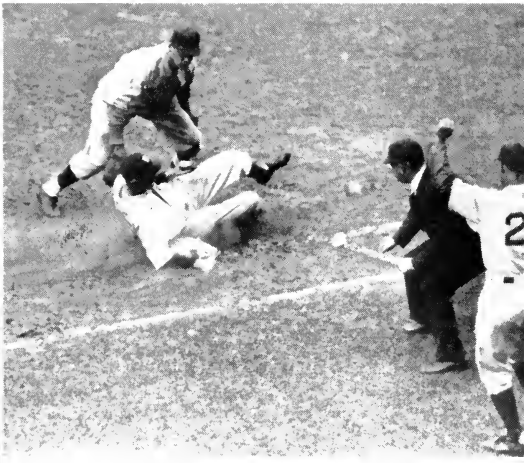
UNUSUAL NEWS SHOTS. Upper right.—He thought the cameraman was a gunman. Brother of three slain by underworld hides behind attorney when photographer fired his shot. Photo by Louis A. Odille, "Pittsburgh Press."

Upper left.—Beset by strike pickets clergyman-storekeeper bites his way through attack.

Center.—Camera catches overturning racer in path of oncoming competitor.

Lower left.—Terror-stricken pilot watching his craft burn after leaping to safety. Acme News photos.

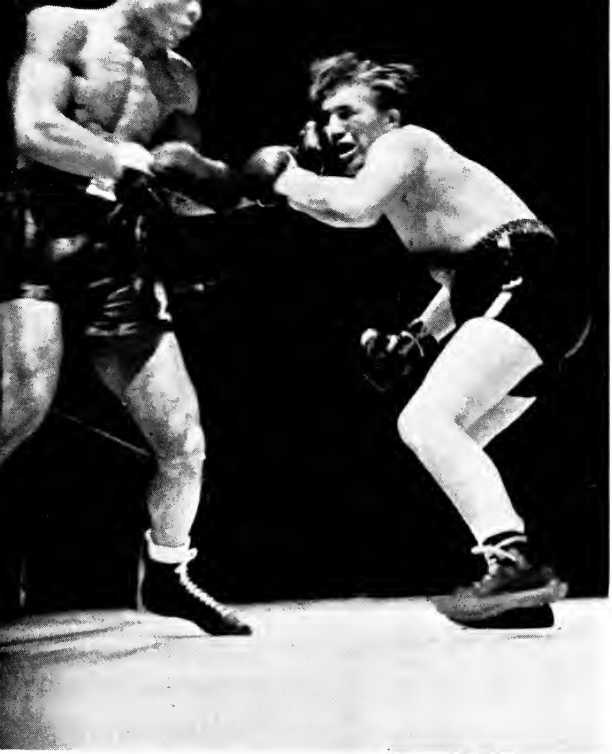
SPORTS. A specimen of action pictures provided by almost any football match. Made from the side-lines. International News photo.



Above.—Baseball shot made with Long Tom camera from photographer's coop. Acme News photo.

Left.—Hockey scrimmage by indoor arena light. Acme News photo.

Below.—A rail picture of horse race a few moments after the start. Exposure time 1/1000th of a second. International News photo.



CHAMPIONSHIP BATTLE. Joe Louis is caught by camera in first round, landing a left to Welsh Challenger Tommy Farr's eye. Pictured by John Lindsay, Associated Press photographer, with a Graphic fitted with a Zeiss f.2.7 lens at 1/135th of a second by ring light.

Farr reciprocates in the fourteenth round with a right to Louis' face. Photographed by Dick Sarno of the "New York Daily Mirror," using a speed flash synchronizer working at 1/200th of a second. International News photo.

One of a series of thirty photographs illustrating unique lighting treatment of various wrestling holds. Under the title "Pain Preferred" these pictures were published as a feature in many newspapers throughout the country. Photo by the author.

Fine Magic Eye stop-action shots of fan-dancer Sally Rand in action. From such a film strip desired frames are selected and printed for reproduction. International News photo.

A NUDE. Evidently (see the cop) not legalized art. Baby exponent of burlesque's strip act caught by camera just as the heavy hand of the law descended. A speed Graphic shot of human interest at its best. Taken by Jesse Straight, staff photographer of the "New York Daily Mirror." International News photo.

Above.—A series of miniature camera studies of motor-maker Henry Ford.

Left.—United States Supreme Court's Chief Justice, Charles Evans Hughes flavoring an oyster. A personality caught with a speed flash in an informal pose. Associated Press photos.

Above.—A study in concentration. International Banker, J. P. Morgan (center) at hearing before Senate investigation of munitions industry. Picture by Edward O'Haire of Associated Press camera staff. Received first prize in "Editor and Publisher's" 1936 News Picture contest.

Below.—John D. Rockefeller (left) and his five sons. A seldom made group picture of subjects having a constantly high news value. International News photo.

The Zoo in a merry mood. Individually the pictures are of little value. Collectively they provide a group study of animal hilarity and make an excellent feature. International News photos.

New York Stock Exchange in action. Selections from a series made with a Contax camera by Jack Layer, staff photographer of the "New York Evening Journal." First such pictures of this institution ever made by a newspaper cameraman. Published as a news feature. International News photos.

PHOTOGRAPHIC TRIO. Above.—Upper Manhattan pictured by means of infra-red photography.

Left.—Night scene of New York City made with a time exposure on panchromatic film.

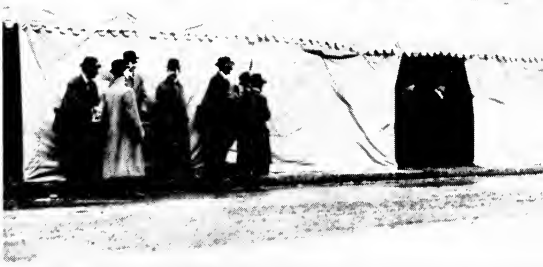
Lower left.—Election night view of New York's Times Square. A flashlight picture. International News photos.

Coast defense gun caught in action by the Magic Eye. Four pictures shown are selections from a strip of film made by Arthur Sasse, staff photographer of International News Photos.

CAMERAMEN. George Yates, chief of photographic staff of Des-Moines (Iowa) "Register-Tribune," operating an aerial camera from that paper's plane.

Joe Caneva, staff photographer of the Associated Press, covering the Italian-Ethiopian war.

Horace "Tubby" Abrams on war duty in Spain for International News Photos.



Above.—"Pittsburgh Press" photographer Louis A. Odille in a perilous climb on an assignment.

Upper right.—Miniature angle shots by news cameramen.

Second right.—Costumed press photographers covering New York's Beaux Arts Ball.

Third right.—Waiting at the church to cover the Gould-Decies wedding a number of years ago.

Lower right.—Associated Press cameraman operating from bos'n's chair on flood assignment.

WAR. Conquerors entering Spanish village after long siege. International News photo.

Right.—Ethiopian warriors in full war regalia. Associated Press photo.

Below.—Insurgents advancing into the Alcazar after ten week siege. Associated Press photo.

three miles from Irun and are getting the hell knocked out of them by two forts, besides the troops opposing them and I reckon it will be at least two weeks before they are in. The day I watched the battle through glasses they had 140 killed in their Foreign Legion section alone. It is possible to watch the shells drop and burst, but no pictures as the distance is 3 miles and the shells drop in a valley and all one sees is smoke coming up which looks like a train going through a gorge.

Victor Console, of the London *Daily Mail*, is up there. He has a Long Tom, and from a place called Behabie he got a picture of a shell-burst near a house. Very lucky, really, because they are such rotten shots they could not hit the house again if they wanted to. He has a telephoto portable. Anyhow it was not worth a plate for me. You can't see the troops, they are dug in and advance by night. Now although Hendaye is two miles from Irun, the French who are strict won't let you pass the International Bridge. The only way to get in is through Pamplona. The headquarters will pass us through from there *when* it falls.

Re. Atrocity pictures:—I have taken a lot, but all have been suppressed by the censor. I have seen piles of dead and some of them burning. The ground is so hard that they can't bury them so they pile them up and throw petrol over and light up and you can smell them five miles off. I have photographed men lying dead all up the side of a road where they have been picked off by aircraft machine guns from a column moving up and just put at the roadside so the lorries won't run over them, and vultures and hawks from the mountains rise up in the air with a man's guts hanging from their beaks. Death everywhere but after the first shock of seeing dead men, one forgets easily. I also photographed a little girl. The Reds chopped off her leg by the thigh because they found out her father was fighting with the Rebels. You can guess what they did with the mother, who was quite young. She died.

I have seen plenty of men shot against the wall but as I cannot get the pictures passed by the censor I don't take them. However, I hear he is going to Seville so we may have a new man here. Every plate up till now must be developed and printed and the set kept by the censor. My pictures of Genl. Franco smiling has been adopted by the Rebels and it may do me a bit of good for permits, etc.

I have not received plates, but managed to get some here at Hendaye. Have six dozen in stock, so am not worrying for others to turn up. Chadwick goes in today to France and they may be there. He does it nearly every day, the distance is 280 miles right over the Pyrennes, a

terrible journey. He has to get special passes for petrol. You cannot buy it when you want to. This is WAR and a terrible one.

I am going to the front tomorrow or the next day, but do not know which front. They grant passes for different fronts every so often. We go off in our cars and are met behind the lines by an armored car, usually, and we look around, and sometimes the bullets ping against the side and we laugh inside the steel coffin and drink some beer. Sometimes they open up the top and we get a picture. They are lorries covered with two layers of steel, with concrete between the layers."

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Readers will recall the graphic news pictures of the 1933 Cuban Revolt. Many of these were shot by Jose Garcia, a Cuban lad who learned to handle a camera as an office boy for the Associated Press. In those days when blood spattered the plazas and the throne of Machado tottered Garcia followed the echo of gunfire in the shifting and sanguinary tide of revolution. He became the marked man of the Poristas, Machado's secret police, who wanted no pictures of the internal violence published abroad. Once they spotted him in the act and with a shout "Abajo los fotografos!" shot him down. For twenty-five days he was under medical care but survived to again pursue the revolutionary putsch.

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Enzo Fiermonte, Italian heavyweight fighter, objected to having his picture taken, slugged John Drennan, free lance cameraman who took it, then paid him well over a thousand dollars in settlement of a civil suit for assault. The principals were in the warrant room of the Jamaica, Long Island, court prior to Signor Fiermonte's arraignment on an accumulation of subpoenas for speeding. Drennan fired his flash immediately after he heard the Italian threaten another cameraman who attempted

to photograph him. Then, as Drennan relates it, the fighter was upon him.

"I was caught off guard. I held my camera high to save the negative. It was a matter of sacrificing the picture or taking a few wallops. I took them. After the third or fourth blow I was groggy. I was dropped to my knees by a blow behind the ear but managed to retain a hold on the camera. It took a half dozen court attendants to pull Fiermonte away. I stuck to the story until it was completed and then swore out a warrant for his arrest. After that I went to see my doctor who ordered me to bed with ice packs for a few days."

Criminal action against the fighter was dropped when he apologized to Drennan. Incidentally he served five days in jail on the speeding charges.

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These cutlines under his pictures illustrate something quite less belligerent in coverage as performed by Arthur Bennach, staff photographer of the Texas, *San Antonio Light:*

1. "Doctors at Robert B. Green Hospital are shown making incision for operation."
2. "The cut has been made and clamps are placed on severed blood vessels."
3. "Carefully skilled hands probe deep into the wound with sterilized instruments."
4. "The gall bladder is removed and is shown here just before the tip is snipped off."
5. "The operation is completed, and the wound sewn up so that nature can heal it."

These photographs were taken in the once forbidden territory of a hospital operating room. Bennack turned in a breezy story of the proceedings with his pictures, making a one-man job of a two-fold assignment. Neither the patient's nor the doctors' names were disclosed. None of the shots made it possible to identify anyone connected with the operation. Only the operat-

ing doctor's hands and the area operated upon were pictured. He concluded his story thus:

"After the operation one of the doctors began to faintly hum 'Till we meet again.' I was consoled to know that under that cold scientific exterior there beat a human heart filled with romance. Back in the dressing-room while removing my surgeon's garments I wondered why I didn't obey that adolescent impulse to follow the sea or become a priest. Anyway I was mighty glad I didn't decide to be a doctor."

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Radically different was the hospital coverage the night arch-racketeer Dutch Schultz was machine-gunned by underworld opposition. James Dolbear, free lance cameraman serving the New York *Daily Mirror* was called at his home and told to rush to the scene. He went to the City Hospital at Newark, New Jersey. As he entered a man stopped him.

"Is Dutch Schultz here?" asked Dolbear.

"Yes," was the answer. "Are you looking for him, too?"

Dolbear didn't stop to reply but jumped up the stairs, two at a time. He looked through the rooms on the second floor and finally located Schultz, whom he knew, in a private room. There was no one present but an orderly who fled when the cameraman entered.

Dolbear took one shot of the racketeer and then the superintendent of the hospital walked in. "What are you doing here?" he thundered. "We've got to prepare this man for an operation." Dolbear fired two more shots, these being the sensational pictures that showed where the fatal bullet entered and emerged from the victim's side. As the last photograph was taken Schultz rose slightly from his cot and asked the superintendent, "Is it more important to take pictures than to get me to the operating table?"

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At the age of sixteen Augustine F. (Gus) Pasquerella moved from night copy boy in the city room to the darkroom of the Philadelphia *Evening Ledger*. He is only 29 now but has a considerable string of credits as a photographer. Some of his exploits, as he relates them follow:

"April 4, 1933. At 4 A.M. I drove to the Cape May, N. J., Coast Guard base and boarded a flying boat to make pictures of the navy dirigible *Akron* which sank off Barnegat Light on the New Jersey coast. We flew for 9 hours in which time I got a picture of the German steamer *Phoebus* at the scene of the disaster. Also while cruising around we answered the S. O. S. call of the navy blimp J-3, which was searching for survivors of the *Akron*. I got pictures of the blimp as she fell off Beach Haven, N. J.

"Sept. 8, 1934. Flying through a blinding northeast storm, with Jack Weyman as pilot, we flew to the *S. S. Morro Castle* burning off the coast of Asbury Park, N. J. The trip was packed with thrills, flying never above 200 feet and narrowly missing smoke stacks and high trees when we passed towns.

"Feb. 9, 1934. Every one remembers that day. It was 16 below zero in Philadelphia, and the entire town of Paulsboro, N. J., was endangered by fire which swept the plant of the Sandura Co., linoleum and floor covering manufacturers. Seven buildings burned and the estimated damage was $1,000,000. Weyman flew me down to Paulsboro after struggling with five airplanes to get one started. It must have been easily 25 or 30 below zero in the air because my face would stiffen hard the minute I raised my head above the windshield of the cockpit. I made pictures of the fire, and on the return trip to Philadelphia we flew up the Delaware River and got several pictures of the ice jams around the bridges and also a cargo steamer stuck in the ice at Chester, Pa., also the ice boats working frantically up and down the river.

"June 11, 1931. While making photographs of a man on an aquaplane from a speedboat doing 50 miles per hour my leg got caught in the tow line and was severely burned. It put me on the shelf for three months, but worse than that it was near the stage of amputation."

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Louis A. Odille of the Pittsburgh *Press* has a photographic

lineage. His father was a commercial photographer. Odille helped around the studio until he enlisted in the navy. He graduated from the naval photographic school at Anacostia, Md., later going to the U. S. Bureau of Mines, and in 1928 joined the *Press* staff. He says:

"Thrilling assignments have been numerous since I joined the *Press*, but the two that stand out in my memory are the great fire at the Crucible Steel Mill in 1934 and the aftermath of the Volpe slayings. The Crucible plant was an old abandoned, wooden affair. While it was not valuable it was near the refineries and for a time threatened to set them on fire. It was not so much the fire, but the manner in which I had to get there, plus a time limit that made the assignment thrilling. The alarm, a five-alarm affair, tapped into the office almost on edition time and I received orders to get art for the edition. I had less than an hour to get to the scene, seven miles away, get pictures and return to the office.

"I was racing to the fire when I discovered a flat tire and had to stop. I gave up hope of getting the picture in time for the edition and was looking for a means to get to the fire when I spied a motorcycle policeman heading in its direction. I waved him down and asked him to take me along. He agreed, but stipulated that I would have to hang on as best I could, the side car being covered with a tarpaulin which he refused to take time to remove. That ride over an unusually rough road, with me hanging precariously to the top of the side car and trying to keep my equipment from falling off was something to remember. However, I got to the fire in short order, and shot two pictures. Then I jumped into a taxicab and returned to the office in time to make the edition.

"In 1932 Pittsburgh had its biggest gang killing when the Volpe brothers, James, Arthur and Johnny, uncrowned dictators of the beer and numbers racket, were killed. After the slayings we tried to get pictures of the remaining members of the family. It was a difficult task and led to all sorts of trickery on our part and on the part of the family to elude the ever-present and pursuing cameramen. In addition the surviving brothers were jittery and made themselves scarce.

"I got a good shot of Guy Volpe, a brother of the slain trio, as he left the morgue with his lawyer after claiming the valuables that belonged to them. I resorted to a bit of strategy to get the shot because

Volpe knew me. I planted a friend of mine facing the door of the morgue and stood in front of him with my back to the entrance. When Volpe reached a spot within range of my camera, my friend gave a prearranged yell and I whirled around and took the picture. Volpe, who believed himself on the spot, thought I was a gunman and grabbed his attorney and pushed him in front. After the picture was taken, Volpe rushed away, I was a bit dubious as to whether I had obtained any sort of a shot. However, it turned out alright and was the only picture taken of him."

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Professional and amateur photographers, alike, have indulged in a lot of theorizing regarding the modus operandi employed in making that memorable and grisly picture of the electrocution of Ruth Snyder in Sing Sing Prison and published in the New York *Daily News*. For stark and shiver-inducing realism this photographic masterpiece of legal death dealing is unsurpassed. The ethics of its publication still provoke heated debates whenever the topic is introduced.

The picture was taken by Staff Cameraman Thomas Howard after several weeks devoted to the reconstruction of a standard miniature type box. The negative was slightly larger than the regulation 35 mm., and a plate instead of film was used. It was a single-barrel affair good for one shot only. This camera was strapped just above the left ankle and invisibly "sighted" by the toe of the right foot. Many practice shots were fired before the memorable night to assure its accuracy and to perfect Howard's technique. The distance between the electric chair and the official witness seats was carefully calculated and considered. The highest speed plate then obtainable was used. Howard tells what happened thus:

"When Ruth Snyder jumped as she got the first shock I made an exposure but immediately realized a second and perhaps a third shock would be required to kill her. I, therefore closed the shutter and

waited for the second shock, exposing as the switch was thrown. This accounts for the movement seen in the picture and generally attributed to oscillation of the body induced by the electric current. This exposure consisted of between five and six counts, approximately five seconds.

"I operated the camera by means of a specially designed cable release terminating in a pants' pocket through which a hole had been cut for the purpose of concealing its manipulation. I suffered great pain throughout the electrocution because the camera was strapped too tightly to the ankle. This stopped the circulation. Before I entered the death chamber I withdrew the slide from the holder and naturally, could not return it. The first exposure was too fleeting to register on the plate, leaving it practically clear for the shot made when the second shock was administered.

"Getting in and out of the execution room presented some difficulties. Warden Lewis E. Lawes specifically requested *reporters* not to take pictures. He made no reference to *cameramen,* nor was anyone searched. Literally I was not included in his interdiction and consequently feel that inasmuch as I did not pledge myself as a *cameraman* not to take photographs I violated no oath.

"After the picture was made I rushed to a waiting automobile followed by another car as protection against a breakdown. Nervous? I'll tell the world I was. Watching any execution is unnerving. Occupying a ringside seat at the killing of a woman is positively nerve shattering."

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A Canadian press dispatch reads:

"Goldfields, Sask., 'miracle town' of the new gold mining area that is drawing prospectors from all over the continent, was visited by Harry Rowed staff photographer of the Prince Albert (Sask.) *Herald* on an assignment to picture the spot and surrounding mining frenzy. The only way 'in' from Prince Albert is by air or dog team. Rowed came by air but chose the week of Canada's coldest weather in years. Shoving his camera out of the 'plane for a quick aerial shot of the camp at 55-below zero he snapped a picture—and froze his thumb despite his speed of movement. Taking pictures on the ground the cold froze his shutter solid so that it could not be changed, snapped the film in half more than once, froze the trigger so that half his pictures were blanks,

and sent him flying back with frozen nose, face and only few good pictures."

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George E. Cauthen, chief of the photographic staff of the Kansas City *Journal-Post*, enjoys the distinction of having been roundly slapped by an ex-United States senator from Missouri because he took a courtroom shot of a woman the venerable senator was defending. He appraises this as among the temperate experiences in a tempestuous camera career.

Cauthen pictorially recorded a shot-by-shot pitched gun battle between three escaped convicts, who abducted Warden Thomas B. White, and a posse. He sprinted 100 yards across an open field and barricaded himself behind a woodpile on the Salisbury farm near Leavenworth, Kansas. The desperados who were entrenched in the farmhouse laid down a barrage that swept this no man's land until the manhunters closed in on them. When the besiegers broke into the house they found three dead convicts. All had committed suicide when they saw that capture was inevitable. Smoke curling from the guns of the attacking force was clearly recorded in some of the pictures.

During a mutiny when another gang of convicts barricaded themselves in the prison mine at Lansing, Kansas, Cauthen crawled into an abandoned boiler and shot the only pictures made of their surrender as they emerged from the pit.

The stratosphere flight that ended disastrously for three army fliers in Nebraska in 1934 scored another beat for Cauthen. He had followed the *Endeavor* in an airplane and was literally on top of it when the big balloon crashed.

His shots of the Kansas City Union Station massacre when gunmen, generalled by "Pretty Boy" Floyd, mid-Western desperado, opened fire to liberate Frank Nash, Oklahoma train

robber, whom federal agents were taking to Leavenworth Prison, are matters of national camera history.

. . . . .

A living paradox among photographers is Joseph Caneva. He covered a war that was not a war and never shot a battle scene although there were battles aplenty. His experiences are cited solely as an illustration of how a war picture correspondent organizes himself for an expedition to the front and what he has to contend with.

Caneva covered the Italian-Ethiopian fracas for the Associated Press. A state of declared war never existed between the countries. He sailed from New York five days after receiving the assignment, waited in Rome five weeks for sailing orders and credentials to the Italian front, arrived at Massawa in a troopship one week later and went directly to Asmara, base of the Northern Italian Army.

His working outfit consisted of a 4 x 5 speed Graphic with a Carl Zeiss f.4.5, 13cm. lens in a compour shutter, one 18cm. lens of the same make and speed in a special mount for distance, a 4 x 5 Graflex with an f.5.6, 17-in. telephoto lens for extra long-range work, and a speed flash synchronizer. Supplies included 150 dozen packs of super-speed panchromatic and ortho-press cut film packed two dozen to a can in special sealed containers, several cases of standard size flash bulbs, several Caywood powder flash lamps and six bottles of smokeless flash powder.

Italian headquarters refused Caneva permission to use the army's developing equipment. He therefore established himself in a tin barracks, bought boxed German developer and hypo at an Italian drug store in Asmara, converted his quarters into a darkroom by blanketing the windows, and developed at night

by candlelight, covering the candle with an improvised red paper shade. His bulletin narrative continues:

"Stocked up on water from wells procured by natives in gasoline tins during daytime. No ice. Water chilled at night after sundown. Hung film to dry on board studded with pins. Immersed in alcohol first. In cool of night took fifteen minutes to dry. Light deceptive, non-actinic, very yellow. Early stuff very thin. Unfamiliar with developer which was not suited to panchromatic film. After that experience made exposures at 1/90th of a second top speed. In shade 1/25th of a second. Trouble, dust and sand. Cleaned camera thoroughly every night. Inspected lens before each shot. Wiped slide every time before inserting. Cleaned film before loading and before developing. Films captioned and sent to London office by plane. Strict censorship.

"Only American photographer on this front. Others here but all from Europe. Competition keen. Every man for himself. Everything double American prices. Buy own stores. Do own cooking. Must cook. Can't eat canned stuff. Climate. Salami and eggs. Covered the whole front from Axum to Adawato, Enticscio to Makale. First American photographer in Makale. Rode in with Ras Gugsa. First part of trip in car to Negast, about 200 kilometers from Asmara. Camped that night. Proceeded by car to Agula, 60 kilometers. Troops making roads. Hiked all next day with blankets, camera and two canteens of water to Mai Macden, 18 kilometers. Following day hiked some more with Gugsa and Abyssinian troops into Makale. Arrive 11.30 A. M. Made many photos of troops and raising of Italian flag.

"Hired a mule and Abyssinian guide for 300 lira. Rode all day to Agula. Packed up, then returned, developed and got stuff off on plane three days after making pictures. Flew with Desperado Squadron over front lines. Got shots of fliers and terrain. Did not make any actual war stuff. In Africa three and a half months. Film clear. No abrasion. Handling not so bad. Developed in water basin in cool of night. Time, seven minutes. Water allowed to run only few hours. Four water changes. Cleaned film with cotton. Little scum remained on negatives. No native trouble. Only superstition."

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A knight-errant free lance who roamed the highways and byways of Northern New Jersey in an air-flow Chrysler geared

to 110 miles an hour and literally drifted into newspaper work on a radio wave is Don Hutchins, staff photographer of the *Jersey Observer*. The Bergen County police department was the first in the world to use two-way short wave radio in patrol work, and Hutchins the first photographer in the country to adapt it to news coverage. His camera artillery is always loaded, uncased and within arm's reach for action. He can fire while traveling at high speed on two seconds notice or observation. He frequently beats the police to the spot on their own headquarter's flash but retains their good will by unfailingly including them in his shots.

His initial exploit while cruising in the radio-equipped car occurred several years ago. The flash warned of a drunken driver loose on the road. Hutchins picked him up and followed him for three miles. After much dizzy zigzagging the drunk cracked up, injuring two civilians. Hutchins got the shot at the moment of impact. On another occasion he picked off the radio alarm of a road accident, got to the scene and photographed the victims while still in the demolished car.

A flash that started him on a thirty mile sprint was received at 3.30 A.M. He covered the distance in thirty minutes. Two syndicates, three New York newspapers and the *Observer* ran the exclusive shot that he made of this particular accident. Once he predicted an accident that occurred within ten minutes after the prediction on a bad stretch of road. The driver of a stalled motor was tinkering with it at the roadside. A truck bore down on it at high speed. Camera and flash ready Hutchins shot the collision at the moment that it occurred.

His short-wave set is housed within convenient reach on the dashboard of his car. An ordinary long-wave set is rigged to the steering post. He has an uncanny sense of light values and distance and can guess the latter within half an inch. His

equipment consists of a 4 x 5 speed Graphic with a 3.5 lens, a 3¼ x 4¼ Graflex, Series C and a miniature with an f.2 lens. When a Newark judge once confiscated his Graphic, Hutchins fired an undercover miniature shot and got the judge in conversation with two prominent principals in a divorce action.

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William A. Kuenzel, chief of staff of the camera division of the *Detroit News* is a veteran and pioneer photographer. He covered the triumphal return of Admiral Dewey, hero of Manila Bay, and has photographed every president since Theodore Roosevelt. He operated the first newspaper speed camera in Detroit and was one of America's first flying photographers. He has 4000 flying hours in every type of ship to his credit. When he came to the *News* he was its only photographer. Now he is the overlord of sixteen crack men in addition to an office staff of six.

Kuenzel performed his most famous air exploit when he covered the 1925 eclipse of the sun at an altitude of 20,000 feet in 80 degrees below zero. The plane was blown 150 miles off its course. When it landed with an empty tank both of its pilots were taken to a hospital. Kuenzel returned to the *News* office, developed his plates, told his story to a reporter, then collapsed from exhaustion.

He is generally credited with saving the professional career of Ty. Cobb. Home-Run Baker of the Philadelphia Athletics filed charges of spiking against Cobb. President Ban Johnson of the American League heard the evidence and decided to oust Cobb from baseball, but reversed himself after studying a picture of the alleged spiking made by Kuenzel. It plainly showed Baker blocking the path to third base as Cobb was making one of his desperate slides to the bag.

Chapter XII

EQUIPMENT

For complete coverage of all types of assignments present-day photography requires four cameras. Because of the expense involved only the picture syndicates and the photographic departments of newspapers provide their photographers with this complete equipment. However the individual newspaper cameraman on the general run of assignments contrives to get along very well with one type of camera unless there are specific stories requiring the use of others. The camera best adapted for general newspaper photography is the 4 x 5 speed Graphic. This has been found most efficient when fitted with an f.3.5 or an 4.5 Carl Zeiss Jena Tessar lens. The focal length is optional, although the majority of news cameramen prefer the 13.5 cm. lens. Others have shown a preference for the 15 cm.

With this particular camera the photographer invariably employs a speed flash synchronizer. There are several of these on the market, all dependable. It is also necessary to have at least a dozen film holders, a film pack adapter, a Crown No. 1 folding tripod, a focusing cloth and a carrying case roomy enough to accommodate at least a dozen flash bulbs in addition to the other equipment. For sports assignments the Graflex is generally employed because it may be fitted with a long-focus lens. Usually in sports the distance between subject and camera is considerable; hence, a short-focus lens is ineffective. The Graflex used by the newspapers and syndicates is of special construction.

Basically it is the 5 x 7 size rebuilt to accommodate the required lens.

An illustration of the need of this long focus-lens is a baseball game. Although the photographer may work on the field before the game, he later operates from the special hanging balcony just below the first tier of the grand stand, a position at least 100 or more feet back of the home plate. Some ball parks have three such photographers' stations, one at the home plate, another at first base and another opposite third; all however, are approximately 100 or more feet from base to camera. While some photographers use telephoto lenses ranging from 17 in. up, the majority covering sports employ the straight long-focus lens of about 30 in. This is heavy equipment—too heavy to be carried about conveniently. The Graphic may be employed successfully at ranges up to 25 ft. for a fair size image; but where distance is a factor the Graflex is much to be preferred.

In yachting, prize fights, horse races and similar sports, the long-range Graflex, better known as the "Big Bertha" and the "Long Tom," is found to produce best results. There is still another camera which in the last few years has been added to the news photographer's equipment. This is of the miniature type and is used on assignments where pictures must be made surreptitiously or under conditions that prohibit the use of the flash bulb. Although the public on the whole is picture conscious, instances frequently occur where the photographer must work inconspicuously. The miniatures enable him to do this very effectively. These cameras, fitted with an f.1.5 lens, are considered auxiliary equipment. Many amateurs can ill afford more than one camera and try to do every type of work with it. The miniature because of its broad adaptability answers their purposes within certain restrictions. No newspaper man

considers the miniature a complete equipment, but finds it highly serviceable as an emergency accessory. For newspaper work these cameras, fitted with a slower lens, are undesirable.

The miniatures use roll film of standard 35 mm. picture size. There are generally 36 exposures to the roll. Required accessories for them are a speed flash synchronizer, sun shade, a tripod specially made for them and possibly a filter, the filter to produce special effects should the operator desire to do some artistic work. There are two scales for distance; one in the metric system, which is used by the Europeans; the other the standard linear foot measure employed in America and England. The Graflex and the Graphic which are made in America are naturally scaled in feet. The miniatures made abroad for the American market are also scaled in feet, whereas those for Europe are scaled metrically.

The fourth camera quite recently added to the news photographer's equipment is known as the "Magic Eye." In reality it is a motion picture camera of the hand type, using 35 mm. film and reconstructed to operate at high speed. It is comparatively new to the profession and growing in popularity. It combines the advantages of the miniature and the Graphic through special gearing. It will take photographs at a speed of 1/1000th of a second and faster. With it an assignment may be covered in continuity form. The entire action of any event may be recorded in sequence and enlargements from the individual frames made just as miniature enlargements are made.

All such cameras are usually reconstructed under specifications prescribed by the owner. So far there is no standard equipment of this kind on the market, although it is expected within a very short time that some manufacturer will produce these cameras commercially. Lenses are interchangeable and the same focal length employed by the miniatures may also be

used with them. The term "Magic Eye" was coined by International News Photos, to distinguish the particular work of this apparatus.

Many news assignments have been covered with these cameras and the photographs made by them have been reproduced in continuity form in papers all over the country. They are splendid instruments for recording action, such as prize fights, and events where many intimate pictures of well known people are desired. Their field is unlimited and their ever-increasing popularity will soon establish them as required equipment in every up-to-the-moment newspaper photographic department.

Chapter XIII

THE GRAPHIC

The Graphic, now the standard camera for the majority of newspaper cameramen, is known as a "guess focus box." Made in three sizes it offers the greatest range for news coverage. Of the several sizes the 4 x 5 is admittedly the most popular with many newspaper photographers. Within the last year several auto-focusing devices have been invented for adaptation to the Graphic. These mechanisms eliminate the difficulties of guessing distance and are of particular value to the amateur inexperienced in this respect.

The Graphic has a focal plane built-in shutter. In addition to this almost every newspaper man's camera is equipped with a front-lens shutter. He uses the latter to facilitate operation with the speed flash synchronizer. This shutter is usually of the Compur type. The camera is also equipped with a wire finder, mounted on the front board, and a metal flange set in the center and at the top of the camera. It is a very simple and easily manipulated finding device. Many photographers, however, still prefer the use of the glass finder. This is mounted on either side at the top of the camera. Its location is optional.

On the right side of the camera is a plate on which the various speeds are shown. The focal plane shutter is a roll curtain with various openings ranging from 1/8, 3/8, 3/4 to 1 1/2 ins. At the bottom to the right there is a tension mechanism with an opening designating the number of the tension spring. Just above the release lever there is a wingnut used to wind the

curtain to any desired opening. The curtain apertures are registered just below this wingnut. A detachable handle is built on the left side of the camera. Although this box is made with a spring back for use of film holders it can be converted to accommodate a magazine. The lens in most popular use is the Carl Zeiss Jena Tessar f.4.5-13.5 cm. fitted in a Compur shutter. This shutter works up to a speed of 1/200th of a second. If more speed is desired the focal plane curtain is used.

When getting a new camera the first thing to do is to see that it is properly scaled. Although the individual may adapt an auto-focusing device yet it is found practical to include the scale. The next step is to adjust the clamps on the front bed tracks so that when the bellows is drawn out it will extend to the designated spot each time. The small scale on the front bed alongside the track provides the various ranges in feet, 6, 8, 10, 15, 25, 50, 100 and infinity. The next important move is to have the camera properly adjusted for a speed flash synchronizer. Whether the shutter or magnetic type synchronizer is used it should be properly adapted.

The ease with which the camera may be worked depends upon the simplicity of the routine which the operator follows. It is recommended that waste motion be eliminated. The following method is highly practical: Open the camera, draw out the lens board until it is stopped by the clamps tightened to the tracks. Decide at what distance the exposure is to be made and set accordingly. This is accomplished by an indicating mark on the left side of the track and aligned to the ranges on the scale. If the speed flash synchronizer is to be used make certain that the focal plane curtain is open as this operation requires the use of the front lens shutter. Insert the holder, cock the lever of the shutter, then screw the bulb into the lamp and all is ready for an exposure. The camera should be held very

rigidly. Frequently good photographs are spoiled because of movement arising from unsteadiness of hand. It is suggested that the camera be held firmly and against the cheek, permitting the right or left eye, as the case may be, to sight through either the glass or wire finder.

Because of the different construction of the two most practical types of flash synchronizers the operator must accustom himself to some definite manner of gripping the camera. On a modernly equipped camera both the Mendelsohn synchronizer and Kalart auto-focuser are hooked together on the right side. This combination requires that the operator grip the camera firmly with his left hand, freeing the right hand to close the circuit. If the synchronizer is a Kalart type, the left hand is used to support the camera firmly and the right hand to operate the release.

If the camera is operated for snapshots without the use of the speed synchronizer, it is recommended that it be held firmly with the left hand, allowing the right hand to assist, but permitting the index finger freedom to operate the shutter lever. The very last thing which should be done before the exposure is made is to draw the slide. It is unwise to withdraw it very long in advance of the exposure as many things may happen, among them being light seepage resulting in a fogged film.

When the camera is ready for an exposure a thorough check up should be made. The proper distance should be set at the correct range on the scale, the shutter set for the speed required, the slide withdrawn, the lever of the shutter cocked if the front lens shutter is to be used, or if the focal plane is to be used, it should be set at the proper aperture with front lens shutter open and also the correct number of turns of the tension spring. With the camera held rigidly, the exposure is made, the slide returned to the holder and the holder extracted. When a subject is to be photographed at very close range the operator will find the

auto-focusing device invaluable, especially at distances closer than 6 ft. The use of this device insures absolute accuracy. It has always been a problem to guess distances accurately at real close range. This requires long practice.

Although of quite rigid construction the Graphic is still a delicate instrument and cannot be manhandled. Its constant use will loosen it up. This, however, is not peculiar to the Graphic; it happens to every camera. Care should be taken to prevent the front bed from working too loosely. The rack and pinion should be kept fairly stiff. These little precautions will prevent many failures. Another important angle is to keep the bellows in good shape. It should be dusted regularly; and at least once a month the inside of the camera should be inspected and well dusted. It is not advisable to use a stiff brush; the bristles might cause pin holes.

For the inexperienced operator, it is recommended that a thorough knowledge of the camera be acquired by practical study. The owner should acquaint himself with all of its details. By repeating the motions of taking a picture over and over again (without using any film) he can better perfect himself in its operation. Only after manipulation of the camera has been mastered should he start making exposures.

Another important advantage of the Graphic is the fact that it can be focused through the ground glass set in the spring back. It may be used for commercial as well as newspaper work. There are set-screw eyelets at the bottom and on the sides to accommodate a tripod. The front board is square and large. The camera's dimensions are such as to permit the use of a large lens when necessary. Many photographers use the Graphic for all-round work, but the majority of newspaper photographers restrict its use to general news work because of its demonstrated practicability.

Using the 13.5 cm. lens there need be little fear of distortion. This lens has a great depth of field, and even though the scale may be off a foot or two at points beyond the 15 ft. range the sharpness will not be acutely affected. Judgment should be used in making any picture. Even though the camera is equipped with the wire or glass range finder and the auto-focusing device, it will be found more practical to use the wire finder for moving objects.

When using the auto-focusing device the operator is required to rack his front board in and out until the point of greatest definition has been reached. As this cannot be easily accomplished when a moving object at close range is to be photographed it should be decided in advance at what range to operate. If the cameraman feels that he can make a picture at 10 ft. the camera should be set at that scale and the sighting done through the wire finder. There is nothing so intricate about this particular camera as to puzzle anyone. Its successful operation requires practice and a little care. If good results are expected, patience must be exercised.

Chapter XIV

THE GRAFLEX

This camera is still an important item in the newspaper picture field. Although it has always been puzzling to amateurs it is relatively simple to operate after a procedure has been established. Naturally there are a few more operations than are required by the Graphic. Eventually almost every newspaper photographer uses it at some time. Because of the special scope of its work it will be well for the amateur with newspaper leanings to familiarize himself with it.

There are two more or less standard sizes, the 4 x 5 with a revolving back, known as the series "D" and the 5 x 7. The latter size has not the advantage of the revolving back. Only the smaller camera can incorporate this convenience. When the 4 x 5 requires longer than a 7¼-in. lens, a sunken mount must be used. By "sunken mount" is meant a lens mounted into the front board so as to bring it closer to the plate. When a longer focus lens is used the front flap cannot be closed.

The Graflex has certain advantages over other cameras. Although built for speed it is constructed to permit the operator to see his subject at all times on the ground glass. This is accomplished by means of the reflex. The subject is first caught by the mirror and then reflected to the ground glass, thereby keeping it constantly in view until the exposure is made. Some of these cameras have been stepped up to a speed of 1/1500th of a second. It is doubtful whether this high speed is often used, but it is always an insurance in an emergency.

Until recent years photographers used plate magazines with the Graflex. Now with the change of custom photographers are using mostly cut films, both in the magazines and holders. The use of cut film reduces the weight considerably. Even the size of the magazine has been reduced. Each magazine contains 12 septums, or holders, for the cut films. The Graflex is operated with a focal plane shutter like the one used in the Graphic, and the exposure is made by pressing a lever located at the side of the camera allowing the mirror to fly up and the curtain down. The whole operation is practically one. As with the Graphic, an exposure plate with calibrations is fastened to the side of the box, and the same mechanisms, other than the mirror operation, are employed. The 4 x 5 Graflex which at one time was quite conspicuous in news work has been discarded by the average newspaper photographer. It is a splendid camera for such subjects as sports, nature study or characteristic portraiture and for posed pictures like groups or intimate studies of individuals.

The 5 x 7 Graflex has come into prominence in recent years for sports work. However, the camera, in order to cover sports in the modern manner, must be reconstructed. The latest improvement in the 5 x 7 Graflex is the "Big Bertha," or "Long Tom" previously referred to. The camera itself is not changed. It is reinforced on a new bed preferably duraluminum or some other light weight metal. In order to accommodate the extremely long-focus lens now being used additional bellows must be adapted. This, however, is not made of leather, nor is it of the folding type.

There are several different methods of building these long-focus cameras. Some of the cones are made of wood, especially the type employing light-weight lenses. The wood variety is slightly lighter than the metal and well serves the purpose of

those who cannot afford the special metal construction. These cameras are used principally for sporting events. On certain other assignments a Long Tom may come in handy, but for the general run of work its use is restricted to baseball games, yacht races, horse races, prize fights and such assignments.

The latest development in this field is the Sprague rapid-focusing device. Perfected by a mechanical engineer it has solved many of the difficulties that beset the sports photographer. Coverage of a ball game from the photographers' balcony provides an illustration of this. The usual procedure was to follow the play with eyes constantly focused upon the ground glass. All during the action the photographer had his hand on the focusing wheel, racking his lens backward and forward in order to keep his subject in focus. With these very long-focus lenses a great depth of field is not to be expected and the player must be kept in perfect sharpness at all times. With the new adjustments the photographer can easily adjust his focus in one movement and without keeping his head glued to the focusing hood. The adjustments consist of a series of set-screws placed at the top right side of the extension. A lever, connected to the focusing bed, is attached in a manner to facilitate its operation.

Before the game the photographer clamps his set-screws in positions corresponding to positions where plays are apt to take place. For instance, one screw will be for the focus at first base, another for second, another for third, a fourth for home plate, and if necessary, an additional one for the pitcher's box. These are set after the photographer has checked the focus on each point before the game starts. Once the play is on he need only follow it with his eyes. When action occurs at first base he pulls the lever controlling the focus at that point. In order to quickly change from first to second or any other position he simply pulls the lever and turns the camera.

Because of its weight (forty pounds or more) the camera is allowed to rest upon a firm base, usually a bench in the balcony. It is tilted downward so that the play is always in view. This ingenious mechanism greatly simplifies this type of coverage. Naturally, the average photographer cannot afford this camera in addition to his other equipment. It is suggested to those who wish to operate a Graflex that they stick to the regular model. Unless his work is of an extraordinary nature he may safely equip it with a lens ranging in focal length from 7¼ to 14 in. Beyond that the expense increases considerably.

The routine for the average Graflex is not a difficult one. Assuming the camera to be equipped with a 7¼-in. lens and a film magazine, the cameraman need only worry about its manipulation, time and subject matter. The following operating procedure is recommended: First release the hood, pull it upright and lock the two supporting arms on the sides. Hold the camera close to the stomach. With the left hand supporting the weight, the right hand is able to assist, at the same time adjusting the focus with the right thumb and forefinger.

It is important before the camera is in operating readiness that the cameraman decide upon his exposure. When he has determined this he should adjust the focal-plane shutter accordingly. The mirror is then closed. This is done by pressing down the lever which controls it. The curtain is next wound to the desired aperture and the tension spring set to the strength necessary. The table at the side of the camera helps materially in making the proper adjustments. Care should be taken that the lens is correctly adjusted for the aperture wanted; then by steadying the camera, the focusing is done by looking onto the ground glass through the hood. When the slide is withdrawn all is ready for the first picture, the exposure being made by pressing the releasing lever with the left thumb. It will be

noticed that while the right hand controls the focusing the left hand makes the exposures.

When making the exposure, which takes only a fraction of a second, movement may be prevented by holding the breath. After the first picture is made the septum is drawn from the magazine into the black bag attached to it. This is accomplished by pulling a rod which draws the septum out. The septum is then pushed around to the back of the magazine and the rod forced back into place, thereby permitting the next film to move forward, ready for exposure. There are times when a change of speed is necessary between exposures. The mirror need not be touched. To secure a different curtain opening a special arm is provided which need only be released. The indicator on the side always keeps the operator informed as to what curtain opening is to be used.

Because of the many different operations involved in the use of a Graflex the photographer is warned to be most careful. It is to his advantage to make a thorough study of the camera before attempting exposures. By rehearsing the motions many times he will familiarize himself with all the details. The loading also should be given careful attention. Films are loaded into the septums, emulsion side out. When the septums are put into the magazine they should be inserted so that the numbers appear right side up. The septum has a closed and an open side. The closed side should always be inserted facing the opening in the black bag. If this is done carefully no jamming will occur.

When panchromatic films are used and the loading done in total darkness a simple way of handling is to keep the magazine directly in front with the bag on the right side. This will simplify matters. A little precaution often prevents accidental jamming. The operator, after inserting the third septum, should

reverse the magazine and allow the septums to fall back against his finger to insure a clear passage into the bag. When all septums are in place and the cover locked, care should be taken that the magazine slide is inserted before the light is turned on. A little trick used by experienced veterans is to seal the magazine with a strip of adhesive tape. This prevents accidental fogging should the magazine back be loose.

The revolving back on the 4 x 5 Graflex offers many advantages, among them being an allowance of one full inch in the upright position. This is advantageous when a full length picture of a person is desired. It is easy to operate the revolving back by merely pressing a button and turning to the vertical position. Experience should teach the operator to check each movement. In revolving the back he should be sure that the turn has been completed and the position securely fastened, otherwise the back will not be in line and the picture will be more or less oblique. The horizontal position, naturally, is operated for a large group or scenic effects.

When operating the Graflex the photographer must be more careful when working rapidly. One little slip and his work is in vain. Forgetting to withdraw the exposed septum will result in double exposures, or neglecting to press the mirror down or rewind the curtain will result in failure. The Graflex offers more protection against accidental fogging than the Graphic. This is due to the fact that when the mirror is down the curtain naturally is in readiness, thus protecting the plate from exposure. In the Graphic the slide must be inserted after each picture before rewinding the curtain. All of these movements can be mastered with a little practice.

When a new ground glass is substituted for a broken one it should be of the same thickness as the original, otherwise trouble will ensue in the focus. Any slight difference in the thickness of the glass is enough to throw the synchronization out of align-

ment. After the magazine has been put in place the screws should be tightened enough to prevent any looseness.

It is decidedly worthwhile to make an inspection of the leather bellows at least once a week or twice a month. The catch which fastens the mirror should be inspected as it frequently works loose and allows a small amount of light to seep through—enough to fog the film. Another precaution calculated to prevent injury to the camera is not to use oil on any of its moving parts. Oil very often seeps through to the inner parts of the camera and may find its way to the rear surface of the lens or onto the film. This danger can be avoided by keeping the camera clean without the use of oil. There is no cure for oil spots on negatives.

The Graflex may be used with a tripod for interior work. There is an adjustment on the side to permit time exposures. In the absence of a tripod the camera may be rested on a table, and after setting the shutter on time the exposure can be made by using the lens cap. Another method of making a time exposure is to close the fly, release the mirror so that it is upright, make the exposure by allowing the fly to open, then closing it again. Care must be used in this method or movement may result in the picture.

When on a job it is advisable to keep the camera from being unduly jarred. An accidental jolt might operate the tripping mechanism and make an unwanted exposure. In covering moving objects it is well to follow them in the direction in which they are moving. A picture is best made when both camera and subject are moving in the same direction. The action of the subject will be arrested, but the background will be blurred. Such photography of horse and automobile races, or trains and speed boats, is always very interesting. When making these exposures the camera must be well braced. A little wobble can spoil the whole thing.

Chapter XV

MINIATURE OR "CANDID" CAMERAS

Although candid camera photography is not new it has in recent years attained great popularity. The term "candid" camera is not the name of a particular make. It was coined in America some years ago to designate photographs made by a miniature camera. Any picture of an unposed and unsuspecting subject might be called candid photography. The term is as applicable to the pictures as to the cameras taking them. There are approximately twenty different makes of miniature cameras. The outstanding of these are the Contax and the Leica. Their vogue has been stimulated by the introduction of the Carl Zeiss f.1.5 lens. Another reason for their success is their simplicity of operation and compactness.

These miniatures have without doubt been instrumental in eliminating much of the mysticism in which photography was shrouded. In most of them roll films are employed. The films are of the standard motion picture size known as 35 mm. Generally there are thirty-six exposures to the roll. As the interest of the amateur or professional in these cameras increases he naturally develops a greater interest in the film to be used with them. Some photographers prefer film in 100 ft. rolls and cut it to suit their needs; others purchase the film already wrapped for use. There is always a danger when cutting film from scratching, finger prints and spotting. The saving in cost hardly compensates for the waste of film or loss of a valuable picture. All of the companies manufacturing rolls for the various cam-

eras have gone to great pains to present their products in perfect condition. It therefore pays to accept the original package.

There has been so much literature published on the subject of miniature cameras that no reference will be attempted here to formulas or emulsions. The camera alone will be considered, and then only as an instrument of journalistic photography. The first candid camera employed by a newspaper photographer in America was known as the "Expo." This was introduced in 1904 on a court assignment by Clarence Le Gendre, staff photographer of the New York *Morning World*. This Expo, compared with present day apparatus, was about fifty times slower than any of the recent miniature models. It made pictures on a small roll of film about 8 mm. in size, and had but two adjustments, one for time and the other for a speed snapshot. Although the pictures made with it were not all of first quality they nevertheless had enough detail to permit the artist to fill in with an air brush the latitude required for a good halftone.

Newspaper photographers are always on the alert and ever ready to adopt any innovation which may be helpful in the production of better pictorial material. There are always occasions when the cameraman is called upon to make photographs under trying conditions. Even when equipped with a speed flash synchronizer and all the standard apparatus many instances occur when objection is raised to the use of the flash bulb and the very presence of the camera itself. In these circumstances the news photographer relies on his miniature equipment.

The miniature employing a slower lens than the f.1.5 is rather useless in newspaper work, although it may answer the requirements of the amateur. It is the speed of lens that the newsman must have. The series of pictures made by Jack Layer of the New York *Evening Journal* nicely illustrates the advantages of a miniature in overcoming objection to flash bulb pho-

tography. It was always the desire of all newspapers to secure a series showing activities on the floor of the New York Stock Exchange. Although occasional odd shots of Exchange doings were now and then made by special dispensation, no complete series was ever taken. The *Journal* made the arrangements permitting Layer to operate on the floor of the Exchange. The assignment, under the stipulated restrictions, could not have been covered with anything but a miniature (in this instance a Contax) fitted with a f.1.5 lens. The resulting pictures were published throughout the world and established a new record in newspaper miniature photography. Considering the poor lighting conditions and other difficulties this work may be cited as a splendid example of how and why the miniature camera is necessary in newspaper photography.

Another illustration of the need of the miniature in a news cameraman's outfit is the experience of James F. Laughhead, staff photographer of the Associated Press, during the recent Ohio River flood. Flying over the flooded areas late in a Winter day with the light at its worst, Laughhead attempted to make photographs with his standard equipment. Realizing that the lighting conditions were against him he broke out his Contax fitted with an f.1.5 lens and shot a number of unusual scenes which were subsequently published throughout the country. His negatives, incidentally, were considered better than the average of their kind, so much so that the Associated Press made many 16 x 20-in. enlargements for display and publicity purposes.

Although the Leica was first in the field, it was the Zeiss people who introduced the first extremely fast lens. The Leica has since been equipped with a lens of almost equal speed. There is a considerable competition for perfection between all the manufacturers of miniatures. The Leica now has a

device similar in form to a gun trigger for the purpose of quickly rolling the film after each exposure. The precedent for this appeared with the introduction of the Robot which incorporated in its mechanism a device for automatically moving the film after each exposure. Both the Contax and the Leica are geared to shoot pictures at speeds up to 1/1000th of a second. The Contax No. 3 has a built-in mechanism known as a photo-electric cell meter which makes it easy to operate by even the most inexperienced person.

While its mechanism eliminates such difficulties as focusing, sighting and timing, nevertheless there are a few problems which the operator must solve for himself. Because the camera is so small is no reason why it may be handled carelessly. An important thing to be remembered is to hold it firmly and still when making an exposure. The camera is held close to the eye for focusing and sighting. A picture quickly made by an excitable person is apt to show movement in the film. A little practice is required to establish a routine for manipulating it to eliminate this difficulty. If high speeds are used, the more reason for steadiness. The exposure is a rapid one, but if the camera is not held rigidly it will vibrate when the shutter is released. It is obvious that when making a picture with slow exposure more care is needed. In either case it is definitely important not to allow the camera to wobble.

As science is endeavoring to make these cameras quite foolproof, so also is it developing the necessary accessories to increase their usefulness and popularity. The manufacturers of speed flash synchronizers have perfected flash devices to be operated in conjunction with them. Some of the newer models are designed with this in mind. Almost all miniature cameras are operated with a focal-plane shutter. In the Contax the shutter direction is down, in the Leica it is crosswise. The curtain

in the Contax is of metal whereas in the Leica it is of cloth. Each has its advantages. The use of either camera is strictly optional. Both are excellent and if properly mastered will serve the purposes for which they were designed. There are included in the accessories all types of tripods which may be folded and carried in the pocket. Every accessory made for them aims at compactness and portability.

Another illustration of the value of miniature cameras in the hands of a non-professional was revealed during the recent *Hindenburg* explosion. A Chinese amateur, Mr. Foo Chu, who happened to be at Lakehurst for its landing had the presence of mind to photograph the disaster from beginning to end. Mr. Foo was smart enough to realize that if he was to capitalize on his pictures it would be necessary to reach New York as quickly as possible. In some manner he accomplished the trip and sold his roll of film, undeveloped, to the New York *Daily News*, which in turn published two pages of his pictures. They appeared in serial form, beginning with the first explosion and ending with the burning wreck on the ground. What he was paid is not known but undoubtedly Mr. Foo made enough on his pictures to keep him well supplied with films for a long time to come.

It must not be forgotten that although miniature in name and dimensions these cameras are not so small that they cannot be detected. Newspaper men who have covered assignments under all conditions are unanimous in this opinion. The outstanding value of the miniature is its speed of lens, compactness and ease of operation. Although a valuable auxiliary it cannot constitute the sole equipment of the newspaper photographer, one reason for this being the need of speedy picture reproduction on daily newspapers.

As an illustration of this consider an assignment where the

photographer meets with something unforeseen—an assassination for instance—and is able to secure but one picture. This one picture must be rushed to the darkroom, developed immediately and a print made from the wet negative, after which it goes to the engraving department for halftone reproduction. Had this single shot been made by a miniature it would be necessary to submit and develop the entire roll of film, select, dry and print the wanted shot independently. The resulting loss of time would naturally prevent the use of any such picture in an early edition. Because of its small size the danger of printing such film while wet is much too great a risk. When the time element is not important the miniature camera may be used on a news assignment.

Those who best understand the requirements for developing a film are the makers of that particular film. They have invested hundreds of thousands of dollars in perfecting their emulsions and enlisted the aid of outstanding engineers, technicians and chemists to develop the correct formulas. There has been so much discussion on the subject of grain and its elimination that to review it would be absolutely useless and in no respect enlightening. It is strongly recommended that photographers comply with the prescriptions provided by the makers, both for developing and handling film. If these are followed carefully there certainly should be no trouble. Practically all photographers at one time or another attempt something in the way of mechanical invention, but when it comes to chemistry they are decidedly in deep water and should resign themselves to accepting the products and recommendations of the producers. Moreover experiment with chemicals is a highly dangerous diversion that it is well to avoid.

That a well timed negative results in less grain is indisputable. Attempting to redeem an undertimed or overtimed exposure is

not solely the problem of the miniature photographer. It is something that has confronted every photographer from the inception of photography. Although great progress has been made in salvaging badly timed negatives it is best to prevent them as much as possible by exercising care in timing and developing. The proper temperatures for developing and fixing baths are prescribed by the makers of the film. If followed correctly they are absolutely dependable—certainly very much more so than the advice and formulas of pseudo-experts.

There always is and always will be the danger of specks on film as even under the strictest conditions some dust will settle upon and adhere to a wet emulsion. Unfortunately, the average miniature camera fan always wants to make tremendous enlargements from his film. Magnification in such enlargements reveals all the defects caused by the graining, bad focusing scratches, pin holes and dust spots. The total elimination of these defects is quite beyond contemporary technique. There may come a time when the entire routine of exposing and developing will be automatic. With the present manual method of handling, however, the element of risk is inherent.

If additional evidence of the fact that the miniatures are definitely established in pictorial journalism is wanted it exists in the growing practice of equipping reporters throughout the land with them. Hundreds of newspapers have already provided some of their reportorial staffs with these cameras, not for the purpose of making staff photographers of them but solely with the idea of covering an emergency should it arise. It is strange but true that many reporters so equipped have become quite enthusiastic about photography as a hobby. It is an admitted fact that a reporter cannot do two jobs efficiently, but there are, and always will be, occasions when he will find the opportunity to step out of his character as a reporter to take one or two pic-

tures of great news value. This has been done numberless times.

It is a matter of record that quite a number of our so-called experts today were rank amateurs but a few years ago. There are cases on record citing some miniature experts as not having the first conception of the technique of photography when they started. It is lots of fun and most interesting to develop and print one's own pictures. In the beginning the amateur may find it advisable to have his work finished by a professional. As he progresses he should acquire the education required for finishing his pictures.

Chapter XVI

THE "MAGIC EYE"

Since interest in the motion picture strips published by daily newspapers and magazines has attained such proportions this sort of pictorial reporting may be considered a fixed factor in newspaper photography. The public response to pictures of this type indicates a quick acceptance that assures its permanence. The camera that pioneered in this field and popularized it is a motion picture camera making exposures on a standard 35 mm. film. Although the name is not copyrighted it is generally referred to as the "Magic Eye."

Before the introduction of this sort of photography, picturization of stories was confined to various single exposures. Covering an event with any other type of camera meant making intermittent pictures. With the Magic Eye an event may be covered pictorially from start to finish. Most cameras used for this purpose are of the De Vry type, which before reconstruction produce the ordinary motion pictures run off by any hand operated movie camera. One of the very earliest models to operate successfully was devised and introduced by Barney Wollford, a newspaper photographer. He experimented for many years before producing a working model. At a cost of about one thousand dollars and many months of toil Wollford perfected his camera within limits. Since then, mechanical geniuses have improved upon his original model. The greatly improved cameras now used by syndicates and newspapers are the result of much scientific thought and experiment. The average camera

weighs approximately 11 lbs. It measures about 8½ x 7¼ in. and may be operated as a hand box as conveniently as a Graphic or a miniature. Its advantages when contrasted with the single-shot apparatus are many and obvious.

The instrument is highly compact and operates at speeds ranging from 1/25th to 1/3000th of a second according to the adjustments. The principle employed in the shutter operation is similar to that of the standard high-speed motion picture cameras used in the West Coast studios. The extraordinary speed of 1/3000th is attained by special gearing. The motive power is supplied by a clock-spring motor regulated by a governor and a spring brake. A push button at the side of the box controls the motor which starts the film. For normal exposures on average assignments where high speed is not necessary the film will run about 16 frames per second.

The lens equipment for the average Magic Eye should include an f.1.5, f.2.5 and f.3.5. The focal length of the lens is strictly optional. It must be borne in mind that the longer the focal range the heavier and bulkier the equipment. It is quite necessary, however, when covering assignments where distance is to be overcome that a long-focus lens be used. In no sense can this equipment be considered auxiliary equipment. It is much too heavy to be included in a carrying case with the standard Graphic camera. It is highly specialized apparatus, to the successful operation of which the photographer should devote his entire time and thought.

One of the important problems confronting the makers of these cameras was waste film. They have been perfected to a point where only about two to three frames in each series of exposures are lost. Differently expressed only two or three frames are sacrificed before the maximum speed of motion is attained by the motor. The camera is usually loaded with a

100-foot roll of film contained in a magazine. The speed of the run has been developed to a high point of 60 frames per second. With this shutter speed almost any type of activity may be shot. It has a focusing system which enables the operator to assure accuracy under trying conditions. For close-up ranges the lens may be moved by a sliding arrangement so that it is in position for focusing. When ready to shoot, the operator slides the lens back into position and presses the button. It is quite necessary to keep the spring wound at all times.

There is no type of picture, other than those made by a speed flash, which this camera cannot make. It has been used most effectively at fights and ball games. It was also employed during the recent presidential campaign. Wherever action is to be recorded this camera is without a parallel.

For the general run of assignments the Magic Eye is becoming increasingly desirable as the photographer need not rely upon one exposure. Had it been used in covering the recent *Hindenburg* disaster and the assassination of King Alexander I of Jugoslavia in Marseilles several years ago a more complete pictorial record of these events would now exist. It is possible to cover a number of assignments with one roll of film. The news cameraman keeps his eye on the action. His camera is in motion only during the necessary split seconds that so completely tell the story. When the films are developed they can be edited as desired, and the required selections for reproduction made. They are enlarged in the same way that the miniature films are enlarged. The problem of film grain is similar to that of the miniature. With careful handling, proper timing and correct developing the usual hazards are almost eliminated.

Much of the success of the work produced by this camera depends upon the manner in which it is finished. Because of the increased footage the danger of dust and spots is multiplied.

In the larger newspaper plants it has been found necessary to construct a special darkroom to handle Magic Eye films. The same room may also be employed for the finishing of minature films. One of the many advantages of this camera is that the same enlarging lamp used for miniature exposures may be used for its films. These are usually developed on drums, unless a selected section is to be cut out for special treatment. The camera has a self-contained mechanism to punch holes at the side of the film after each series of exposures. This enables the darkroom man to run the film through so that each series of exposures can be identified by the punched grooves. For covering features and other stories that cannot be told in one exposure no better apparatus than the Magic Eye exists. No doubt the near future will see it in the hands of many more newspaper photographers throughout the country.

Chapter XVII

THE SPEED FLASH

The speed flash bulb is the acknowledged dependable source of artificial lighting for news photographers. Years of experimenting have developed several very successful types, and the first flash bulb synchronizer was developed by newspaper photographers. Long before any manufacturer gave a thought to the device press cameramen were taking photographs with home-made guns.

The mechanism was developed to meet emergencies. The days when powder was used have gone and are not regretted as the dangers of powder were many. Despite the fact that the cameramen had developed a speed synchronizer for its use they invariably feared the danger of physical injury resulting from its operation. The flash bulb is practically without dangers. And even though a defective bulb may explode occasionally the damage is negligible unless it explodes directly in one's face.

The two most popular makes are the Kalart and the Mendelsohn. They are diametric opposites in the matter of operation. The Kalart is of the plunger type, whereas the Mendelsohn is electro-magnetic. The Kalart is adjusted to the shutter and is operated by pressing the cable release attached to the tripping mechanism. When the plunger of the release is pressed the bulb is fired and a spring device housed in a small metal box operates the shutter. The action is simultaneous. Contrary to popular belief the shaft which plunges into the shutter

does no harm to its delicate mechanism. This shaft impinges on a metal lever which in turn operates the shutter. The same operation occurs when making exposures without the bulb.

With the Kalart the battery power is not as great as that required for the magnetic type. Synchronization with this lamp is highly efficient. Exposures may be made up to 1/200th of a second. The synchronizer is detachable. The spring device screwed to the shutter may be left in place, thus eliminating unnecessary movement when the operator is ready to take pictures. The battery compartment is fastened to the camera by a set-screw and may be removed easily.

The Mendolsohn speed gun is a flash lamp of the electromagnetic tripping type. It is operated by a battery of at least three cells, each of 1½ volts. The cells are in a separate holder similar to that of the flash lamps used for household purposes. The tripping device is a very simple affair. It consists of a small core type coil with an extended armature. It is hooked to the side of the front board so that the armature rests on the plunging lever of the shutter. It is easy to construct one, but the home-made device is seldom as neat or efficient as the commercial article. There is no mystery to it. It is not as intricate as the description might indicate. Every photographer should be familiar with its operation.

The tripper is hooked in series with the lamp so that when the circuit is closed the bulb is fired and the shutter operated simultaneously. One of the puzzling problems always confronting the photographer is: "Does the bulb fire first or does the shutter operate first?" It takes a fraction of a second for the bulb to ignite. The shutter is mechanically synchronized to operate when the bulb is fired. For those who install their own tripping device it is suggested that the armature be placed in a position where, when pressed down, the shutter will be released.

The Mendelsohn speed lamp is usually hooked to the right side of the camera. Both lamps are fitted with highly polished reflectors which play an important part in controlling the direction of light. They both take the small or medium size bulb. To avoid accidental explosion of bulbs they should never be permitted to come in direct contact with the cold metal reflector when being fired.

The very latest development in speed flash synchronizers and one which may conceivably become the standard for all newspaper photographers, is known as the photo-electric cell speed synchronizer. It is a product of the ingenuity of Harry M. Biele, chief engineer of the Associated Press. For a number of years Mr. Biele experimented with harnessing the photo-electric cell to a speed flash synchronizer. In a series of tests attended by the author this device quite conclusively demonstrated its superiority over all existing types of flash synchronizers. Exposures were made at the maximum speed of the shutter, which is 1/200th of a second. With the lens stopped down to f.32 and at a distance of at least 15 ft., a fully timed negative was made. It is assumed that greater speed may be had when the shutter is geared for it. Inasmuch as the average Compur shutter used by almost all newspaper men has a speed of only up to 1/200th of a second, it has not been possible to make exposures at speeds which would test the maximum possibilities of this device. It is nevertheless believed that when put to the test it will greatly exceed in efficiency the performances of other synchronizers.

This device also employs the electro-magnetic tripper. It had been thought by some that extraneous light might interfere with the operation of the photo-electric cell and prematurely fire the bulb, but this danger has been practically eliminated. In order to set off the bulb and operate the tripper the circuit must be closed. The photo-electric cell functions only in con-

nection with the firing of the bulb. When the contact button is pressed the device operates. Accidental firing does no harm, for should the bulb be ignited accidentally the shutter will not be released unless the full circuit is definitely completed. Accidental film exposures are thus reduced to a minimum.

Another feature of the tripping device is that it does not come down with a hammer-like action upon the releasing lever of the shutter. Its movement is a soft pressure because of built-in shock absorbing springs. To operate this synchronizer the battery handle is constructed to hold 6 small 1½-volt cells, hooked in series, with a given output of 9 volts. The device itself is fastened to the front board so that the armature rests upon the releasing lever of the shutter. There is no back-lash or slipping. It is as rigid as it is efficient.

The need of this latest development in photo flash synchronization is becoming more apparent each day. It has always been the desire of every photographer to cover an assignment with apparatus which would insure the success of each picture, especially on stories where only one picture is available. On occasions where photographers may not be able to repeat, they are necessarily required to depend upon the mechanism of their synchronizers to insure success. This photo-electric cell synchronizer will not only be found useful in the field of professional news photography but by amateurs as well.

In order that correct synchronization be assured by this apparatus, the Associated Press has installed a modern scientifically correct Oscillograph. This is used by the electric power corporations to measure light. Mr. Biele has adapted it to measuring the accuracy of synchronization of bulb and shutter. It visually registers the performance of the synchronizer. The illustrations convey a graphic idea of its importance in every major photographic establishment. To provide the less experienced opera-

tors with a mechanism for testing synchronization the General Electric Company has manufactured for the market a simple device known as the Synchorograph. With it synchronization may be measured, perhaps not as accurately as with the Oscillograph, but enough so to provide the necessary measurements when doubt arises.

It is to be understood that all Compur shutters are mechanical and hence apt to fail after considerable use. When a shutter becomes old its action slows down, so that although the indicator may be set for a speed of 1/200th, the obsolescence of the shutter will result in a loss frequently as high as twenty-five percent. The same loss will result at other designated speeds. To control the failings of the shutter and the unevenness of the flash bulb it was necessary to harness them and provide the utmost in synchronization. To accomplish this Mr. Biele discovered that it was necessary to operate the shutter to take full advantage of the light, which must be had at its maximum, or peak. To give a fair idea of how synchronization operates the following should be considered: It usually takes 5/1000th of a second from the beginning of a flash to its peak. It has been demonstrated that the time from the firing of the primer to the peak of the flash in almost any standard bulb is 13/1000th of a second. To insure perfect synchronization only highly scientific apparatus can be relied on.

The photo flash bulb was invented in Germany during the World War to eliminate the dangers of magnesium powder when taking photographs in places where explosives were stored. It was introduced in America in 1929. The American patent rights for its manufacture are vested in the General Electric Company. The orginal bulb was made with a very small screw base to fit the pocket hand flash lamp. Probably because it was more practical and economical to use the standard American

light bulb with its larger thread this size was adopted. All flash mechanisms are accordingly designed to accommodate it.

The bulbs are made by various corporations, the three major manufacturers being the General Electric, Westinghouse and Edison. Contrary to prevailing belief the bulbs do not contain magnesium foil. The silver-like material in them is hand-beaten aluminum foil, beaten thinner than commercial gold leaf. There are in each bulb four sheets of this foil, each one about 3 in. in diameter. It is packed into the bulb by hand as no machinery has yet been invented to handle it. It is almost impossible to pick up a leaf of it. The girls who pack the bulbs do so with a rubber-tipped piece of wood, not unlike a lead pencil. The standard bulb is practically the same as the 100-watt Mazda incandescent lamp used for lighting purposes. It is first coated on the inside with a cellulose compound. This is done to prevent shattering in the event of breakage or explosion. When the cellulose has dried the foil is packed into the bulb. While this is being done other workers prepare the other parts of the lamp. The slender glass upright in the center of the bulb supports the two wires across which the filament is strung. The filament is then coated with a lead-peroxide primer or fuse. Assembling follows. This is entirely mechanical and automatic. After all air is exhausted from the bulbs the vacuum is charged under terrific pressure with pure oxygen of almost one hundred percent strength. The brass base is attached and the bulb finished. The bulbs are then packed into cases and set apart for testing, one from each case being tested for luminosity rating.

The last phase of manufacture is inspection. This is done by placing the bulb in a specially designed container that automatically records leakage and broken filament. The imperfections that result in the "duds" or faulty flashes frequently com-

plained of are due to broken filaments and insufficient foil. The action of the lamp is quite simple. The filament is overheated by an induced short circuit. The intense heat thus generated fires the fuse or primer, the primer being that little black spot covering the filament. When the primer explodes the sparks ignite the oxygen, which in turn fires the foil, thereby producing the flash.

A suggestion for proper handling of the bulb is not amiss. Before inserting it into the lamp tap it gently on the palm of the hand. This will loosen the foil should it be stuck to the sides of the bulb. The jolting will also tamp the foil down so that it covers the primer. Sometimes packing and handling will crowd the foil to the top of the bulb. The bulb should never be handled carelessly. It should never contact metal or sharp objects as many invisible cracks are thus developed, and a bulb so damaged is apt to explode. Never carry loose bulbs in the carrying case. While convenient this is dangerous. Caution should be exercised to keep bulbs away from high tension electric wires. On more than one occasion photographers passing such wires later discovered that the circuit had fired all their bulbs. High frequencies will also set them off. It is a simple matter to fire more than one bulb at a time by tying any required number together. Firing one bulb will set off the entire cluster.

The latest flash-bulb to make its appearance is the "Super-Flash," manufactured in the United States under the Philips patent of Holland. According to its makers this lamp eliminates waste and provides a greater amount of light over a larger area than heretofore obtained. It is made in a shell the same size as the 60-watt house lamp. It is built to withstand the danger of breaking at the base. Instead of sheet foil it is packed with hydrolanium wire. The process of forcing the wire

into the shell is known as "fluffing" and is done under high pressure. The shell is first coated by a secret process with an anti-shattering solution.

A spot of cobalt salts on the inside tip of the bulb automatically changes from blue to pink if the lamp develops a leak, or cracks. Because of its broader peak it has made the synchronization with focal plane shutters more practicable. The chance of movement when operating with slow shutters is also reduced.

The hydrolanium wire in a lamp is 32 microns thick and 26 meters long. The fuser or primer is coated on the filament by an automatic device which assures evenness in the timing of the firing lag. One hundred per cent pure oxygen is pumped into the bulb after the air has been evacuated. The oxygen pressure ratio is 4 pounds.

In addition to the oscillograph and the synchorograph previously referred to there is another very simple method for ascertaining correct synchronization. This is accomplished by using a small flash bulb tester. This little device may be purchased in any automobile accessories store. When using the Mendelsohn synchronizer insert this small bulb in the battery handle and hold it directly in front of the lens, hook the tripper to the shutter in regular fashion, then set it to the speed required. While looking through the ground glass close the circuit on the battery handle. If the full light is visible the synchronizer is working properly. If it is dim the synchronization is out of adjustment. To adjust it either raise or lower the tripper until the full light is visible when observed through the shutter, then set it at its maximum speed. The same procedure applies to the Kalart, except that in the adjustment it is difficult to correct the tension of the spring. Safe practice is to return it to the manufacturer for adjustment. Apart from its simplicity no bulbs are wasted in this check-up.

Regardless of the lamp used the camera must be held firmly during the exposure, even at a speed of 1/200th of a second, as movement results in failure. Furthermore care should be taken not to jolt the equipment as this may operate the tripper and release the shutter. If the slide happens to be withdrawn an unwanted exposure is made. It is also important to keep fresh batteries on hand. Every time an exposure is made a short circuit is created. No battery can stand up against these very long. Replace the batteries at frequent intervals if much use is made of them.

Chapter XVIII

FOCUSING AND SIGHTING

The twin operations of focusing and sighting that precede taking a photograph have always somewhat puzzled beginners. Even professionals are occasionally perplexed by them when their photography is off standard. Invariably in such cases the faults are due to defective vision, not technique. Proper focusing and sighting are indispensable to clear, sharp, properly centered negatives. If either is inexpertly done the cameraman's work is undone. Sighting is range finding. It is to photography what gun sighting is to shooting. It brings an image within the required register on a film. Focusing is the operation required to obtain the desired sharpness or definition.

It is possible to sight correctly and focus improperly, the result being a correctly centered but hazy image. If the sighting is wrong and the focusing right the image will be off center but clear. Frequently parts of it, such as the head or legs of a person, will be missing altogether. Before auto-focusing devices were introduced all hand cameras were guess-focus boxes, and focusing was much a matter of hit or miss. Built-in auto-focusing has to a great degree eliminated this.

When using a Graphic not equipped with built-in auto-focusing or a range finder the focusing is normally done through the medium of the ground glass, and the sighting by means of either the wire or glass finder. To determine accuracy in either respect several tests are suggested. Choose as a subject any moving object—the type most frequently taken. Such a subject

when approaching the camera is usually photographed at approximately 10 ft. How to correctly determine this distance is simple. Select any point as a marker, take three long steps (normally 9 ft.) and add a foot. If practiced frequently enough this will enable the cameraman to gage this particular distance. Extending the distance and employing the same routine will soon perfect him in approximating any reasonable number of feet. Any such estimate may be checked by a tryout on the moving object to verify its accuracy.

While gaging distance center the object with the eye using the waist (if it is a person) as the focal point. After a little of this visual practice the routine should be repeated with the camera. Set it at the 10-ft. mark on the scale, sight through the ground glass, then check by stepping off the distance or using a tape measure. To determine a 6-ft. distance stretch the arms at right angles to the body with the finger tip of one hand contacting the camera and the other hand touching the subject. In the average adult this stretch is usually 6 ft. When sufficiently expert in these respects a few exposures should be attempted at the several ranges. The negatives will confirm or contradict your estimates.

Sight should not be lost of the fact that objects photographed at 6 ft. demand more sharpness, as the closer an object is to the camera the less depth registered by the lens. Consequently in all such close-up photography the lens should be diaphragmed, down. The faster the lens the less its depth. Because of this those operating miniature cameras fitted with extremely fast lenses should be exceptionally careful about accurate focusing.

Sighting and focusing are very closely allied in obtaining good photographic results. If the camera is of the guess-focus variety it is naturally held to the eye for proper registration of the object on the plate. With the Graphic the wire range

finder is used to accomplish this. It is slightly more difficult to sight with the glass finder as but one eye is used. This at first is somewhat awkward but becomes less so with frequent practice.

The technical peculiarities of photographers are disclosed by their exposures. Some overshoot and some undershoot their subject. These little difficulties are easily overcome once the sighting is correctly gaged and the point of focus definitely established. Assuming that the camera has neither glass nor wire finder the range may be approximated by sighting over the top center of the camera at the rear and the apex of the lens circumference at the front, spotting both on the center of the object to be photographed. This is not as intricate or difficult as it sounds.

On every camera scaled for distances the ranges run 6, 10, 15, 20, 25, 50, 100 ft. and infinity. These scales must suit the lenses used in conjunction with them. To verify this, set the camera on a tripod or other base and sight it at a newspaper on the wall. Starting with the 6-ft. range measure the distance from the center of the lens to the newspaper. Move the camera back and forth until it registers perfectly, then examine the indicator to see that it is on the 6-ft. mark; if not then the scale is off and the adjustment incorrect. If the camera must be used and no scale is available, calibrations may be scored on its bed to indicate footage. This procedure should be repeated for several other distances as a double check on correct register.

When using the Graphic the two sliding clamps on the front bed tracks should be secured where the indicator has been set at infinity—infinity being anything beyond 100 ft. Once set, these clamps should never be disturbed. It is advisable to check their position from time to time as constant drawing out of the front lens board to the stops may loosen or move them forward.

Invisible mechanical defects are frequently responsible for faulty sighting. The glass range finder sometimes works loose and is consequently out of alignment thus throwing the object off-center. The slightest fault in this respect is fatal to proper register of finder and lens. Jarring the metal frame to which the finder is attached will result in the same trouble. Wire finders are easily bent, or the metal flange at the top of a Graphic may not rise to a true vertical position. To make the necessary adjustments employ the method previously outlined for verifying focal distances. Using the ground glass, center the newspaper on it. Then observe it through the finder. If dead center is not registered through the finder, adjust it (if a glass one) by tilting its corners until proper register is established. If a wire finder, bend the frame or its back flange.

Modern cameras incorporate a built-in focusing device for automatic focusing. This is of material help for posed pictures but not particularly good when photographing moving objects because of the necessity of moving the lens back and forth to secure a point of definite focus. It is most advisable when photographing them to accurately determine the distance and expose accordingly.

The greater the speed of an object the greater the difficulty of obtaining perfect register when using auto-focusing devices. Their method of focusing is quite like that employed when operating with the Graflex. With the Graflex the cameraman keeps his object constantly in view except at the instant of exposure when the shutter is released and the mirror flies up. Perfect sighting with this camera is possible because of the large field that the ground glass accommodates. In a 4 x 5 Graflex there are 20 sq. in. on which to register an object. In contrast to this considerable area the miniatures and the Kalart auto-focusing device require sighting on a field less than an inch

square. The difficulty of quick adjustment of focus is obvious.

Most photography, both professional and amateur, covers moving objects. It is therefore necessary to pre-determine the distance between object and camera and set the lens accordingly. If a subject approaching the camera with the scale set at 10 ft. suddenly swerves out of range the cameraman should move with the subject and try to maintain the 10-ft. distance as he may not have time to readjust his scale. Deciding at what distance exposures are to be made he may decide upon a close-up and set his camera at the 6 ft. mark. By keeping pace with his subject he maintains this distance and shoots whenever he wants to.

The difficulties that beset the amateur using the less expensive cameras are not as numerous as is generally believed. Most such cameras are fitted with built-in finders. They are not synchronized with the lens but mounted in the camera and operate independently. Such boxes are seldom operated from a high level, usually being held against the stomach while the operator looks through the finder to locate and center his subject. Not a few of them have distance scales on the front bed. Even a professional using them must guess the distance in order to set his lens at a given point.

The technical procedure of professionals is no secret and provides an excellent guide in all things for amateurs. In focusing and sighting the amateur can, by diligent practice, attain this same degree of expertness. Practice and more practice will eventually perfect him in every division of photography.

Chapter XIX

EXPOSURES AND FILMS

Aside from the practical difficulties of camera operation that confront many amateurs and not a few professionals the matter of exposing must be thoroughly mastered before photographic perfection is attained. This, without doubt, is one of the major phases of photography. A negative may be properly focused and properly sighted but if badly timed it is almost useless; even the formulas designed to help redeem badly timed negatives are ineffective. Automatic timing devices and exposure meters are of great help, particularly to miniature photographers. The professionals have also learned to respect and use them. They solve much of the mystery of making photographs by calibrating the lighting conditions with the emulsions used, thus quite accurately giving the proper exposure.

It may be asked: "Why bother with judging lighting conditions if these meters provide all the answers?" The reply is simple. Assume that the photographer, either amateur or professional, is taking pictures of a disaster. Assuredly in such circumstances he cannot stop to adjust a photometer. By the time he determined the correct calibration and exposure the event to be photographed would have passed and the opportunity been lost. These cases are more numerous than may be thought. When the cameraman may take all the time necessary, or when subjects are posing, the time element is not important and the little exposure meters are quite handy. No set rule covering any particular make of lens or film is prescribed.

It is quite important to quickly judge conditions governing exposures. When making them, the apparatus used, the speed of emulsion, the motion of the subject and the lighting conditions must all be taken into consideration, the latter being governed to a great extent by the seasons. In Winter the lighting is weak and the sun rather yellow. In Spring and Summer it is strong and the sun's rays more actinic. In certain sections of the country the sunlight is always stronger because the atmosphere is clearer. Elevation also is an influence. Light is generally stronger at an altitude than in a valley. In open country it is naturally much stronger than in the city where buildings cast deep shadows. In the smaller cities where buildings are rather low and spaces quite wide the shadows are never as deep as they are in the canyons of city streets. The photographer should make a study of the conditions prevailing in his particular locality. The experienced man never fails to take them into consideration.

To the tourist with a camera these problems are perplexing; nevertheless if he is experienced in judging light with the eye rather than with a meter he is in a better position to adapt himself to existing conditions than the inexperienced itinerant. The absolute beginner has more and greater difficulties, but experiment and experience dissipate these in time. There are more books on the subject of exposures than on any other phase of photography. Many of them are excellent works, highly helpful to any photographer, experienced or inexperienced. Practically all manufacturers provide literature on the subject for the asking.

The photographic technique of news photographers is somewhat different from that of the commercial and portrait operators. There are really no set procedural rules in any branch except those established by the individual for his own conveni-

ence. The news photographer is forever working under unusual and unpredictable conditions. One moment he may be taking pictures in an artificially and dimly lighted courtroom and an hour later making exposures on a college campus. His assignment may be in a coal mine, aboard an airship or any one of a hundred different places. His work is to record what has happened irrespective of location or conditions. For these reasons the news photographer's exposure technique is more universal and offers a better guide for all-round work than that of other photographers.

The news cameraman's methods of operation are more or less similar. He is frequently required to photograph people walking or running. Experience has taught him that to stop the action of a person walking toward him a good picture can be made at a speed of 1/100th of a second, assuming the light to be normal. He can make the same picture at a greater speed if his subject is in the sun or other strong light. To compensate for the strength of light he diaphragms his lens in accordance with its speed. It is his custom to employ the minimum speed necessary to arrest action and compensate for the stronger light with a smaller opening of the lens. This ensures more depth and provides a greater latitude for focal distance. The same subject (a person approaching the camera at normal speed) may be stopped with an exposure of 1/50th of a second. Making a picture at this slow exposure is because of poor light. There must always be some compensation. Sacrifices must be made. Blurred photos result in lost time and more art work. The photographer would rather obtain a slightly undertimed negative without movement than the reverse.

Posed pictures are always easier to make. Under ordinary lighting conditions, using a lens with a speed of f.4.5 and diaphragmed to f.8. or even f.11, a picture at a distance of 7 ft.

from the object may be made at 1/100th of a second in the shade, provided a speedy film is used. Much depends upon the speed of the emulsion. There is a vast difference between the panchromatic and orthochromatic emulsions. The manufacturer invariably designates the speed of his films either by the H. & D. or Scheiner tests. The H. & D. test is the American and British method of determining the speed of emulsion. The Scheiner test originated in Germany and is generally used on the Continent.

A picture made in the shade obviously requires more time than one made in a better light. If the light is very poor, a better timed negative may be had with a slower exposure. It may be necessary to expose at 1/10th or 1/25th of a second with the diaphragm set accordingly. In judging lighting conditions it should be remembered that pictures taken at sea in strongly reflected light are of greater intensity. This same intensification occurs when snow reflects the light. Where no such reflection takes place, as in a forest, the exposure is increased. Trees and green grass absorb light and consequently increase exposure. Panchromatic film is more responsive to artificial light than the orthocromatic or color-blind films. On the other hand the orthochromatic is slightly faster in blue daylight than the panchromatic.

When handling film in the darkroom it is well to remember that panchromatic film should never be exposed to anything but a perfectly safe dark green light. It is better still to handle it in total darkness only. Orthochromatic film may be handled in a safe red light, but care should be taken with the speedier orthochromatic emulsions as they fog when exposed too long to even such a light.

The difference in speed of films when working in daylight is more or less compensated for by the speed of the lens. When

working with lenses faster than f.4.5, the speed of the film, if slower, need not cause any deep concern. Although the panchromatic is slightly slower in daylight it is nevertheless a splendid film for outdoor purposes. Excellent exposures have been made at 1/1000th of a second using superpanchromatic film. Because of its insensitivity to green, as demonstrated by the longer exposures required with it when engaged in woodland photography, it naturally follows that developing it under a green light is the safest practice.

In present-day coverage the newspaper photographer makes more speed flash photos than he does ordinary snapshots. The reason is obvious. Assuming that the picture is to be made at 1/100th of a second, the speed flash assures a fully timed negative with the almost total elimination of shadows. It may seem odd to the inexperienced that the flash is frequently used in broad sunlight. This is not so odd when it is considered that in Summer the subject may be wearing a broad brimmed hat casting a deep shadow over the face and almost obscuring the eyes. The rest of any such picture, made as a normal snapshot, is perfectly timed. However, when it is wanted for reproduction too much art work is required to redeem the facial details overshadowed by the hat. Using a flash lamp the photographer shoots from a low position thus suffusing the entire face with an even light and thereby defeating shadow, but not increasing the intensity of the negative.

Another illustration of the Summertime use of the speed flash lamp is that of taking a picture as twilight approaches. While such light provides enough illumination for registration of the subject on the film it is nevertheless insufficient for a fully timed negative, especially if the object is moving. The use of the flash bulb at normal exposure under such conditions will bring in a fully timed negative. If a posed picture, requir-

ing a time exposure, is wanted at such time the light is sufficient for the speed required but movement of the subject is likely to occur. Speed flash synchronization eliminates this.

Snapshot exposure has been more or less standardized at about 1/100th of a second. This speed arrests the movement of a person walking at a normal pace and also insures perfect timing at distances up to about 15 ft. When the subject is moving faster than normally it is necessary to expose with more shutter speed. With further refinement of synchronizing devices the standard of snapshot exposures is rapidly approaching 1/200th of a second, when standard size bulbs are employed. With further improvement of synchronizing mechanisms such exposures will be further decreased. Amateurs using the less expensive cameras not adapted for speed flash lamps should, as a matter of common precaution, employ the photometer. This will simplify their correct exposure problems. It is also advisable, whenever physically possible, to equip such cameras with flash synchronizers. They are not expensive and do not require much technical knowledge for successful operation.

The lobster-red face characteristic of the first stage of sunburn presents a little photographic problem all its own. In the pre-panchromatic film days people so burned were most difficult to photograph, the red photographing poorly on a color-blind film. With the panchromatic the redness need not worry the photographer as no increased exposure is necessary. Assignments covering accidents frequently bring the photographer to the hospital bedside of a victim whose face appears comparatively dark against the background of white pillows, sheets and walls. An inexperienced photographer is likely to disregard this. In such circumstances the cameraman should adapt his exposures to the light on the victim's face, paying no attention to the surrounding white as it is the face alone that is wanted.

All doubt concerning this is dispelled by using the speed flash, whether photographing by natural or artificial light.

From the very beginning of photography it has been dinned into the ears of the photographer to keep the sun at his back and on the subject. This is not always the best practice. The sun shining directly upon a subject results in squinting and other facial contortions. By turning the subject a trifle, so that the light is only three quarters upon him or her, the difficulty is overcome.

It is most important that the operator of any camera pay particular attention to the type shutter used. The ordinary between-lens shutter generally has a maximum speed of 1/200th of a second. This is not enough to stop the motion, or action, of rapidly moving objects. An automobile or a train traveling at 50 or 60 miles an hour cannot be stopped with a shutter speed of 1/200th of a second. It is not fast enough. Such objects, however, may be stopped with a focal-plane shutter operating at speeds up to 1/1000th of a second. Objects moving with extreme rapidity are best photographed with the Graphic or Graflex. Even the miniature cameras built to operate at high speeds may be employed for the purpose. News photographers covering sports assignments are often required to photograph objects at these speeds. The ordinary run of pictures does not call for them. Unless certain artistic effects are wanted it is inadvisable to take a picture with the lens aimed directly into the light. Such photographs are usually hazy, even though a suncap is used. Publications want pictures of a good technical quality—good blacks, whites not too chalky, and heavy tones not too muddy. Retouching poor prints involves costs and delays that they do not care to be burdened with.

The north light is best for photographic purposes. When outdoors, and without sunlight, the operator will do well to face

south and permit the north light to fall upon his subject. He will then have no difficulty with deep shadows or cross lights. When the light is not too weak and a fast lens and speedy film are used the photographer can take a fully time negative at 1/100th of a second at a distance of about 10 ft. The closer an object is to the camera, the more exposure is required. The farther away, the less exposure is needed. Less exposure means faster shutter speed; slow exposure means slower shutter speed.

Among lenses the Carl Zeiss lenses are universally proclaimed the finest. Until the manufacturers produced films with speed emulsions comparable to that of plates most news photographers depended upon plates. There are still some diehards among them who persist in using them even though the use of film is standard practice with the professionals.

Chapter XX

DEVELOPING

In the larger photographic plants employing big staffs the so-called processing, or developing, printing and enlarging, is done by special men hired for the purpose. The free lance and the amateur who are required to do their own work will profit if governed by the practice of these more seasoned men. The individual who desires to follow in the wake of the newspaper cameramen must realize the importance of speed. The staff photographer on a newspaper is fully aware of this. The free lance must be equally so if he works in competition with him. The sales possibilities of the amateur's pictures depend upon the speed with which he is able to turn them out.

Irrespective of the speed required the most important detail about a darkroom is cleanliness. When making stock developing solutions it is very necessary that clean bottles be used. All such bottles should be washed with boiling water, inside and out, before refilling. The hypo bath should be kept fresh if clean and unstained prints are expected. The hypo box or tray should also be cleaned after each change. If the photographer prepares his own chemicals, care must be used. Dirty scales are apt to cause much trouble when least expected.

Every operator should keep a bottle of reducer and one of intensifier in the darkroom as there is always a time in every photographer's routine when he is required to treat negatives that have been either over- or under-exposed. He is also occasionally called upon to doctor over- and under-developed nega-

SINO-JAPANESE WAR. Above.—Pootung in flames. U. S. S. Augusta in foreground was later shelled accidentally.

Left.—Shanghai scene after terrific bombing by Japanese.

Chinese residents fleeing Shanghai.

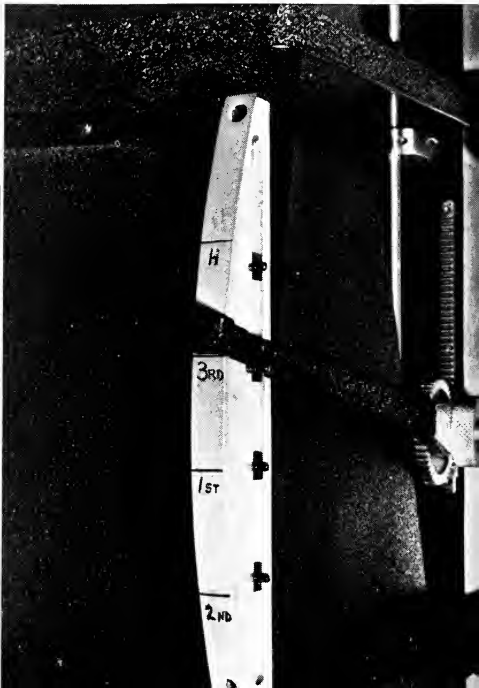
These pictures, the first to reach the United States, were flown to Frisco and transmitted from there by wirephoto. Associated Press photos.

Left.—Long Tom Camera. The Sprague-improved reconstructed Graflex being operated by "Mike" Ackerman of Acme News Pictures. Eye on subject and hand on lever he is ready for a rapid change of focus.

Lower left.—Side view of Sprague improvement showing rack-and-pinion that controls movement of lens.

Lower right.—Photo of scale with bases marked for baseball coverage.

Acme News Pictures photos.

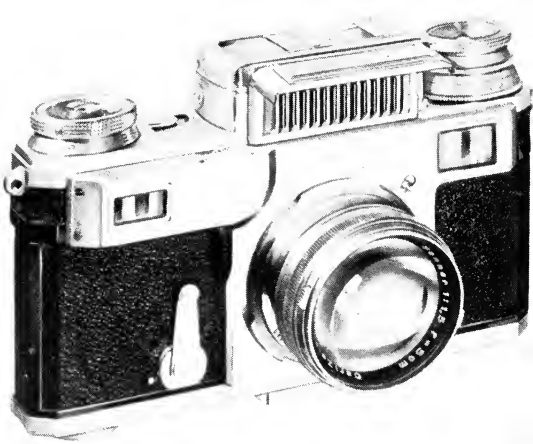


THE GRAPHIC CAMERA. Upper left.—The 4 x 5 speed Graphic fitted with magnascope automatic focusing device.

Upper right.—Same camera equipped with Kalart automatic focuser.

Lower left.—Graphic being sighted through the medium of standard wire finder.

Lower right.—A Graphic reconstructed for candid work. This camera is fitted with a 6-in. f.1.9 lens set in focusing mount.



MINIATURE CAMERAS.

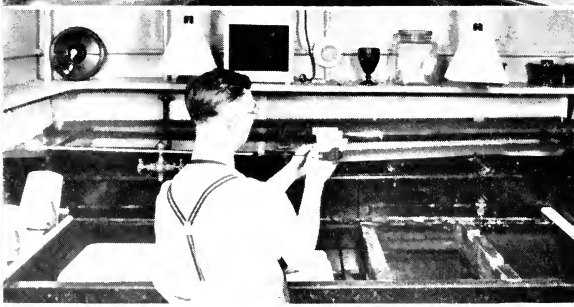
Upper left.—Eastman Vollenda makes negative size 1 3/16 x 1 9/16th of inch. takes spool No. 127 allowing 16 exposures.

Upper right.—The Contax III. This camera fitted with exposure meter, and f. 1.5 lens, takes 35mm. film, 36 exposures to roll.

Center left.—Leica, model G. fitted with f.1.9 lens and taking 35mm. film 36 exposures to roll.

Lower left.—The Exakta, fitted with f.2.0 lens and taking a spool No. 127, negative size 1 5/8 x 2 1/2 inches, focused with reflex mirror.

Lower right.—The Robot camera has automatic film movement device, takes 35mm. film, making negatives 24mm. square.



MAGIC EYE CAMERA AND DARK-ROOM. The Magic Eye is a specially designed high speed 35mm. motion picture camera developed by International News Photos.

Upper left.—Photographer Broderick operating Magic Eye fitted with f.1.5 lens.

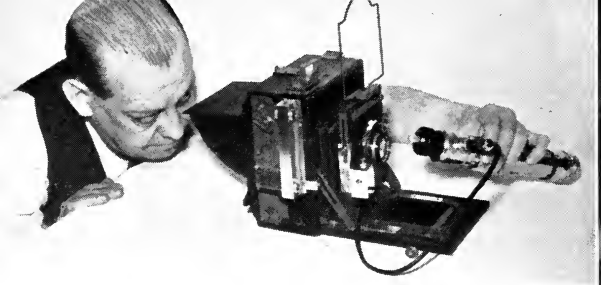
Upper right.—Film being placed in developing tank.

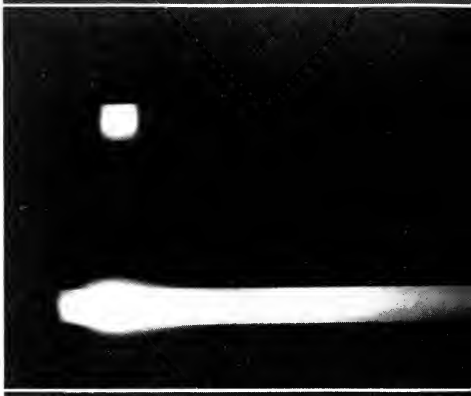
Second right.—Film being swabbed with viscose sponges.

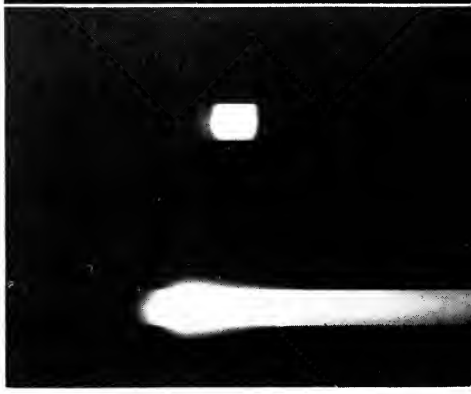
Left.—Section of film hung for drying in hot air cabinet.

Lower left.—Editor Sileo selecting frames for printing.

Lower right.—Printing the films. Jim Hoffman in charge of this work.







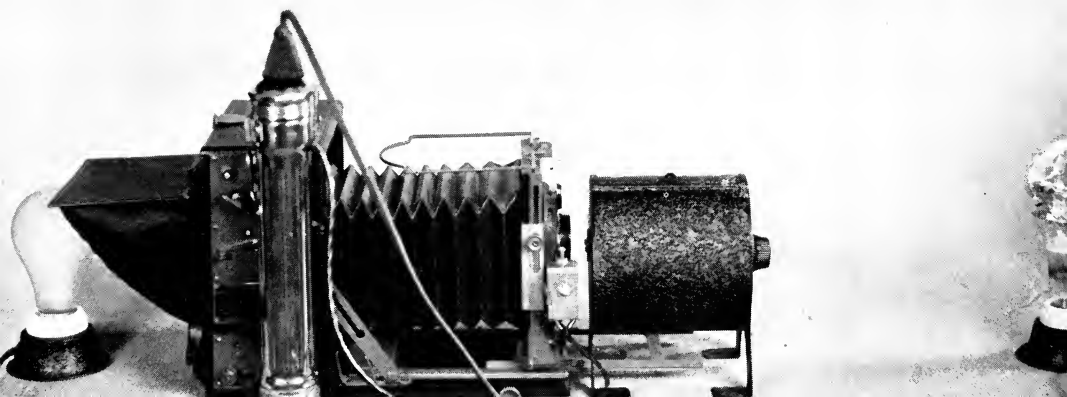
TESTING SPEED FLASH SYNCHRONIZATION. Above.—Testing the synchronizer with small light bulb; a simple method in emergencies.

Upper right.—An oscillograph test recording exposure being made before peak of flash is reached.

Second right.—Oscillograph record of perfect synchronization.

Third right.—Oscillograph record revealing exposure after peak of flash.

Below.—The Synchorograph employed to simplify the technique of speed flash synchronization.



SPEED FLASH SYNCHRONIZERS. Upper left.—Mendelsohn synchronizer controlled by circuit-closing spring on battery handle and Super-Flash bulb.

Upper right.—Kalart synchronizer operated with shutter release.

Lower left.—The Biele, Associated Press photo-electric cell synchronizer with bulb inserted ready for action.

Lower right.—Photo-electric cell is shown in center of reflector.

AUTO DARKROOM. Upper left.—"Chicago Times" traveling darkroom equipped with powerful searchlight and roof platform.

Upper right.—Making contact prints for portable wire transmission en route.

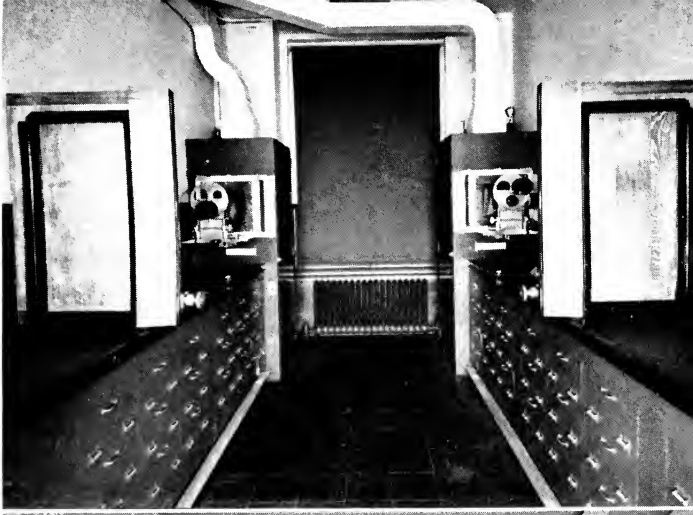
Below.—Interior of auto darkroom showing arrangement of equipment.

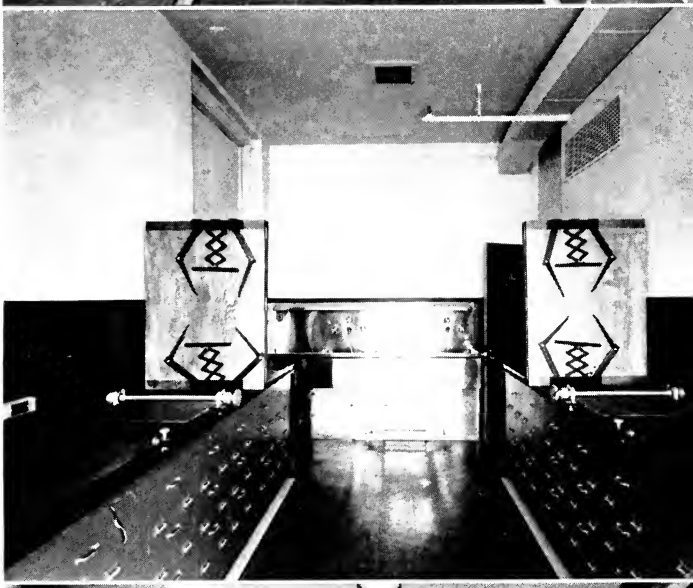
"Philadelphia Bulletin" Model Darkroom. Upper right.—Interior of enlarging room. Unusual features include lamp houses with both arc and Cooper-Hewitt lights. Cameras shown are equipped with triple lens-turrets. All fittings are of stainless steel.

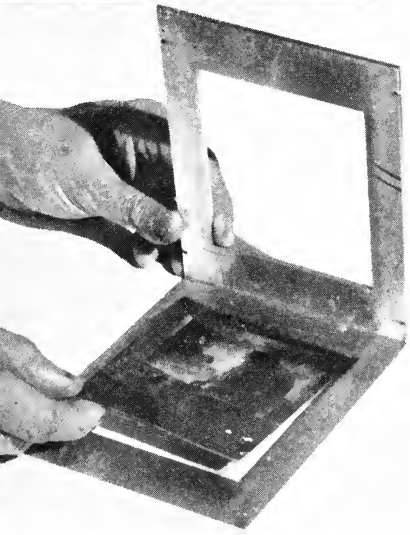
Second right.—View of same room showing specially designed easels with adjustable spring clips to hold paper.

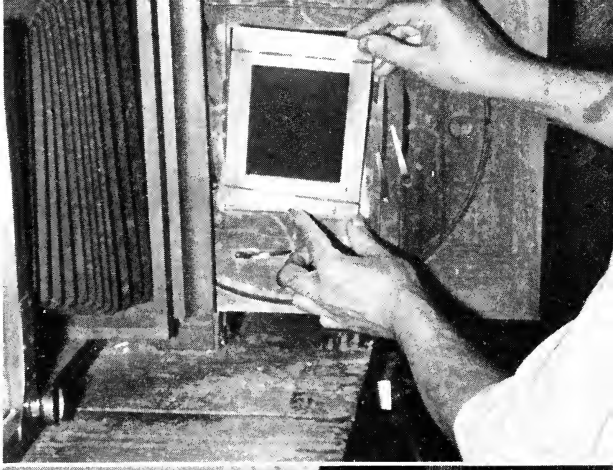
Lower left.—Close-up of stainless steel developing, fixing and washing tanks. Operator has foot on treadle-controlled lighting system.

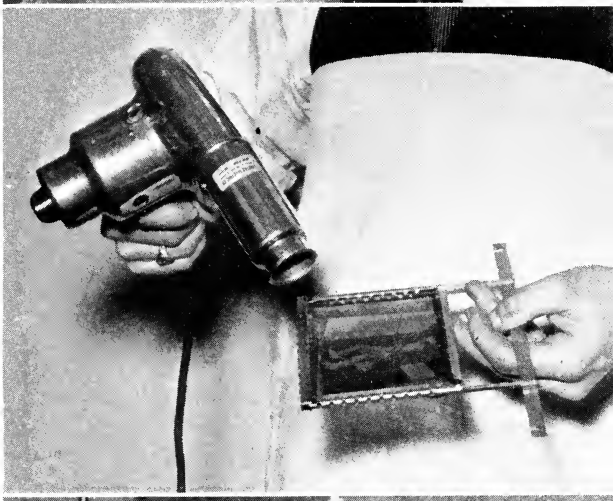
Lower right.—Interior of main workroom. Miniature enlargers at right; stainless steel washing and developing tanks at left. In center distance are doors to individual darkrooms.

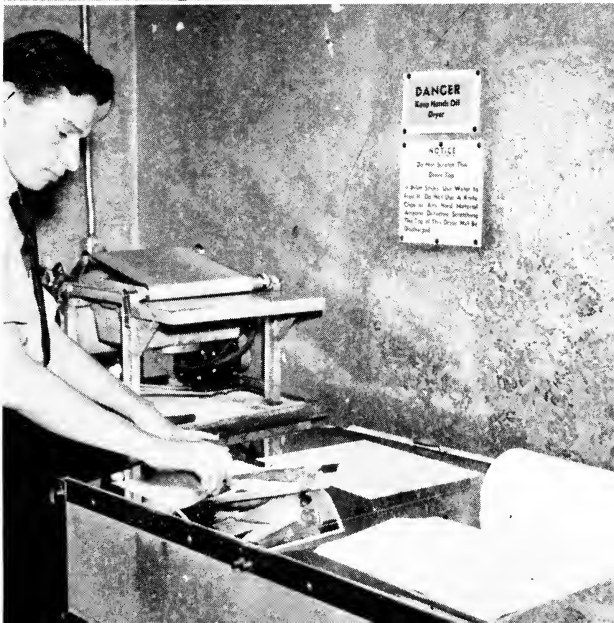












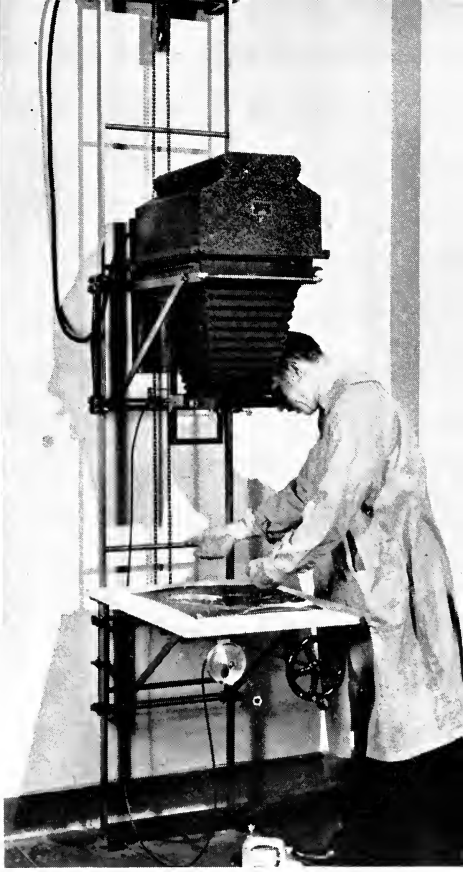
Upper left.—Hurriedly washing negative under water spray.

Second left.—Aluminum wet film holder.

Upper right.—Inserting holder with wet negative into enlarging camera.

Second right.—Rapidly drying a negative with hot air blower.

Lower right.—Ferrotyping prints on chromium plated electric dryer. Print uncurler shown at left.



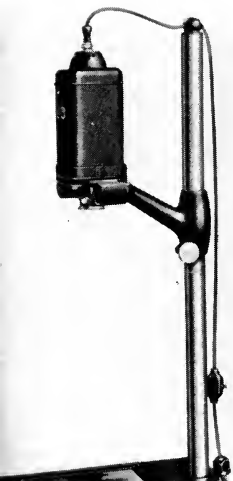
ENLARGERS. Upper left.—Close-up of triple-turret lens mounting on "Philadelphia Bulletin" enlarging camera.

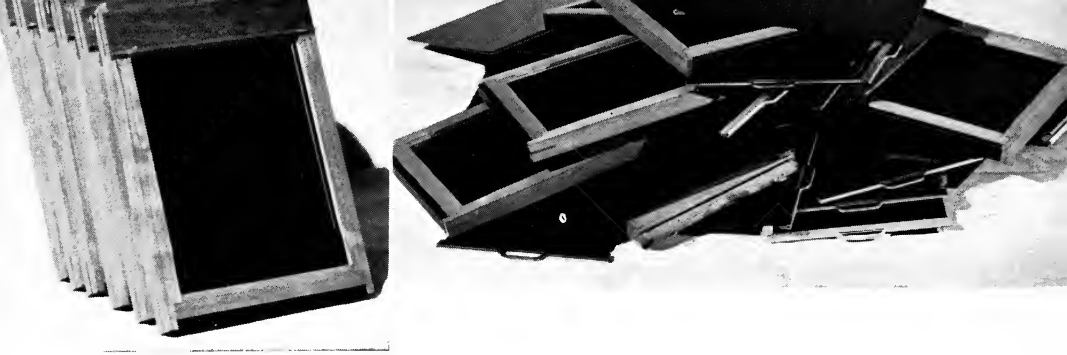
Upper right.—Saltzman vertical counter-balanced enlarger operated by treadle switch and lighted with Cooper-Hewitt square tube.

Lower left.—Zeiss enlarger for miniature films.

Lower center.—Portable enlarger designed and used by the Associated Press.

Lower right.—Leica miniature film enlarger.



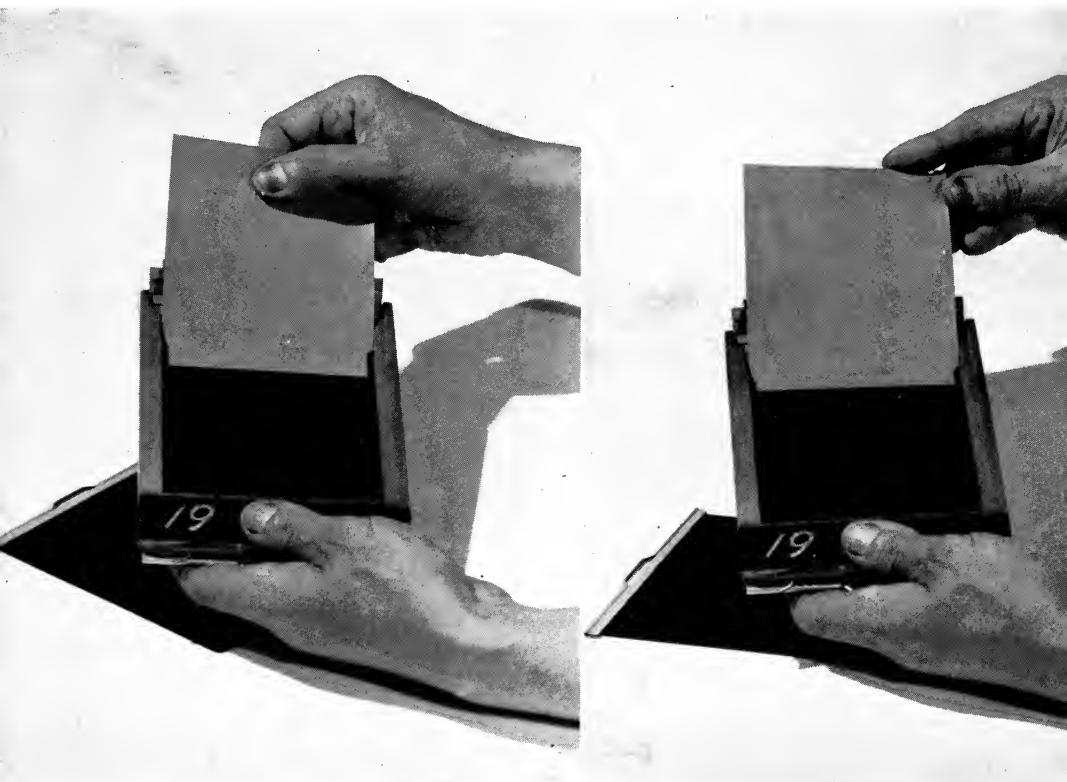


LOADING HOLDERS. Upper left.—Proper way to stack empty holders.

Upper right.—Piling holders in this manner inevitably causes trouble.

Lower left.—The wrong way to insert film into holder. Fingers should never contact the emulsion.

Lower right.—The right way. Film is gripped at the edges.

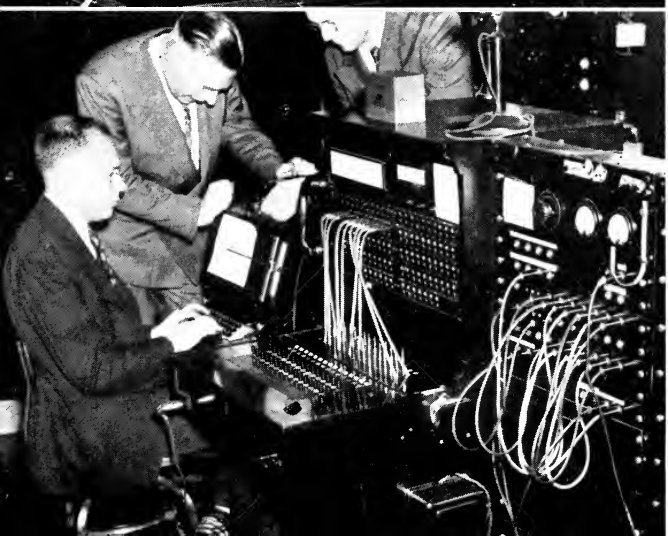


COMPLETE NEWS CAMERA EQUIPMENT. Associated Press staff photographer, Tom Sande, displaying apparatus used in covering assignments.

From left to right.—Big Bertha with 70 cm. lens; 10-in. lens for general sports work; Fairchild aerial camera; Contax No. 3; 40-in. telephoto lens; a 4 x 5 Graflex with 17-in. telephoto lens; Magic Eye camera with short and long focus lenses; in cameraman's hand a 4 x 5 speed Graphic with Mendelsohn flash synchronizer.

International News Sound Photo Transmission. Operator transmitting picture.

Transmitted picture being recorded on receiving cylinder.



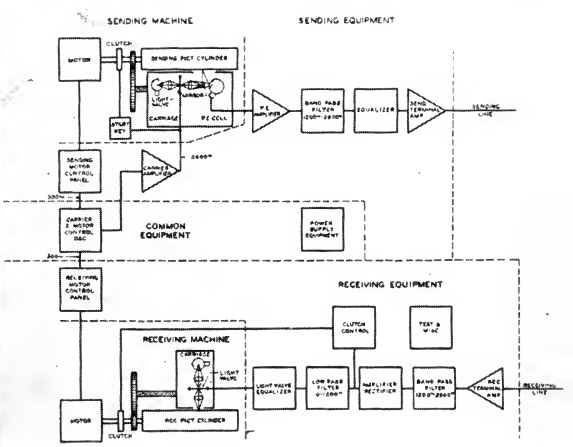
Transmission control room in New York office.

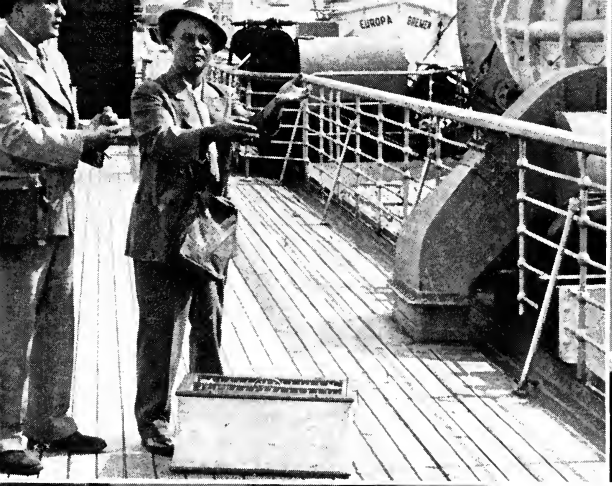
ASSOCIATED PRESS WIRE-PHOTO. Upper right.—Portable transmitter in operation on field assignment.

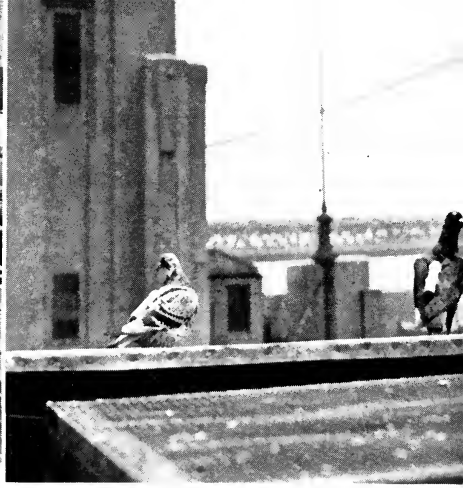
Second right.—Control board in New York office.

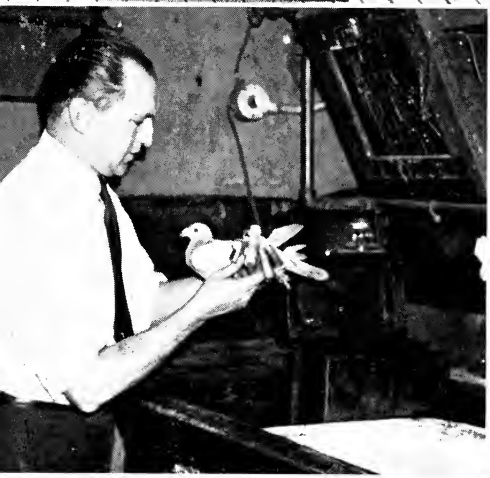
Lower left.—Central bay in home office showing nerve center of network and standard transmitter and receiver in operation.

Lower right.—Diagram of sending and receiving equipment.









WINGED TRANSMISSION. Upper left.—"New York Evening Journal" ship news photographers Barron and Marsland releasing homing pigeons from deck of liner.

Upper right.—Pigeons return to home office.

Center left.—Chief of photographic staff, Robert Kehoe, unloads film capsule in darkroom.

Lower left.—Trainer illustrates method of harnessing capsule to pigeon's back.

Lower right.—A thoroughbred homer with film capsule on leg.

International News photos.

tives. When a negative has been over-developed it is quite a simple matter to somewhat reduce it. The under-developed negative can be intensified. In the reducing process it is well to note that while the negative may be thinned with reducer, a certain flatness will result. This may be overcome and the required brilliance obtained by using the proper grade of paper.

When a negative is badly under-timed and forced in the developer the intensifier provides very little help. Usually it becomes very grainy after the salvaging. If the negative is thin because of under-developing, the intensifier will save it. However, miracles cannot be performed in the darkroom. Chemicals can only do certain things. To expect to save a badly under-timed negative with the help of an intensifier is expecting too much. There is a tendency to over-time negatives in Summer and to under-time them in Winter. Such exposures have long been a source of annoyance to the cameraman but improvements in apparatus have materially reduced this. The speed-flash has greatly aided in this respect and resulted in negatives that are more or less uniform.

Another difficulty which besets inexperienced, and sometimes experienced, men is the improper method of developing. In Winter when the water is extremely cold many photographers lose the full value of negatives by neglecting to reduce the water to a proper temperature. Such oversights are sometimes excusable when speed is a consideration as the photographer then has no time to warm his developer. Proper preparation should be made in advance of the assignment by setting the developing tank in a larger tank containing warm water. A steady flow of this warm water should run into the larger tank and cover at least half the depth of the developing tank. This little precaution will enable the photographer to operate in safety during extremely cold weather.

In Summer when the water is apt to become very warm caution must be used in handling films. If the developing tank is set in a larger one containing cold water the developer can be kept at the proper temperature. The practice of chilling a developer by putting ice into it is sometimes effective but rather dangerous as the dissolving ice will dilute the developer, or the operator may forget to remove it when putting films into the tank, thus scratching the negative. Wherever possible, it is suggested that the developer be kept in a refrigerator during warm weather. Many darkrooms are equipped with electrical refrigerators for this purpose. In warm weather the film emulsion is apt to soften naturally. Putting it into a warm developer softens it still more. Unless proper protection is provided it will be impossible to print the negative while wet as the heat of the lamp will cause the emulsion to run, thus destroying it altogether.

In almost every newspaper photographic plant prints are made from wet negatives. Even though washing and drying do not take more than five or ten minutes the time element is so important that negatives are not put through these processes. Therefore, unless the negative has been properly treated trouble is likely to occur when developing. If a fresh fixing or hardening bath is kept on hand and the negative developed in a solution of the proper temperature, the danger of "emulsion running" is greatly minimized. To prevent any possibility of trouble with soft negatives in the wet printing process a formaldehyde bath consisting of one part formaldehyde and eight parts water should be prepared and used. The film, after it has been fixed, should be immersed in water for a minute or so and then allowed to soak in the formaldehyde bath for the same time. By allowing the hardener to drain off, the negative is ready for wet printing. This chemical treatment hardens the emulsion and makes the film easy to handle when speed is neces-

sary. Most of the troubles in the darkroom occur during the warm weather. Ventilation has a direct bearing on this. Wherever possible a fan should be installed to keep the air circulating, and a vent or louver should be placed conveniently.

It is advisable to develop films in a tank as this eliminates the danger of scratching through careless handling. Special hangers are made to hold the film while going through all the processes. The routine is simple. The film is extracted from the holder, inserted in the hanger, and then suspended in the developer. It is fixed and washed in the same manner. When so handled the photographer can easily sponge the film to clean off any sediment which may have accumulated on its surface during the washing. Films may be developed in a tray, but this is a bad practice as the tray must be rocked, and this rocking will inevitably damage the emulsion as the films slide over each other. Tray developing is considered by some the speediest method of handling films. In emergencies one or two films can be handled successfully in this way but the photographer must protect them by not permitting them to contact. No time is really gained by the tray method.

Various formulas are available to compensate for the speed necessary, these ranging from four minutes up to any required time. With the general adoption of panchromatic films, tank developing has proved more desirable and popular. To play absolutely safe panchromatic films should be developed in total darkness as the photographer may leave them suspended in an uncovered developing tank and carelessly go into another room. During his absence someone may enter and turn on the light thereby fogging the exposed films, a thing that cannot happen if the tank is covered. The cover of a tank should have flaps or flanges on the four sides, thereby insuring the films against accidental lighting.

Films should be kept in motion while being developed to prevent streaking and to insure even developing. It is not necessary to stand by and move them continuously. Shaking them every few minutes will do the trick. A clock is helpful when developing. Certain suitable clocks have just one hand, either a second or a minute hand, which may be set for a given time. When the time is up the alarm sounds. It is surprising, but true, that even the most experienced photographer is sometimes forgetful and overlooks those little things which seem so unimportant, but which nevertheless have an emphatic bearing on the success of his work.

When the films are developed they should be removed from the developer, rinsed in fresh water and then immersed in the fixing bath. They should not be allowed to remain motionless but should be moved until the fixer has done its work. Films should not be taken from the fixing bath and exposed to the light too soon. They should be allowed to remain a few minutes before being examined under the light. Carelessness at this stage may cause chemical fog, which invariably results in a flat print. When the negatives have been properly fixed they should be washed in running water for at least fifteen minutes. If the time is to be cut they can be held under a tap or spray for a few minutes. A helpful spray which can be attached to any faucet can be purchased for twenty cents. Governed by a lever it delivers a single jet or a spray of any desired width. It is very useful in washing negatives quickly and also for washing trays and other accessories.

The next stage is printing. If the negative is to be printed while wet it should be given a formaldehyde bath, sponged and made ready for enlarging. If it is to be dried first it should be swabbed off on both sides with clean cotton under running water, then hung up or set in a rack for drying. If it is to be dried

before an electric fan it is well to allow a few minutes for the negative to set before turning on the fan. It may also be dried with a hand blower similar to that used by women for drying the hair. This is usually built with a rheostat governing the heating element. It takes only a minute or two with this appliance to dry a negative.

Unusual care must be exercised if the one general darkroom is used for developing miniature films. Because the negatives are very small dust specks cause considerable annoyance. The average photographer develops his miniature negatives in a tank made for this purpose. These tanks should be thoroughly scoured and dried after using. When not in use they should be covered to prevent dust from settling on them. In handling miniature films the fingers should be kept off the emulsion. When handling the larger films they should be held by the corners to prevent thumbing. With a little practice it is easy to manipulate any size film by holding the edges only. A certain amount of oil exudes from the hands, and if fingers (especially in warm weather) touch the undeveloped dry emulsion an imprint of the fingers that cannot be removed appears.

After developing miniature film the developer is poured out of the tank and replaced by fresh water. This in turn is emptied and the fixing bath poured in. When the film has been properly fixed it should be washed in running water for at least fifteen minutes. There are many different devices to hold the film while washing it. They are practical, serviceable and inexpensive. Drying miniature film requires considerable care. In the larger photographic departments special equipment has been designed for this operation. If the amateur cannot afford one of these mechanical driers he may build a long box in which to hang the film and attach a small hand blower with a heating element. A piece of cheesecloth should be fastened in front

of the blower to prevent dust from getting into it. One end can be left open, but this, too, should be protected by cheesecloth. In making enlargements from the small films each little spot is magnified many times according to the size of the enlargement; hence the emphasis on keeping them clean. Developing them can be done almost any place where there is running water. It is not absolutely necessary that they be developed in the same darkroom in which the larger films are handled.

It may be that the photographer wants to mix his own formulas. This is not at all as difficult as may be thought. By following any prescribed formula and mixing the chemicals according to instructions no difficulty should be encountered. But as in all things photographic, cleanliness must be observed. Separate small pieces of paper should be placed upon the scale for each chemical weighed. Never use the same slip for more than one chemical. If a glass graduate is used it should be properly cleaned before using. When stock solutions are mixed a glass funnel should be used for pouring them into bottles. A small piece of absorbent cotton in the funnel will serve as a filter. The more elaborately equipped plants are well supplied with the latest thing in filters. The photographer may very easily improvise one by tying some cheesecloth around the mouth of the faucet. As there are many localities with impure water the matter of properly filtering it for all photographic purposes should receive careful thought.

It may seem strange in a work devoted to the technique of photography that no formulas are presented here. The reason for this is that changes are constantly occurring and that what may be approved today is obsolete tomorrow. The manufacturer is best able to provide the formula most suitable for his emulsion. Deviations from these prescribed formulas are often costly. For the individual who desires a more thorough knowl-

edge of the chemistry of photography it is suggested that he procure any of a number of excellent books on the subject. Many manufacturers of chemicals also publish pamphlets covering the subject. The Mallincrodt Chemical Works offers a book on chemistry in photography. It is simply written in non-technical language and is easily understood by the layman.

Before starting to develop, an inspection of the darkroom should be made. Turn out all lights and after securing the door from the inside look around for light leaks. While films may be safe from fogging when in the tank they are exposed to danger when being unloaded from the holder to the film hanger. It is rather important to know the type of developer best suited for the films used. No one formula will give satisfactory results for all types of emulsion. The makers of any film will be glad to furnish all required information regarding the formulas to be used with it.

Some exposures are best treated with a "contrasty" developer. Snapshots made under poor lighting conditions are among them. Portraits and similar subjects are best developed in a soft developer. There is a vast difference between a "contrasty" developer and a soft developer. In order to procure the best results in printing, the negative should have the qualities required for the type print desired. When negatives have been dried and prepared for printing half the work has been finished. Before discussing printing, the various makes of lighting and enlarging apparatus should be considered. As practically all news photographs are enlarged for reproduction the subject of enlarging apparatus is important.

Chapter XXI

ENLARGING—DRYING

Most newspaper photographic negatives are 4 x 5 inches. These are enlarged for halftone reproduction, the standard enlargement being 8 x 10 inches, although some plants prefer 11 x 14-in. prints. Blowing them up to either of these dimensions is dictated by purely practical considerations as they must be retouched before satisfactory halftones can be made from them. This artistic pointing up is done with almost all prints before they go to the engraving department, and a print the size of a small negative does not provide field enough for the artist's pen and brush work.

Enlarging has been the practice from the very inception of newspaper photography, although in the early days it was laggard work due to slow emulsions and unsatisfactory illumination. Some approach to the power and brilliance demanded for faster work came with the introduction of the Wellsbach gas mantle, a fairly effective but extremely fragile lighting device. From this primitive lamp followed a literally brilliant succession of other lamps employing gas, electricity and mercury vapor.

The first of the really practical lamps was the carbon arc. This was succeeded by the revolutionary Cooper-Hewitt mercury-vapor lamp, the introduction of which was saluted as the all-time answer to printing illumination problems. It generates very little heat, gives an evenly diffused light of satisfactory intensity and is still standard equipment in most newspaper

photographic departments. Incandescent and flood light lamps followed.

The paper manufacturers kept pace with the developments in lighting and produced papers with speedier emulsions and more degrees of contrast. From a primitive one degree the number has expanded to papers offering five degrees, from the softest to the hardest, and providing for the whole range of tonal gradations. The latest is a chloro-bromide emulsion perfected at the suggestion of the technicians of the Associated Press.

Progress in everything pertaining to enlarging has been systematically uniform. The old-fashioned view camera erected upon a platform in front of the light was superseded by a long succession of cameras, each a distinct improvement on its immediate predecessor. One meeting with a warm newspaper welcome was the auto-focuser. The projection medium in this is an incandescent lamp. Although still extensively used its popularity has surrendered somewhat to the more modern Saltzman vertical enlarger employing a square Cooper-Hewitt mercury-vapor tube. This lamp is delicately counter-balanced on uprights and is easily manipulated.

An enlarging lamp perfected by Walter Howey of the New York *Daily Mirror* reduces heat to a minimum through the medium of a metal jacket in which water of constant degree circulates. Those who have had experience with overheated lamps and the resulting damage to film will appreciate the advantages of a uniform low temperature in a lamp working in long stretches. This light is a development used only in the photographic plants of Hearst enterprises.

Enlarging is not a difficult process to master. It is fundamentally mechanical, although good judgment and a certain manual dexterity are required for the shading. It is another

form of photography in which sensitized paper instead of film records an image projected through a lens. Printing paper is naturally much slower than film emulsion. It would be quite impossible to handle a paper having the same speed as film for the reason that a too rapid paper would permit the operator no time for such necessary manipulation as shadowing or sectional exposing; furthermore its use would result in considerable waste.

Almost any camera may be used for enlarging. Those with either a spring or adaptable back are the more satisfactory. The types commercially available are many, and the prices varied enough to suit even the most modest purse. There are several small and compact models that are easily screwed to a table and just as easily removed. An up-ended table will serve as an easel, and the required paper holder can be made without much trouble although it is better to buy one as they are not expensive.

The lighting medium depends upon the type of enlarger employed. Miniature film enlargers have a lamp house that permits the use of a high-watt incandescent or standard flood light bulb. Comparatively small areas are lighted by these lamps. For negatives 4 x 5 in. and over a light that fully floods the surface is necessary. A light that cuts the corners should never be used. When printing the larger negatives a camera with a square instead of conical bellows gives best results. Many photographers prefer condensers for amplifying the light. When adapted to the spot type of lamp such as the arc or single bulb these are highly effective. For an even spread and some diffusion of light the ground and the opal glass are equally satisfactory. When used these should be located directly in front of the light.

Handling paper depends on the type of easel used. One of

the earlier methods employed an easel operating on tracks or in grooves set on the floor or ceiling. For the floor type a vertical easel was used; for the ceiling model a horizontal one. Some of these are still used by photographers specializing in large size prints. A popular easel is the bench model which also operates on tracks or in grooves. It has compartments for holding the various sizes and grades of paper. For convenience in pinning or tacking prints most easels are made of wood. The most convenient device for holding paper consist of four adjustable spring arms at the four corners of the easel. Easels for auto-focusing lamps and vertical enlarging cameras lie flat. Sliding metal arms not only hold the paper in place but provide for the required white margins.

To enable the operator at all times to see what he is doing a sliding filter holder should be adapted to the front board of the camera either in front or back of the lens. This should have two apertures, one blank, the other accommodating either an orange or green filter. The filter is slipped into position when adjusting the paper and removed when the exposure is made. It enables the operator to manipulate his paper without fogging it.

Another paper-holder for those who go in for mass production is a wooden box loosely fastened to the easel with a bolt and nut. It holds a gross of paper and may be swivelled to any angle. A front flange provides for print margins, and the paper is held firmly by a steel spring. As each print is made it is extracted and another sheet of paper automatically pushed into position by the spring. Most of the newspapers and syndicates use this box for prints of all sizes. It may be bought in any photographic supply shop.

Suitable lenses for enlarging should be carefully considered. If the standard 4 x 5-in. negative is to be enlarged, at least a

6-in. lens should be used. If miniatures are to be enlarged a much smaller lens is required. The "throw" or length of the light beam is also important. Lenses of short focal length call for less distance between lens and paper than those of longer focal length. The distance increases in direct ratio to the length of lens. It is not wise to use a short lens when printing a large negative as distortion results. In all respects the enlarging routine parallels actual photography, the sole exception being pictures made with a wide-angle lens.

While almost any type of camera is suitable for enlarging it must be secured against vibration. The light, too, must be protected from all movement as movement in either camera or light will give any print the shivers. A treadle-controlled light minimizes this danger. If a hand switch is used it should not be hooked-up to any part of the enlarging apparatus. Negatives, also, must be insured against slipping when in the enlarger. There are types of holders that grip them firmly. Some of these are integral parts of the lamp. The auto-focuser has a slide accommodating two sheets of plain glass between which the film is placed when exposing. This holder is grooved to receive plates. The vertical enlargers provide the required protection against vibration as the negative lies flat between the glasses. The horizontal enlarger requires that the glasses be held together firmly.

Miniature enlargers are of the vertical type and employ a standard method of handling either the individual frame or an entire roll of film. Some models hold it between glass while others employ metal frames fitted with grippers. When glass is used it should be well cleaned as dust on its surface results in magnified pin points on the enlargement. A water and ammonia solution is a good detergent. Cloth, chamois or tissue should be used when drying to prevent scratching.

Enlarging negatives while wet is standard practice in all newspaper plants. In an unusual rush they are sometimes printed without even being washed. Wet printing is not particularly difficult but requires care. All negatives should be fixed in a good hypo bath, thoroughly washed in cool water and then hardened in a formalin bath consisting of one part formaldehyde with eight parts of water. After resting in the hardener for about a minute the negative should be swabbed to remove any surplus solution. When so hardened it will withstand heat and handling. Exceptional care should be exercised not to fingerprint a negative as nothing will remove these digit imprints from the emulsified surface of film or plate.

Using the proper holder when printing is important. Slipping the negative between glass plates is not recommended because of the danger of scratching. An effective and simple holder may be made from sheet aluminum, stainless steel or zinc. It consists of two plates with an overall dimension of 5 x 7 inches. A 3½ x 4½-inch square opening is cut in the center of each, also two ⅛-inch notches ½ inch from top and bottom.

The wet negative is set on one of these plates and covered with the other. Both are held together by a stout rubber band reeved through the notches. Frame and negative are then slid into the enlarging camera and the exposure made. When focusing, the lamp light should be switched on and off between prints. Under no circumstances should it be permitted to burn constantly because of the heat generated. If more than one print is made the holder should be withdrawn between exposures far enough to clear the heat of the lamp.

Negatives should be placed in the lamp upside down with the emulsion facing the paper. They will then be reflected in a reversed or normal position on the easel. Proper focus and

size of print are determined by racking the easel back and forth. After these have been established the easel and lens board should be clamped to prevent movement during the exposure. Whether printing a wet or dry negative the method of exposing is the same. This operation is governed by the density of the negative, power of the light and speed of the paper emulsion. A typical newspaper routine with a 4 x 5 film follows: The light is provided by a Cooper-Hewitt mercury-vapor lamp; the lens is of medium focal length with a speed of f.4.5; the negative, is an average shot of medium density. This combination with the lens stopped down to f.8, requires an exposure on bromide paper of a few seconds.

Timing of any duration must be predetermined by the operator. To play safe and avoid waste of paper it is advisable to cut a sheet into strips and use them on experimental exposures. These will show whether the timing is correct and also whether the proper grade of paper is being used. These test strips are particularly recommended when engaged in mass production of prints. Papers are of many grades and provide for negatives of all densities. A knowledge of these densities is indispensable to the selection of the proper papers. Thin negatives are best printed on contrast paper; heavy or dense negatives give best results when printed on a soft paper. A negative may be dense and flat, in which event a contrast, rather than a soft paper will relieve the flatness. The soft paper is used on a dense negative only when it is contrasty. A well timed and even negative may best be printed on medium paper.

The density of a negative is best judged by holding it to the light. If difficult to read and the light penetration is weak, the negative is dense. If light penetrates the highlights and the shadows are normal the negative is medium. If the highlights are dense, the gradations difficult to note and the shadows thin,

the negative is contrasty and calls for a soft paper. Choosing papers is altogether a matter of opinion based on experience. Each type has a different base and weight. Some print blue-black, some cream, others pure black and white, still others greenish-black.

Deficiencies in a negative may be corrected in printing by dodging or shading. This is accomplished by cupping the hands between the lens and paper, thus controlling both the volume and direction of the light beam. In this manner any desired part of a negative is built up or reduced. This manual light control is really a method of sectionally light-treating a print. The same results may be had with a piece of cardboard having a hole in the center. A more practical device with greater latitude is the vignette with cardboard leaves that may be fashioned to openings of any desired size. When shading, the hands, the cardboard or the vignette must be kept in constant motion, otherwise a definite rim will appear around the shaded areas in the print.

Another method of controlling the quality of the print consists of localizing when developing it. If the operator incorrectly timed or shaded the exposure the fault will be revealed as the image appears in the developer. It should be removed immediately and held under running water to arrest the developing process, and then treated with full-strength developer applied with a piece of cotton. This treatment should be applied only to the areas where the timing fell short. A little of this is done at a time and the print alternately returned to the developing tray and the running water until the desired results have been obtained, after which it goes to the stop bath and the hypo solution for fixing, then washed.

These operations are followed by ferrotyping if glossy prints are wanted. If a matte finish is desired the print is dried on

cloth stretchers, drums or by any of a dozen different methods. As with negatives care should be taken not to fingerprint a print. They are also very easily stained when not properly handled. Common causes of this are careless washing, forcing a print with old and worked-out developer and fixing it with weak hypo, which also shortens its life. The permanence of any print is altogether a matter of properly processing it. Before ferrotyping, prints should be thoroughly washed and swabbed to remove all surface deposits. Unless this is done the remaining sediment will be baked into the print and ruin it. Ferrotyped, or glossy, prints are preferred for newspaper reproduction as they provide the full definition required for engraving.

The method of drying a print depends in great measure on its emulsion. When speed is essential, matte prints are best dried in gas- or electrically-heated drum driers. The print is placed on a canvas-web conveyor belt passing over a heated drum. Before the introduction of hot-plate driers ferrotyping was accomplished by placing the print face down on a japanned tin coated with a beeswax and benzine composition and then rolling or blotting out the surplus moisture, after which the tin was stood before a fan or heating element until the print dried and fell off.

The modern method employs both drum and flat-plate gas- and electrically-heated driers. A conveyor type consists of a series of separate chromium-finished plates that move at a regulated speed over the heating unit. The rate of movement permits applying and removing prints without stopping drum or conveyor. Some of these devices automatically squeegee the prints. A very popular model in small as well as larger plants is the box type with a flat electrically-heated chromium plate. A switch controls its various degrees of heat.

Chromium plate provides an exceedingly hard and highly

polished surface that requires no processing before applying prints. If the plates are overheated and the paper emulsion is soft the prints will stick. To prevent this the heat control should be watched and the prints hardened by immersion in the formalin bath. Drying is slower in damp weather. During extremely cold spells prints frequently become brittle and crack when removed from the plates. To prevent this they should be treated in a glycerine bath consisting of one part glycerine, one part alcohol and ten parts water.

It is decidedly unwise to roll brittle prints over a table edge to flatten them as this cracks them. They should be slightly moistened and then rolled or placed between blotters in a letter-press. A simple and practical device for taking the curl out of any type of print is the old-fashioned canvass shade roller. Place the print on the shade and then roll it up. Let it set for a few minutes before unrolling. It will come out flat, or with a slight reverse curl that may be removed by placing the print face down on a flat dry surface.

In large plants where the prints are turned out in quantities, the standard non-curling machines are used. These devices may be purchased in photographic stock houses. The machine produces enough moisture to take the curl out of the print as it is passed through on a webb belt operated by a small motor.

Chapter XXII

THE DARKROOM

Before miniature and motion picture photography stepped in and revolutionized things but one type of darkroom was to be found in newspaper plants. The introduction of panchromatic film also contributed somewhat to the reorganization and reconstruction of these rooms. All such photographic departments now include, in addition to the various rooms in which routine films are handled, a special darkroom for the treatment of miniature and movie films. Not a few amateurs have also somewhat altered their darkrooms for the same reasons. The old-time cubicle with its one red light, small water tank, few trays, dirty towel, poor plumbing and worse ventilation has been supplanted by something much more efficient and sanitary.

Just as there have been marked advances in the technical divisions of photography so also has the darkroom profited by its adaptation to what this improved photography demands of it. All large newspaper photographic departments have a number of fully-equipped individual darkrooms, the number depending on the size of the camera staff. There are also the special rooms for miniatures and movies, printing rooms, drying rooms and finishing rooms, all constructed to handle a great volume of work in the most expeditious manner. The free lance and amateur need no such elaborate setup. Most of them get along very nicely with one room for all purposes. A good, well-designed darkroom can be constructed at small expense if the following recommendations are observed:

A room 10 x 12 ft. is big enough for any but professional use. A water tank about 2½ ft. wide, 5 ft. long and 8 in. deep should be installed in a corner of it. This should be made of 2-in. cypress with the joints dovetailed, no nails being used. All seams should be cleated and the whole tank reinforced with outside bolting. A tank so constructed is warpproof and water-tight and should last for at least ten years. No proofing of any kind is required as cypress is by nature a wood particularly adapted for this purpose.

A hypo compartment may be incorporated as a unit of the tank by simply dividing it, using for this purpose a length of cypress. This should have an outlet into the water compartment to permit draining and flushing of both at the same time. A drain should be installed in a corner of the tank and the tank slightly tilted to facilitate drainage. If constantly running water is wanted a length of brass pipe with perforations at 1-in. intervals and closed at one end should be installed on the bed of the tank. The open pipe-end is attached to the spigot. This will insure a free and steady circulation of clean water for washing prints, keeping them in constant agitation. This is important as prints have a tendency to either mat or float to the surface. The result is spotty washing. A twin spigot is recommended as this provides another outlet for any water that may be needed for other purposes. A third spigot for hot water should also be installed.

A decided convenience is a sliding rack built within the tank about 4 in. from the top to accommodate trays. Cleats fastened to the inside front and rear of the tank support this rack. The red light for developing and printing should be above and to the rear of the tank, or, if preferred, an adjustable overhead drop light may be used. To facilitate loading film holders and printing frames there should be a table or bench at the side

of the tank. On this an upright portable enlarger may be placed. There are many types of enlarging outfits including several small and inexpensive models for those whose needs or purses call for something less elaborate than the professional apparatus.

Another table to support a miniature lamp will be found useful as this equipment is not used for any but miniature negatives. These enlargers come in several sizes at various prices. Professional equipment usually includes an enlarger with a portable easel operating on tracks for focusing purposes. For amateur use the vertical lamp already referred to answers all purposes. Another bench in some other part of the room for finishing prints will be an advantage. Next to this is an excellent place for an electric dryer. These dryers are a marked improvement on the old ferrotyping tins. They completely do away with drying prints before fans and do much better work in a fraction of the time previously required. A small drying shelf with racks should be erected to receive negatives in hangers. Amateur and free lance cameramen who care to do things in the professional manner may plan the darkroom to include a separate unit for developing. This is highly desirable, when practicable, although not necessary.

There have been so many darkroom innovations in recent years that a review of the construction and equipment of a truly representative, or pilot, plant incorporating all of them is given. The Philadelphia *Bulletin* after much study and experiment thoroughly modernized its darkroom by completely reconstructing it and installing the very latest in equipment. After trying out various types of tanks of different compositions it decided on pressed seamless stainless steel. Tanks of this metal are leak-, chip-, water- and acid-proof and are easily cleaned with a little soap and water.

At the base of each tank there is a treadle-controlled light switch running the full length of the tank and tripped by the foot of the operator. This arrangement prevents shock resulting from wet hands contacting a live circuit and provides instant and convenient light control irrespective of the position of the operator. All lights are located in stainless steel housings of special design. These being rustless and chipless no metal particles ever drop into the trays or solutions. This is an excellent precaution as such metallic elements can easily spoil developers, baths and other solutions.

Located as they are the lamps direct their light on the work beneath leaving the rest of the room in comparative darkness. This prevents fogging of any paper or film exposed by others working in the same room. This matter of lights is all-important. Their proper location is something to which as much practical thought should be given as to the selection of the lamps themselves. It is better practice to install any one of several makes of specially designed darkroom lamps than to depend on a home-made type, no matter how good it may seem. They are not expensive.

A green light for use in conjunction with panchromatic film is indispensable. A bright red light is required for the bromide papers, and a brighter red or deep orange for the chlorides. A deep ruby light is necessary when developing orthochromatic or process plates. The room must be in total darkness except for the work light. To insure safety it should be painted in some dark, non-light-reflecting color. Black is good but not mandatory as both dark green and dark brown answer the purpose very nicely. Flat paints should be used, never the glossies as the latter reflect light.

The window, if any, should be light tight. An opaque, close-fitting shade will insure this. It can be fastened to the ceiling

and the sides set in cleats to prevent flapping. Folding shutters may also be used, but these involve construction and unnecessary expense. The time-honored expedient of painting each pane of the window black is still a cheap and satisfactory device. The window should not be permanently fastened as darkrooms require frequent ventilating, especially when chemicals are being mixed. A new hypo bath is strong and offensive. In an unventilated room there is sure to be a slightly poisonous atmospheric condition that affects both the health and efficiency of those working in it. The Philadelphia *Bulletin* recognized this in the construction of its photographic plant by thoroughly air-conditioning every department of it.

The darkroom door is most important. There are various types of doors designed to provide a high factor of light safety at minimum construction cost. The more modern plants have installed revolving doors with wide flanges on the partitions. The single door offers plenty of protection for the amateur who works alone without fear of intrusion or interruption; but he should lock himself in, using a spring lock for the purpose, when developing or printing. The "S" type door is recommended for the free lance. It is effective, requires little room and does not cost much. Curtains rot and crack with frequent wetting and handling, and are generally unsanitary.

Designing and constructing any amateur darkroom is altogether a matter of adapting the layout to the needs of the individual. The simpler the construction the more efficient will be the room. As many amateurs have but one or two cameras (one being a miniature) only a small space is required. The developing is usually done in a tray or tank and the printing with a small enlarger. A room 5 x 6 ft. is ample for the purpose. One tank is enough for washing, and the prints may be developed in a tray set in the tank.

Freedom of movement is highly desirable, for which reason the room should not be needlessly small. Moreover in a room of sufficient size all required materials and apparatus can be arranged in a more practical way. But irrespective of its size the darkroom should be clean, well ventilated, light proof and equipped with the best apparatus obtainable. The amateur's progress depends as much on the materials with which he works as on his enthusiasm and personal skill.

Chapter XXIII

WIRE-PHOTO TRANSMISSION

The first newspapers appeared in the Roman Empire before the time of Christ; and pictures were printed from wood blocks in China in 868 A.D. The newspapers of Roman days were copies by scribes of the Emperor's public announcements, for distribution in the provinces. The first newspaper of record was the *Avisa Relation Oder Zeitung* published in Germany in 1609. Nathaniel Butler, a Londoner, attracted attention in 1605 with written reports for public circulation of a murder in Yorkshire, and in 1638 he obtained permission from Charles I to publish foreign news in England upon payment of 10 pounds a year toward repair of St. Paul's Cathedral. Daniel Defoe, creator of Robinson Crusoe, became, after 1700, the first important English journalist.

The first illustrated journal, the *Penny Magazine,* successfully combined the wood engraving, the stereotype and the steam press. The illustrations took weeks to prepare, and the magazine was run off the press at the dazzling speed of 330 copies an hour. P. T. Barnum, the showman, tried to establish an illustrated paper in the United States, but it proved to be a bigger elephant than Jumbo, and died a natural death within a year. But his foreman, Henry Carter, who changed his name to Frank Leslie, succeeded sensationally as a publisher by sending his staff artist to make on-the-spot drawings when a New York dentist was murdered. The illustrations sold 200,000 copies of Leslie's publication, and taught American journalism that pictures were news.

Photography was born in 1830, but a full half century elapsed before a way was found to reproduce photographs in newspapers; and not until 1897 was a process perfected for publishing pictures in those papers which, because of large circulation, had to be printed on fast presses. From that point photographs developed rapidly. Stephen H. Horgan, an engraver and contemporary of Leslie, developed a process for breaking into lines the gradations of opacity and transparency in a photographic negative so that the engraving might be made from the picture itself rather than from a line drawing of it.

Frederick Eugene Ives also worked on the same problem and is generally credited with developing the first practical commercial halftone process in 1878. In 1880, Horgan succeeded in perfecting a method of making newspaper halftones, and on March 4 of that year the New York *Daily Graphic,* in whose employ he was, printed the first halftone ever published in a newspaper. Ives defined the halftone as "a typographic relief printing plate in which the smooth shading of the photo is translated into a pattern of definite lines and dots suitably graded in size." Hogan's definition was "a picture in which lights and shades defined by lines and dots of different surface areas are made through a mechanically lined screen."

This break-up of a photograph into lines and dots was historic advance; but the pen-and-ink artists of the day cried to high heaven against this mechanical abolition of the artist's touch. Horgan, himself, regarded his process as one of limited value and application, and even the pressrooms derided the invention. When in 1893 he offered a further perfected halftone process to a New York newspaper for use on a stereotyping press, the mechanical superintendent said the idea was lunatic.

Whitelaw Reid, publisher of the New York *Tribune,* permitted Horgan to experiment with halftones on his paper, and

on January 21, 1897, there apeared in the *Tribune's* columns a picture of Senator Thomas C. Platt, the first halftone run off on a web perfecting newspaper press using stereotypes. The resulting leap in circulation showed how readers liked them, and clinched the popularity of illustration as demonstrated at an earlier date when Joseph Pulitzer introduced them through the New York *World*.

Improvements in the quality of photoengraving spurred improvements in photography so that the camera might deliver to the engraver a more perfect picture in a shorter time. Faster lenses, negatives and papers now catch without smudge or blur the fastest things afoot, afloat and aloft. Electric flash lamps have replaced flashlight powder, superspeedy films have superseded glass plates, and automatic driers cut from 20 minutes to seconds the time required to dry the photographic print.

But when the picture was in Bangor, Palm Beach or 'Frisco and the engraver was awaiting it elsewhere, no betterment of the technical side of photography or engraving could surmount the barriers of time and space. It remained for electric transmission to bridge this gap between the picture's place of origin and the seat of publication, a gap that until the advent of wire photos prevented today's news photograph at extremes of the continent from being published before tomorrow or the day after at points far removed from the source.

Efforts to bring the delivery of news pictures abreast of the news have been intensified steadily since the latter part of the last century when newspaper engraving began to catch up with typography, and pictures became the handmaiden of journalism. The struggle to carry news pictures as rapidly as news has involved the twin tasks of getting the photograph and distributing it.

Those of an earlier generation who remember the Corbett-

Fitzsimmons fight at Carson City, Nevada, in 1897, will be interested to know that a special train was chartered to carry pictures of it to San Francisco hours ahead of the regular trains. In 1921 an airplane, at a cost of $25,000, was flown across the continent from Jersey City with the first photographs of the Dempsey-Carpentier fight.

Contrast this with the comparatively recent Associated Press coverage of the Baer-Carnera battle on Long Island. Three photographers were at the ringside, two other among the crowds and in the dressing rooms. The editor in charge had six messengers and four motorcycles in leash. At a nearby airport chartered airplanes with motors athrob waited. The fight began at 10.08 P.M. First-round plates were rushed by a messenger to a motorcyclist at the gate who speeded to one of the awaiting planes which took off from Newark airport. At 10.40 P.M. the plates were aloft bound for a destination in the South.

This operation was repeated every few minutes to catch planes leaving for other sections of the country. The westbound passenger and mail plane from Newark at 11 P.M. carried plates made at the ringside 25 minutes before. Meanwhile prints were made from other negatives, and 3 hours and 35 minutes after the battle began 52 packages of fight pictures by air and 24 by train had been despatched to meet 300 newspaper deadlines in all sections of the country.

A plane bearing pictures of the Nazi revolt in Vienna was catapulted from the deck of the liner *Bremen* at 8 A.M., 800 miles off New York Harbor. It landed in the Hudson River at 4.25 P.M. Within 35 minutes the first pictures had been cleared through the customs, packaged, delivered by motorcycle to the Newark airport and placed aboard a westbound plane. They were published in California, 3400 miles west of the ship, before the *Bremen* docked in New York.

These expedients represented enterprise of the highest and speediest order and reflected the journalistic urge to get the news. The history of American effort to transmit pictures by wire antedates even the earliest of them. It goes back to 1875 and the selinium cell. Progress was imperceptible until some 15 years ago when unremitting experiment yielded the "telephotograver," a device for conveying pictures by telegraph, coding them in letters and numbers for the purpose. This was not intended to physically transmit the picture itself but to provide a means of describing it so accurately that it could be faithfully reproduced from the description.

Employing a principle of analytical geometry and a chart upon which every line was designated by letter or figure, the sender coded the picture to show how a pencil point could trace it, accurately indicating where it began, the direction it followed and where it stopped. Codes ran from 300 words up, and a small picture could be decoded in an hour. Lines made by the decoder, using a duplicate of the sender's chart, established the outlines of the picture, which was then shaded and completed in accordance with further code description.

In its limited lifetime the telephotograver scored several notable beats. The first was a picture of the Dempsey-Gibbons fight at Shelby, Mont., on July 4, 1923, which newspapers from the Atlantic to the Pacific reproduced the next morning. The second was a picture of the Japanese earthquake in the same year. A telephotograver operator with the first pictures of the disaster met the steamer, *President Pierce,* at Honolulu and sent a coded view of the ruins of the American Embassy in Tokyo to the United States.

Not satisfied with transmitted descriptions the researchers concentrated on photographic principles involving the effect of light on chemicals. The abortive result was a telepicture proc-

ess that transmitted a small picture with coarse detail in an hour and a half, but it was impractical and soon discarded. The first telephotograph system in the United States was inaugurated in 1924 by the American Telephone and Telegraph Company with sending and receiving stations in New York, Boston, San Francisco and Los Angeles. It transmitted a picture 4½ x 6½ inches in 7.2 minutes. But handling at the sending and receiving points lengthened the time consumed and the small dimensions required that most news prints be reduced to facilitate transmission. The transmitted pictures could not be enlarged without revealing the line structure.

The electric eye of this system read a picture at the rate of 8¼ inches a second, and with a fineness of 65 lines to the inch. The photo-electric cell of the Associated Press wire photo reads at the rate of 20 inches a second with a fineness of 100 lines to the inch. Pictures received over the A-P portable transmitter have a screen of 200 lines to the inch. This is an important factor as it eliminates the necessity of carrying enlarging equipment in the field and makes it possible to transmit the standard 4 x 5 news print (which is automatically enlarged in transmission to 8 x 10) without any enlargement of the line structure.

The portable transmitter was used in the field for the first time at Pittsburgh, Pa., during the 1937 floods. Flown to that city, which was in darkness due to power failure, it was set up and operated on storage batteries. The apparatus is lightweight and is transported in two suitcases. It operates on any telephone circuit as well as on the regular wirephoto network. Negatives are developed in improvised field darkrooms, printed immediately and put on the drum for transmission.

Its capabilities as a time saver were demonstrated when it flashed the finish of the last Kentucky Derby from coast to coast within 20 minutes after the race was run. The portable was

used in expediting transmission of all pictures of a bulletin nature, while the regular equipment transmitted pictures on which a 15-minute time margin was not paramount. Only 10 to 15 minutes were saved by sending over the portable instead of the regular equipment installed in the *Courier-Journal and Times* in Louisville, but it enabled Saturday afternoon and Sunday morning papers throughout the country to catch early editions.

Wire transmission is not restricted to photographs. It expedites the delivery of all manner of graphic material such as maps, weather charts, blueprints, exhibits in court trials and legislative hearings—even fingerprints. This is the ultimate in electrical transmission and reception. The Associated Press employing a 10,000-mile double-wire circuit provides news of the world at telegraphic speed from sending stations in New York, Washington, Chicago, Philadelphia, Los Angeles, Detroit, Cleveland, St. Louis, Baltimore, Boston, San Francisco, Milwaukee, Buffalo, Minneapolis, Kansas City, Denver, Oakland, Atlanta, Dallas, Omaha, Syracuse, Dayton, Oklahoma City, Des Moines and Miami.

Sending and receiving machines and a telephonic control system in each of these stations occupy 240 square feet of floor space. Pictures travel at the rate of an inch a minute, by electrical impulses moving 186,000 miles a second from any station on the network to all of the others in a single operation. For the first time in history the news pictures and the news story ride the wires together. For the technically-minded a science description of the transmitting operations follows:

A positive print wrapped around the sending machine cylinder is scanned in strips 1/100 of an inch wide by means of a light beam focused first on a light valve aperture similar in all respects to the light valves used in sound picture work. The

light valve chops the beam at a frequency of 2400 cycles, passing a pulsating beam which is turned through 90 degrees to focus sharply on the surface of the picture. The light beam travels horizontally at an inch a minute. The cylinder, rotating at 100 revolutions per minute, is approximately 12 inches in diameter, thus giving a scanning area speed of more than 11 square inches a minute. Since the light reflected from the picture surface is proportional to the tone density of the surface, the pulsating beam is thereby modulated with the tone values of the picture before reflection to a photocell of the gas-filled cesium-oxide-on-silver type.

The optical system is made up of a condenser lens to focus the beam on the light valve aperture and an objective for focussing the pulsating beam onto the picture surface. Turning through 90 degrees is accomplished with a small stainless steel mirror, and parabolic surfaces also of stainless steel gather reflected light from the picture for passage to the photocell. The light valve itself is an aperture 1/100 of an inch square with 2 parallel duralumin ribbons, 6/1000 of an inch wide and 5/10000 of an inch thick, partially covering it and connected at one end to form a loop. A magnetic field at right angles to the plane of the ribbons, furnished by 2 permanent magnets, and a 2400-cycle current through the ribbons provide the shutter action. As the ribbons vibrate on their inward swing the aperture is closed, and opened on their outward swing.

Due to the small quantity of light that strikes the photocell cathode, its output is extremely low, and a 3-tube dry cell amplifier having the high gain of 77 decibels is used to step up the power to a usable quantity for use on the network. Proper filters eliminate possible extraneous frequencies, and equalizers to eliminate frequency distortion are inserted fol-

lowing the high-gain amplifier. A single-tube amplifier, having variable attenuators, furnishes the regulation necessary just before passing the power to the line.

The normal maximum line power is one milliwatt. This value represents maximum reflected light to the photocell, or the maximum highlight of the positive print. The minimum output is adjusted to 14 decibels below maximum, the proper value being attained by inserting an adjustable mirror in the path of the light beam before it strikes the picture surface and cutting into the beam just a sufficient amount to send directly to the photocell the minimum light required to get the 14-decibel contrast between the maximum and minimum, representing, respectively, the lightest and darkest tones in the picture.

On the network, the overall gain is kept constant by automatic regulators which remain inoperative during the transmission of a picture. They do their work during the intervals between transmissions, compensating for progressive atmospheric and other conditions that must be contended with on a 10,000-mile network of wire. At the receiving stations the incoming power is regulated by a variable output amplifier similar to that in the sending circuit, after which it is sent through a full-wave rectifier and filters which eliminate the 2400-cycle carrier, leaving the varying direct current representing the modulation or the actual tone variation of the picture. This varying direct current is used to operate a duralumin ribbon shutter on the light valve of the receiving machine to vary the exposure of a negative, enclosed in a lightproof container on which the picture is received.

The operating principle of the receiving light valve is similar to that of the sending light valve except that only one ribbon is used. It is caused to move by the varying direct current representing the tone variations in the picture, and not by a

constant frequency. This ribbon is tuned to the rather high natural frequency of 1200 cycles, and suitably damped so that all movement of it is forced vibration caused by the incoming picture signal. In this ribbon circuit is a tuned equalizer which prevents unwanted or transient vibrations.

By varying the side motion of the receiving light valve ribbon, the opening through which the light reaches the film is varied proportionately, thus obtaining film exposure in exact proportion to the original tone values of the print on the sending machine. This light beam is adjustable in width, so that the exposure lines may be made to merge and be practically invisible on the finished print. The scanning of the negative is exactly at the same rate as the scanning of the print by the sending machine, the cylinders rotating at the same speed and the beam moving horizontally at the same rate.

Constant rotational speed for all motors within extremely small limits is obtained in a rather unusual manner. A controlled oscillating circuit, maintained by a tuning fork kept at constant temperature, furnishes 300-cycle power. Part of the power in this circuit is used in connection with an overloaded tube and filters to supply the 2400-cycle carrier for the sending light valve. Part of the power is fed to the grids of a 2-tube phase detector. Mounted on the same shaft as the cylinder driving motor is a 300-cycle inductor generator which feeds the plates of the phase detector. The tubes act as a full-wave rectifier to control the output of other tubes which furnish current for the driving motors, which are separately excited, 300-cycle synchronous.

The output of the tubes furnishing power to the motors is dependent upon the phase relationship of the 300 cycles from fork and inductor generator. By suitable circuits the speed of the driving motors is thus kept at 100 revolutions per minute

within one part in 300,000. The fork is sealed in a container, the temperature of which is kept constant by a tube-controlled thermostat. A constant power source is obtained from small generators suitably filtered with electrolytic condensers and storage batteries.

Sound-Photo-Transmission

Sound transmission of news photographs as developed by the technicians of International News Photos emerged two years ago as a practical reality. In this system the ordinary telephone line is used as the sole transmitting medium. It is a refinement of the photo-electric engraving machine, which in itself is a picture transmission system that receives and records graphic material as a zinc etching. The sound transmitting apparatus operates on the principle of translating every variation of light and shadow in a photographic print into an audio frequency of varied intensity. It employs a carrier frequency of 1800 cycles which is one of the preferred frequencies relied upon to convey the human voice over wires.

An 8 x 10 print is mounted on a cylinder similar to that used on the early phonograph. Through a very fast optical system the photo-electric cell scans an .01-inch part of the picture. As the cylinder revolves the entire picture is thus continuously and spirally scanned. Tonal variations in the picture set up varying currents in the photo-electric cell call. These are stepped up by a three-stage amplifier until strong enough to be conveyed over the telephone line. The signal is thrown into the line by either sound or induction. The receiving station picks it up by induction, after which it is amplified until strong enough to operate a glow lamp, the light of which varies in intensity with the rise and fall of the picture signal. This light passes through an .01-inch aperture onto an unexposed photo-

graphic film mounted on a drum the same size as the transmitting cylinder.

In any transmitting system it is necessary that the receiving and sending drums be synchronized and revolve in phase. Two methods of synchronization were tested when developing sound photos. One employed a synchronizing tone from the transmitter to the receiver and worked satisfactorily over a network without line interruptions. However, the interruptions frequently occurring in long-distance calls disrupted the synchronizing tone and interfered with the constant speed of the receiving drum, thereby ruining the reception.

After much experimenting between New York and Chicago, tuning fork frequency standards for maintaining the speed of the drive motors were adopted. The phasing is automatically accomplished by transmitting an impulse at the start of the picture. The first commercial soundphoto was transmitted June 23, 1935, from the Albany *Times-Union* to the New York *Daily Mirror*. Since that time the network has been expanded to include Boston, Baltimore, New York, Washington, D. C., Atlanta, Miami, Syracuse, Pittsburgh, Cleveland, Detroit, Chicago, Minneapolis, San Antonio, Fort Worth, San Francisco, Los Angeles and Seattle.

International Research Laboratories were the pioneers in developing the relay method of sound-photo transmission which makes it possible to send over ordinary circuits to all points with a single transmission. They also perfected a practical portable transmitter, and have developed a portable trans-ceiver, the novel feature of which lies in the use of the same unit for both the photo-electric pick-up and the film recorder. The one amplifier does double duty as a photo-electric cell and receiving amplifier. Experimentation was directed by Walter C. Howey, engineering and development by John R. Hancock.

Winged Transmission

Rush transmission of news pictures is not altogether mechanical and electrical. Carrier pigeons have served the press faithfully and efficiently over a long period. They entered the field of competitive coverage when Amster Spiro, City Editor of the New York *Evening Journal,* adopted them as a method of beating rival dailies to the presses. Cooperating with him was Robert Kehoe, manager of the photographic department of the paper. Spiro became pigeon-conscious during a football season when the rivalry between papers to score beats in the publication of pictures became acute. The expedient worked so well that there are now 100 birds, all direct descendants of pigeons with World War service records, housed in the *Journal's* coops.

It requires at least a year to train a well-bred homing pigeon to perform dependably. Those in the Hearst service operate within an approximate 30-mile range at an average speed of 2 miles per minute. To prevent overloading a bird Mr. Kehoe reconstructed his Long Tom cameras to produce 3¼ x 4¼ film negatives. One such film is rolled and wadded into an aluminum tube and loaded onto a pigeon's back. In emergencies a brief story on flimsy is attached to the bird's leg.

The photographer unloads the film from his camera into the tube by means of a changing bag, an operation performed with perfect safety almost anywhere. In a twinkling it is strapped to the bird's back and the bird released. These pigeons serve a broad field of usefulness transporting pictures of football games, fights, ship arrivals at Quarantine and in other capacities. Under normal conditions the time saved between Quarantine and the city room, a distance of about 7 miles, is 2 hours. If the ship is delayed by fog or tide the time-saving is correspondingly greater.

This is not an isolated instance of the use of homing pigeons for transporting news pictures. Numerous other papers throughout the country employ them for regular and emergency photo and news service. The Hornell (N. Y.) *Evening Tribune* recently inaugurated bird flights between its out-of-town correspondents and the editorial room at an approximate saving of twenty-four hours over regular mail delivery of copy. Telephone reports are speedier but the pick-up is offset by the time consumed to take notes and rewrite.

At present there are thirteen birds covering a twenty-five mile radius in beeline flights; seven more are in training, and a total of one hundred in prospect if the plan proves practical. The cost per bird per day has not been determined, although it is expected that the maintenance charge will favorably balance telephone costs.

The pigeons are transported daily by regular newspaper delivery wagons. If the correspondent to whom a bird is consigned has news to forward the bird flies the message, if not it is released and flies back empty just for the exercise. Correspondents are thus provided with a fresh pigeon every day. It is planned to use these winged messengers in regular picture and news coverage of outlying districts when cameramen and reporters cannot leave the scene of a story.

Chapter XXIV

SUGGESTIONS

If throughout this work stress has been laid on seemingly minor details it is because of the importance of such details in the production of good work. Trifling technical mishaps are directly responsible for much inferior work. It therefore behooves the cameraman to prepare himself in a manner that will eliminate the little hazards.

No matter what speed is required of him or what operation he is engaged in, good craftsmanship demands that he safeguard his work against that most insidious of all shortcomings—forgetfulness. The amount of damage that can be charged to this item represents an unsound percent of the operating cost of almost every newspaper photographic department in the country. It pilfers something in every division of photography, and if not checked will increase material costs to a point where supervision in the interest of some approach to economy becomes mandatory. A rigid routine religiously followed is the best insurance against the waste of time, labor and materials that result from forgetfulness.

To almost every cameraman it may seem like emphasizing the obvious to suggest that the lens be cleaned before making exposures; yet quite thoughtlessly exposure after exposure is made with dusty and dirty lenses by all but the most careful photographers. If unclean the speed of the lens is slowed down appreciably. It is readily understood how this can throw the most carefully calculated timing out of reckoning. The

lens may be cleaned with a very soft cloth or fine chamois rubbed over the surface in circular fashion. The rear as well as the front cell of the lens should be cleaned.

Dust filters through and settles on the inside of the bellows. Unless cleaned out periodically with a medium brush pin holes will result. These pin holes are responsible for about 60 percent of fogged negatives. Particular attention should be paid to the corners. The back of the camera should be removed now and then and the inside thoroughly cleaned; likewise the ground glass. Covering assignments in sandy and dusty areas always results in some infiltration of grit that will play the very deuce with camera mechanism and exposures if not removed.

The shutter should be cleaned but never taken apart. If it is not operating properly have it overhauled by an expert. It is a delicate and complicated unit not to be trifled with. Tighten it up occasionally, as repeated use loosens some of its moving parts. A loose or weak spring will slow down an exposure. The focal plane shutter, particularly, should be carefully inspected and adjusted regularly. With repeated use this spring-controlled cloth curtain loses speed and gathers dirt. When not in use it should be kept free of dust. Never press the fingers against the cloth.

Finders, whether glass, wire or automatic, should be checked at least once a month. Accidental bumping or jarring will throw them out of alignment with disastrous results to centering. Cameras are high-precision instruments. Anything that throws this precision out of adjustment will result in off-balance work. The particular operator will periodically send his camera to the manufacturer for overhauling. Minor repairs and adjustments are always easily made by anyone who has familiarized himself with his outfit.

Should a pin hole develop in the bellows, patch it with a

strip of black adhesive tape. If the front bed tracks are loose, a few turns of the screws will tighten them. When a screw hole becomes too big to hold the screw, plug it with a wooden peg to give the screw the required hold. When a hole develops in the focal plane curtain patch it with a piece of fine black cloth or silk. Do not, however, remove the curtain from the camera.

The springs at the back of the camera that secure the film holder weaken with the repeated insertion and extraction of holders. As they are made of tempered steel it is not advisable to bend them to the required tension. New ones should be substituted. They are cheap. The leaves of a lens shutter are thin and brittle. It is unwise to bend them when they stick. In extremely cold weather they sometimes freeze and fail to function. Oiling is no remedy and bad practice as an excess of oil accumulates dirt and spatters on the rear cell of the lens. Set the camera aside in a warm place until the shutter operates.

While camera defects contribute materially to photographic failures they are not a circumstance to what carelessness in the darkroom can do. Careless loading can ruin an assignment. Film holders should always be inspected before loading. The slides are made of hard rubber and other brittle compositions and crack when manhandled. Film loaded into damaged holders will naturally fog. When a holder is loaded the arm-screw at the top should be set at right angles so that the slide is tight and accidental removal impossible. When ready for an exposure, turn the arm-screw, pull the slide, expose, then reinsert it and again reset the arm-screw in its rectangular position.

All holders should be numbered and corresponding numbers assigned to the films. This facilitates identification and captioning, and helps to determine which holders caused fog. When holders are handled in the darkroom care should be exercised.

Before loading or removing a film withdraw the slide completely. Never attempt to load or unload a holder with the slide only partly withdrawn. This is likely to crack or scratch the film.

Never stack holders one on the other. Stack them against a wall, box or bench whether loading or unloading. There are notches on the white side of the slides to enable the operator to identify them by touch. This is a particularly useful device when loading panchromatics in total darkness as it prevents inserting the slide wrong side out. It is customary to leave the white side out before exposing, reversing it after the exposure has been made.

Jamming holders into the camera is bad practice as it is likely to distort the holder or weaken the springs that hold it in position. The curtain of a focal plane shutter should be wound smoothly and slowly, not jerkily. The lens board should be drawn not yanked, into position. When closing the camera the bellows should be eased, never forced, into a folded position. When the camera is not in use the tension spring should always be released.

Darkroom mishaps are most likely to result from a disregard of any of the details of construction and procedure enumerated in the chapter on darkrooms. Incorrect lighting, light leaks, leaking tanks and troughs, faulty wiring and connections, water impurity, absence of hot water, improper design, unworkmanlike disposition of materials and equipment, obsolete apparatus and want of proper facilities are among the major evils calculated to lower the efficiency of the operator and the standard of darkroom production.

If a chemical is spilled when mixing solutions it should be wiped up immediately to prevent pollution of anything that may come in contact with it. Swabbing cotton, filtering gauze,

wads of paper and other materials should never be thrown into the tanks as they find their way into the drains, and clog them. The result is an overflow that can do considerable property damage.

Poor wiring can ruin a single picture or a series. A spark will fog any exposed film, paper or negatives. It also constitutes a fire hazard. Hands should be thoroughly washed after handling chemicals as not a few of them are highly poisonous. A dirty or chemically stained towel is bad business. A liberal supply of clean ones should always be available. Trays should always be cleaned after hours. If set aside when wet, rust will develop, especially if the enamel is chipped. And rust is fatal to work that requires spotless cleanliness. Tanks, too, should be cleaned periodically, to prevent corroding and rotting. Almost any manufacturer of chemicals will provide formulas for the required cleaning solutions.

Flash lamps when improperly handled can cause a lot of trouble. Bulbs should never be forced into the battery case hooked to the sleeve on the side of the camera. Such jamming is likely to pull out the small screws holding the sleeve to the camera. Neglecting to cock the shutter before making an exposure has caused many failures. When using a spring-operated flash the spring should be wound before each flash.

When working in the sun, a sun shade should be used to protect the lens. This is also particularly advisable when operating with other photographers as it shields the lens against a flash fired directly into it. Cracked bulbs should be discarded. They may or may not fire. In extremely cold weather bulbs should be kept clear of contact with metal when fired. Explosions result from such contacts.

"Don't Take a Chance" is a slogan that should be posted in every darkroom. Never attempt to print a wet film in a hot

lamp without first treating it in a hardening bath. When printing wet negatives use a metal film holder. When loading panchromatic films never expose them to radium-dial watches or clocks. Lock yourself in the darkroom when handling such film, first dousing all lights.

When in doubt about the age or quality of a solution, don't use it; prepare a fresh one. This is cheaper than losing an exposure. In warm weather keep all solutions at a cool and constant temperature. Warm developer and hypo play hob with emulsions. In lieu of air conditioning or refrigeration in the darkroom set the working trays in larger trays resting in running tap water. Never permit gas or electrically-heated plates to overheat.

Photographers have been known to do some fine technical tinkering to save a print that later developed stains because it was hurriedly or carelessly dried. Clean work is the hallmark of a good technician. A little more time devoted to shading often represents the difference between a good and a poor print. A picture may be rejected by the editor if it is too flat, muddy or spotty.

Present-day newspapers are partial to the so-called candid shots. "Posey" pictures are in disfavor because they lack the realism and spontaneity that good camera reporting calls for. As emphasized elsewhere it is good policy to make more than one shot on a story. A second and even a third shot represent double and triple insurance. Anything may happen to a single exposure. When using a miniature camera the photographer should carry a flood bulb or two, also a small reflector. Frequently a series of pictures otherwise unobtainable can be made if the photographer is so equipped.

When on an assignment carry plenty of nickels. Many news cameramen who did yeoman service on coverage found them-

wads of paper and other materials should never be thrown into the tanks as they find their way into the drains, and clog them. The result is an overflow that can do considerable property damage.

Poor wiring can ruin a single picture or a series. A spark will fog any exposed film, paper or negatives. It also constitutes a fire hazard. Hands should be thoroughly washed after handling chemicals as not a few of them are highly poisonous. A dirty or chemically stained towel is bad business. A liberal supply of clean ones should always be available. Trays should always be cleaned after hours. If set aside when wet, rust will develop, especially if the enamel is chipped. And rust is fatal to work that requires spotless cleanliness. Tanks, too, should be cleaned periodically, to prevent corroding and rotting. Almost any manufacturer of chemicals will provide formulas for the required cleaning solutions.

Flash lamps when improperly handled can cause a lot of trouble. Bulbs should never be forced into the battery case hooked to the sleeve on the side of the camera. Such jamming is likely to pull out the small screws holding the sleeve to the camera. Neglecting to cock the shutter before making an exposure has caused many failures. When using a spring-operated flash the spring should be wound before each flash.

When working in the sun, a sun shade should be used to protect the lens. This is also particularly advisable when operating with other photographers as it shields the lens against a flash fired directly into it. Cracked bulbs should be discarded. They may or may not fire. In extremely cold weather bulbs should be kept clear of contact with metal when fired. Explosions result from such contacts.

"Don't Take a Chance" is a slogan that should be posted in every darkroom. Never attempt to print a wet film in a hot

lamp without first treating it in a hardening bath. When printing wet negatives use a metal film holder. When loading panchromatic films never expose them to radium-dial watches or clocks. Lock yourself in the darkroom when handling such film, first dousing all lights.

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selves short of the necessary small change when they rushed the pay telephones to report to the desk. The resulting loss of time has been disastrous on occasions.

When embarking on an assignment the camerman should check his equipment to see that the flash lamp and a liberal supply of bulbs are included. The lamp should be tested for battery strength and synchronization. Being without the flash is poor practice. He should never be slow with it. As a rule in present day tactics when photographers work in groups each man fires his own flash.

The good cameraman covering a story will take little or nothing for granted. If he is told that the subject he wants to photograph is not around he confirms the information in his own way. To accept it blindly might mean the loss of a picture as people sometimes deliberately mislead him to protect the man or woman he is looking for. The subject himself has been known to deny his identity until the cameraman established it after a little private investigation. The good man usually arrives early, stays late and never relaxes his watchfulness. He is up front on the assignment and is seldom scooped. He is never foolhardy because he knows how to proceed cautiously and efficiently in almost every situation. Using his head is what makes him a good newspaperman.