In this issue:
FLASH CHARTS DEVELOPED BY NCRS
MOUNTED WHEELS - SAFE SPEED
BUILD AN AUTO-COLLIMATOR
Here are useful additions to your library of technical material. This department will regularly offer suggestions for new books you may wish to acquire. Any reference books, whether or not here listed, photographic or otherwise, will be located for you and may be purchased through the NCRS Supply Department.

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**LIGHT BASICS**
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**SOUND BASICS**
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**LIGHT BASICS**
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The World War II period and the years following were often described as a "salesman's paradise." Consumers, businessmen, in fact, just about everyone was eager to buy what the salesman had to offer. A salesman was an "order taker". He had two problems: keeping a supply of blanks to write down all the orders and convincing his company that his customers should receive what little merchandise was available.

Every product was in demand, and most were in short supply.

But soon after the war, manufacturing output began to catch up on the old backlog of orders. Once again it became necessary to "sell". Many economists attribute the postwar recession to the circumstances that had accustomed salesmen to the easy life. Although it actually took much time, there was an apparent sudden switch from a "seller's market" to a "buyer's market". Salesmen who had gradually degenerated into order takers found themselves confronted by buyers who could be more selective. They had to re-learn the technique of convincing.

There is a moral in this bit of history for us camera repairmen. Today, as for many years past, camera repairmen are in short supply. Even a man with relatively little skill and training has had no difficulty in making his services desirable. In most localities he is so greatly needed that a camera repairman is no more than an "order taker" as far as sales are concerned.

This is unfortunate, because it creates a misleading picture in the minds of camera repairmen and could easily lead to sales apathy. And sales apathy in any business can be disastrous.

It is further unfortunate, because many camera repairmen, as skilled craftsmen, have a developed fear of selling. I say developed, because such a fear is unnatural and unnecessary. Any one who has the skill, training and experience necessary in camera repair has no need to fear sales work. He has all the ingredients and selling points that an experienced salesman recognizes as essential in a product. Many camera repairmen will say, "I love to work on fine equipment; it's a thrill when I return a damaged instrument to good condition, but I'm no salesman." (Cont. Page 4)
Whether it's a bench job that you want to hold, or a business that you want to run, it's wise to be objective and recognize how much of your work involves sales. Every business and every job relies on a certain amount of sales effort. This becomes clear when you see that selling is no more than convincing a potential buyer that your product (the services you render) will be more satisfactory to him than those of some other supplier. It makes no difference whether that potential buyer is an employer or a camera owner, he must still be sold on you and your product.

This is hard to see — especially when your services are so needed that the mere mention of camera repair usually brings a flood of "orders" that you need only try to fill.

But the "seller's" market in camera repair can't last forever. As more good shops begin to operate in the years to come, the day will arrive when your customer will have a choice of products. That day will dawn either as quite a shock or in calm expectation, depending on the preparation you've made and the experiences behind you.

Now is the time to think about the sales half of camera repair. Though it may not come for five years or ten, it could be next year or next month. Prepare yourself. You'll be pleased that you did.

DEMONSTRATION

FLASH CHARTS DEVELOPED BY NCRS

A new type of sales aid has been announced by National Camera Repair School. Special display charts make it easy to demonstrate flash synchronization to technically uninformed camera users clearly and quickly.

Although the charts are designed specifically for use with the ServiShops Motion Analyzer, they are useful for flash synchronization tests using a cathode ray oscillograph having a five-inch CRT. The new charts are in the form of transparent films which are positioned like a graph on the face of the cathode ray tube. They are an outgrowth of a testing method first described in a paper published in Photographic Science and Engineering, Volume 2, Number 4, of December, 1958. A complete set of charts has been prepared, consisting of seventeen different curves. These cover every type of flash bulb, including gas-filled, zirconium and standard wire-filled bulbs used with all kinds of popular, professional and focal-plane cameras. The copyrighted, precision curves may be purchased at $5.10 per set of 17, from National Camera Supply, Englewood, Colo.

A reprint of the technical paper describing their use and sample tissue facsimilies of the charts are free on request to National Camera Repair School, Box 174CC, Englewood, Colorado.
FROM THE
CRAFTSMEN

From experience gained so far in doing repair work, both retail and wholesale, I prefer direct mail. Since the shop is in my home, in a zoned residential area where businesses are not permitted outside displays, it is quite difficult to develop much retail business. So far only word of mouth advertising and business cards handed out to new acquaintances have been used to build up retail trade. At present, however, wholesale accounts are mostly depended upon for volume.

Dealing personally with the customer I am able to be of much more assistance in solving his problems. There have been many instances of improper use of the camera causing malfunctions, in which case I am able to assist the customer in preventing this type of trouble. Also, any discussions regarding the repairs to be made or repairs that have been made, can be much more understandable in dealing directly with the customer. Having a "middle man" conveying the information between repairman and customer becomes very trying at times. While all of the camera store people with whom I have had dealings seem to be well versed in photography itself, I find many who know very little about the internal workings of a camera, and even some who are not as familiar with the outside controls of cameras as they should be. This very often leads to quite a lot of misunderstanding. It is also difficult at times to get the sales people to secure and record on the repair tag complete information about the troubles with the equipment. Much of my work revolves around such trouble reports as "shutter trouble" which can include a multitude of difficulties, and sometimes results in much time on my part spent in determining just what kind of shutter trouble exists, and in many cases, the trouble is not shutter at all but some other function.

I would prefer to specialize in certain types of equipment, and I find myself more adept at certain things than others. However, I find that in order to keep my accounts happy I must accept all types of equipment.

My shop services dealers, professionals, and direct retail. Of the three, I find the greatest satisfaction in serving the amateur directly.

E. G. Krebs
Denver, Colorado

Tap-A-Line

IN YOUR WORKSHOP: Tap-A-Line permits you to plug in soldering irons, test lamps, flex shaft, other equipment. Has them all ready and available for immediate use.

IN YOUR STUDIO: Tap-A-Line is convenient for portable lights, flood lights, spot lights.

On Your Test Bench: Tap-A-Line will permit you to plug in all types of flash cords and have them at your finger tips.

Model TL 1 foot $2.00

Camera Carrying Case

Made of rugged 3/8" plywood.
Heavy luggage-type handle.
Corners protected with metal.
Lined throughout with sponge rubber.
Has 2 turnbuckle catches.
Inside dimensions - 18-3/4" long, 10-1/2" wide, 8-3/4" deep.
Finished in beautiful clear lacquer.

F. O. B. Englewood, Colorado

WHILE THEY LAST $8.40
CIRCUITRACER
A small dependable rugged tester

An easy to use, inexpensive electric circuit tester especially adaptable for camera repair work. It is capable of locating and identifying dead or live circuits of any voltage, fast.

- Checks electric photo-flash circuits
- Analyzes breaks and high resistance joints
- Tests flash wiring for breaks or bad connections

Put this handy unit into your carryout case or pocket for quick tests anywhere. Tested and approved for camera repair by "National ServiShops"

$4.50

STARTING A REPAIR SHOP
SUBJECT OF PTN STORY

A three-installment article started in the July 6 issue of PTN, called "Can You Add An Operating Camera Repair Department?" They were written for Photographic Trade News Magazine by S.L. Love, Director of National Camera Repair School.

The story is designed to tell dealers how they can make maximum use of camera repair as a sales tool. It goes into some detail, describing the various types of camera repair departments that can be set up in a photo shop, ranging from simple transshipping of repairs to a fully equipped shop on the premises.

With camera repair constantly growing more important as a part of photo shop operation, many dealers are not fully aware of the investment, expenses and profit of such work.

Today's merchandising changes virtually demand that every photo shop have some sort of repair department, but it is up to the individual photo dealer to decide how deeply he wishes to wade into the actual operation of such a shop. The articles provide a wide array of facts but leave the choice of the type of department entirely up to the dealer.

If your business is photographic sales or service, read this story. If you do not already receive Photographic Trade News, you may subscribe through the NCRS Supply Department. After all three installments of the article have been published, reprints will be available on request through NCRS.

COME TO COLORADO

This Centennial Year, celebrating the One Hundredth Anniversary of the "1859 Gold Rush to the Rockies" is filling Colorado with activity and excitement. Special events and celebrations all over the State make Colorado an even greater vacationers' delight this year than usual.

The School has colorful State maps and Centennial calendars that are yours on request. And, of course, if you visit Colorado, don't overlook visiting NCRS. Write for a map that shows you how to reach the National Camera Repair School building easily.

New Craftsmen

To Mrs. and Mr. Carl W. Holland, Biloxi, Miss. twin boys, David Thomas and Craig William. Born July 3, they are almost independent already.
WEST GERMAN CAMERA MAKERS HONOR WINNERS IN US ARMY PHOTOGRAPHY CONTEST

Five Army photo hobbyists who won 1st Prize Awards in the various divisions of the recent 1959 US Army, Europe (USAREUR) Special Services Photography Contest will soon be guests of the Ernst Leitz Company during a special 5-day course at the world-famous "Leica School" at Wetzlar. Each of the five servicemen had made his prize-winning photograph with a Leica camera.

In addition, 1st Prize winners in two other categories of the USAREUR Contest were headed for all-expense trips and red-carpet tours of the Voitlander and the Franke & Heidecke plants in Braunschweig. Their respective photographs had been made with a Voitlander Vito B and a Rolleiflex. (The contest included ten subject categories, five each in color and black-and-white.)

These special awards are part of the program undertaken by Camera Industries of West Germany, an association of fourteen leading camera manufacturers in the Federal Republic of Germany, to stimulate interest in the Preliminary "Post and Command Level" phases of the periodic interservice photography contest run by the US Defense Department.

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PILGRIMS? -- PROGRESS?

HOW MUCH Federal Aid did the pilgrims get? They were in a Depressed Area. No one guaranteed them high prices for anything. Their only roads and schools were built by themselves. For Security they did their own saving, or starved. All they had was Character. All they did was Work. All they wanted was Self Respect.

The sum of those three traits became AMERICA.

But what's going to be the sum of the traits you see today—the traits of character, or rather, lack of it, that demand more money for less work, put security above self-respect, pamper self-pitying criminals instead of punishing them, give away resources we desperately need to protect ourselves, listen to weaklings that want government to take care of them when they should take care of themselves.

Long years of early-American self-respect and hard work built America, but the traits you see today can destroy it, in half the time.

(Warner & Swasey ad in U.S. News & World Report)

I am an old man and have known a great many troubles, but most of them never happened.

Mark Twain
Now packaged in convenient 7 cc applicator guns, NCRS Supply has two of the finest instrument lubricants available. Use All-Temp Lube for sliding levers and similar friction points. Use Moly Lube on motion picture camera springs.

All-Temp Lube .60
Moly Lube .70

SHINO Polishing Cloths
Two cloths — one with jewelers' rouge, the other for final polishing. Comes in cardboard box.
11-1/2" x 14" size. Each .75

Non-corrosive, resistant to temperature change, this Porpoise Jaw oil product stays at the point of lubrication
3/8 oz. bottle .75

BUILD AN AUTO-COLLIMATOR
An auto-collimator is a sound investment for every shop. These instruments can be built from a fine quality surplus elbow telescope which when properly modified can make them usable as auto collimators.

Perhaps you would like to "do-it-yourself." NCRS Supply has obtained a number of the elbow telescopes which are the basis of the auto collimator. Only a moderate amount of work is necessary for the conversion which involves installing an illuminated reticle and beam splitter. If you'd care to build your own auto-collimator, you may order a telescope from NCRS Supply for $13.00.

STUDENT MAKING FOCUSING CHARTS
Framed charts, as illustrated, for focusing and adjusting rangefinders are available at reasonable prices from Mr. Henry Bruins of Brandon, Wisc. The size is 8" x 10" and there is an even distribution of light over the entire area. The chart may be set on a bench or hung on the wall. The numbers, circles and lines make focusing and adjusting easy.

For further information you may write directly to Mr. Bruins at Brandon, Wisconsin.

AVERAGE $4,500-A-YEAR MAN WORKS 7 DAYS A MONTH TO PAY HIS TAXES
If you have any notion that all these government handouts are free, you might get a jolt out of these latest figures compiled by the Tax Foundation. The fact is that the cost of all these government projects comes out of everyone's pay check or their hide. For example, the average (Cont. Page 20)
study shots

Here is where NCRS students learn

These are pictures of students in the shops they have set up for their training in camera repair.

John P. Little
Albuquerque, New Mex.

Oren P. Skinner
Lake Orion, Mich.

Marvin G. Reaver, Jr.
Columbus, Ohio

Peter Daughin
Trinidad, BWI

Donald B. Dale
Belvidere, Illinois

Jerome E. Gosseck
Milwaukee, Wisconsin

The Camera Craftsman July-August 1959
The Society of Photo-Technologists is really beginning to move. Members will be kept up to date on progress, projects and prospects by the SPT Newsletter, the first issue of which went out on July 21.

So far there has been good membership response and a fine display of willingness to work by new members. The first strength of an organization comes through members. Yet membership alone is not enough. It is gratifying to see that most phototechnologists who want to become members of SPT are anxious not only to reap the rewards of the membership but also to work, cooperatively, to make such rewards possible.

If you're not yet a member of SPT, now is the time to send in your application. If you do not have an application on hand, write to the Society of Photo-Technologists, Englewood, Colorado, for a copy of the By-Laws, Application and other details.

The number of SPT membership benefits is growing regularly. Within the first year, SPT members should see a return far out-weighing the nominal dues.

The Admissions Committee is busy processing applications of all SPT Charter Members. If you have applied and have not yet heard from the Admissions Committee, please be patient. The Executive Secretary may write to you if there are any irregularities in your application. There have been a few cases where references have not replied to requests from SPT for information. You may be asked to furnish new references. Please cooperate, since the amount of work involved in getting all this material together for each new member can mount up tremendously.

The Nominating Committee may (cont. page 18)
which, in turn, is connected with aperture-setting ring 8.

Lever 4 has a stud (4a) on its free end which extends toward the shutter back and engages with cam disk 1, which is connected to and interlocked with speed control ring 9. On lever 4 is another stud (4b) which engages with the projection (5a) of control lever 5. Since shaft 6 which turns as a part of the assembly with lever 5 is torsionally spring loaded, power is provided to maintain contact between the various levers and the controlling cams. (Cont. Page 14)

**MASTER MECHANIC**

**STAR SALES MAN**

**SKILLED AIDE**

Here's the triple-threat test instrument that will be equally at home in your shop, store or lab. This investment is planned to earn you profits. Use the prestige-building ServiShops Motion Analyzer for fast, high-precision tests on all photo equipment. You'll find it easy to operate, easier to understand and easiest to demonstrate!

**NATIONAL CAMERA REPAIR SCHOOL**

Drawer CC Englewood, Colorado
MOUNTED WHEELS -
DON'T EXCEED
SAFE SPEED

by R. W. S. Merritt*

Grinding is one of the safest of all machining operations. Considering the multitude of grinding wheels in daily use in every kind of metal-working industry -- and many non-metalworking industries as well -- accidents are very rare. Paradoxically, it is the smallest of all types of grinding wheels made, those mounted on steel mandrels and measuring generally no larger than 2" in diameter, that figure in too many of the accidents that do occur -- chiefly because of careless overspeeding.

Perhaps because of the tremendous increase in the use of lightweight die castings and plastic molded parts in the last few years, mounted wheels are being used on an unprecedented scale today for shaping and finishing the steel molds for making these products. These abrasive cutting tools are driven at suitably high speeds by portable grinders -- flexible shaft, pneumatic or motor drive. Other mounted wheels are used in foundry cleaning rooms and welding shops for smoothing up filets, holes and recesses on castings and fabricated steel structures as in Fig. 1. Still others, plain or "W" shapes, are used for precision internal grinding, the smallest on high frequency wheel heads that offer spindle speeds up to 100,000 rpm.

Fig. 1

The speed of these mounted wheels is very important as affecting their proper and safe use. It is the subject we are primarily concerned with in this article. Our investigations of recent breakages of mounted wheels point to an alarming disregard for maximum safe speeds. We were astonished to find that even experienced operators, who certainly must be aware of the hazards of operating mounted wheels at excessive speeds, do not bother to check wheel speeds and mandrel overhang. When the inevitable failure from overspeeding does occur, it is, of course, too late.

The principal cause of speed accidents with mounted wheels is failure of the mandrel (spindle). The abrasive wheel itself is securely enlocked to the steel mandrel by the manufacturer, after which the wheel is accurately trued to shape, concentric with the mandrel. As each wheel is packaged for shipment, it is carefully inspected and checked for truth on its mandrel, assuring a sound, quality product. It is then up to the operator who uses the wheel to observe the rules of proper usage of mounted wheels, particularly in regard to the safe operating speed.

TABLE II — (Continued)

GROUP W - (PLAIN WHEELS) *

<table>
<thead>
<tr>
<th>Maximum Operating Speeds (rpm) for 1/5&quot; Mandrels</th>
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<tr>
<td>Overhang — Dimension O°</td>
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<td>W 650</td>
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Fig. 2

Every mandrel with a wheel mounted on its unsupported end has a certain maximum speed at which vibration, due to deflection or whip, tends to become excessive. At this critical stage, the mounted wheel when applied to the work with even light pressure can, and often does, result in failure of the mandrel through bending or fracture. The mandrel usually bends sharply at the point where it enters the chuck or collet.

When this failure occurs during grinding, the bent mandrel whipping around and striking the work causes projectile-like wheel fragments to be thrown off in all directions. Sometimes the mandrel is severed, in which case the free portion with the wheel intact flies out at terrific speed. All of these potentially dangerous failures can be prevented by correcting overspeed abuses.
The forces tending to whip the rotating wheel mass on its steel mandrel have been very carefully studied. Exhaustive computations, supported by hundreds of actual tests with very sensitive electronic equipment, provided a basis for the tables of critical speeds for all standard shapes of mounted wheels, when checked with overhangs of 1/2", 1", 1-1/2", 2" and 2-1/2". Obviously, the speed of any given mounted wheel must be reduced drastically as the overhang (projection from the chuck) is increased -- even only 1/2". This danger from greater overhang is all too often overlooked by the operator.

The American Standard Safety Code for the Use, Care and Protection of Abrasive Wheels, B7.1-1956, Section 10 on mounted wheels, discusses maximum safe operating speeds fully. There are altogether eight tables of Maximum Operating Speeds covering all standard mounted wheel shapes combined with common mandrel diameters and various overhangs.

**Fig. 2 serves to illustrate how important it is for the operator to always check his operating conditions with the Safety Code speed tables. Using shape W 192 mounted wheels (5/8" x 1/4") on 1/8" diameter mandrel, for example, it will be seen that the maximum safe operating speed drops off drastically (from 43,120 to 11,620 rpm) when the overhang is increased from 1/2" to 2-1/2".**

Obviously, it is impossible for the wheel manufacturer to assign a single maximum safe speed to any given mounted wheel since this speed varies with the method of using which is controlled by the operator. It is the operator who must make sure in each case that the Safety Code maximum safe speed for the mounted wheel and the operating conditions involved is not exceeded by the speed of his grinder.

For the operator's convenience, the Tables of Maximum Operating Speed as published in the Safety Code are also printed in a handy 5 x 7 inch booklet which is available, without charge. Every operator using mounted wheels should have a copy in his tool box and make a practice of referring to it every time he changes to a different wheel size, mandrel size or overhang to be sure his operating speed is correct for the new set of conditions. For copies of this booklet, simply address a postal card to Grits and Grinds, Norton Company, Worcester 6, Massachusetts and ask for Form 187.

As an additional safety service, a distinctive "warning" card, Fig. 3, is now included in each box of mounted wheels. In larger shipments, an ample supply of these cards is enclosed with the suggestion that the stock room clerk pass one out to an operator each time he issues any mounted wheels. Awareness of the seriousness of the problem and cooperation by all concerned -- operators, stock clerks, foremen -- can effectively prevent accidents caused by the overspeeding of mounted wheels.

*Norton Co. Product Safety Engineer*
(Cont. from Page 11)

Figures 3a and 3b show the coupling between levers 3 and 4 and the projection (5a) on control lever 5, as well as their contacts with control cams 1 and 2. The positions are in one case at the greatest possible exposure value and, in the other, at the lowest exposure time of the shutter. The projection 5a of the control lever 5 contacting stud 4b transmits under spring pressure every change of either the speed control ring 10 or the aperture control ring 8 (Fig. 2) to the follow-up lever of the lightmeter through shaft 6. When simultaneously adjusting both control rings a tendency to change the control lever (5) position is cancelled by the differential effect of assembled levers 3 and 4.

The film speed can be set right on the shutter, with film-speed ring 2. This ring is connected with the aperture control ring 8 with a releaseable bolt connection (Fig. 2). For clarity, the bolt connection was omitted, but provides for a relative adjustment between rings 2 and 8.

Cameras with Prontor-SLK shutter for interchangeable lenses are distinguished not only by a simple exposure setting -- due to the dependable control -- but also by automatically correcting the aperture values on the shutter to correspond with the lens in use.

NEW DEALER REPAIR COLUMN STARTED

A monthly column on camera repair problems appears for the first time in the July issue of "Photo Developments", the publication of the Master Photo Dealers' and Finishers' Association. Authored by the National Camera Repair School Director, S. L. Love, the question and answer type column is aimed at helping dealers solve simple repair problems on their own and get more value from their relationships with camera repair shops.

Entitled "The Repair Bench", the column answers questions submitted by dealers about technical aspects of photo equipment, "over-the-counter" type repairs and questions that might ordinarily lead toward misunderstandings or disgruntled customers.

All photo dealers are invited to submit questions directly to "Photo Developments" magazine, 104 East Michigan Avenue, Jackson, Michigan. If you are not now a member of the worthwhile Master Photo Dealers' and Finishers' Association, ask NCRS for an application blank.

When you need a helping hand, the best place to look for it is on the end of your arm.
There are many photo dealers that realize your importance to their business, but there are others whom you must convince of this fact. This is not hard to do when you can show a dealer he can build his sales volume by giving his customers complete service. Remind him that an automobile dealer must have a service department in order to satisfy his customers. Point out the sewing machine centers -- the jewelry store with its watch repair counter -- the appliance store that has its own service department, or at least competent maintenance available.

It is easy, generally, to convince any dealer that the confidence instilled in a customer because of the complete service that is being offered will bring that customer to his store repeatedly for the purpose of buying more and more equipment. Cameras can usually be sent to the factory for servicing but you should point out to the dealer that this "buck-passing" tends to destroy a customer's confidence in his store. Most dealers will readily admit that delays involved in shipping and in overloaded factory service departments are very discouraging. His customer bought his equipment to use. There is no irritation like that caused by the lack of a camera when the opportunity for a good picture comes along. A sometimes overlooked loss is the film and supply sales that disappear because a customer's camera is in transit or is delayed a long time in being repaired.

Since a photo dealer, like everyone else, is in business to make a profit, the promise of additional income from camera repair is a very strong selling point. The substantial discount you allow on your charges can amount to a sizeable sum every month. Even a small supply shop can build its repair volume to the point where the direct profit from repairs will show handsomely. Point out to your dealer that this is almost pure profit for him, since only a small amount of his time, and a shelf in the rear of the store, is all that is required.

HELP WANTED

A card to NCRS Placement Service will bring more details about these opportunities. Include code number listed for opening that interests you.

9624 Manufacturer-Distributor in Chicago has openings for students or graduates.

929 Photo Lab in Stone Harbor, NJ, would like student for all-around work. Some camera repair, plant equipment maintenance, route work. Small country wholesale, retail and photo-finishing. Comfortable living at low-pressure operation.


983 Established repair shop in expanded camera store in Nashville, Tennessee, needs a good, experienced man.


9319 Wholesale supplier in Fresno, Calif. interested in services of several additional experienced photographic and audio-visual repairmen.

9518 Photo shop in Omaha, Nebraska needs trained sound projector and tape recorder repairman for their modern fully staffed shop. Tools furnished, salary open. Here is an opportunity to work with an expanding shop.

9325 Photo dealer in Glendale, California, wants well qualified man to set up new repair department. Would prefer older man experienced in the repair of cameras, projectors and recorders.

9424 An old line Boston repair shop wants first rate camera repairman, knowledge of electronics helpful. Good opportunity for the right man. Salary open.

93:0 First class man needed by established shop in Cleveland, Ohio. Less experienced student or graduate will be considered.

Dealers -- Repairshops -- Service Departments

When you need repairmen, send details to NCRS Placement Service. Your needs will be listed here. Applications of interested repairmen will be sent for your consideration.
NCRS Lesson Binders

Now you can keep all of your texts neatly in order. Each text is held securely and the binder may be opened to any page in any text, yet each is instantly removable! Seven inches wide, your binder holds forty texts ready for immediate reference. This is a fine way to preserve your Camera Craftsmanship lesson books.

Price only $7.75

A ServiShops PRODUCT

This colorful sign will tell your customers that you want their camera repair work. The sign is done in eye-catching yellow, blue and black on white background. The size is 11" by 14". A sign for every purpose. Standard heavy board, standard heavy board with easel, and paper that can be taped to any window.

Price each in quantity

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<th>1-4</th>
<th>5-9</th>
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<td>Board</td>
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<td>.55</td>
</tr>
<tr>
<td>Board with easel</td>
<td>1.10</td>
<td>.90</td>
<td>.65</td>
</tr>
</tbody>
</table>

May be ordered for quantity price. One sign is FREE, 25¢ in extra stamps for handling and postage. No handling charge for your free sign if you order more than one.

Time has rolled around on us again and still nothing from you characters to help me out here — any ideas?

Well, I'll just start scribbling and see what churns up in this little ole mind of mine. Alrighty? You'll be sorry.

Say how about all this great service you've been receiving lately? It's just okay, isn't it? Did I hear somebody say "It's about time" I'll have to agree. Anyway isn't that something? We sure are proud of ourselves. Let me tell you a little bit how it works. O.K.? Well you see it's like this — the same day a completed lesson is received from you, it's graded. After the instructors give me the graded lessons for posting and what not to your student cards, then new lessons are triggered to you and are mailed no later than the next day. In other words we are on a 24 hour system. Boy hows that for service (with a smile), I bet you active students knew something was going on, probably thought somebody put a bomb under us, (somebody did) yes sirree, now I'm convinced nothing's impossible. Where there's life there's hope.

Well I'll be darned, guess who just walked in the door a few minutes ago? Ed Roberts and his family from Mohawk, New York. You know, that's what makes this job worthwhile for me, among many other stuff and things, is to finally meet you students.

Well I suppose I'd better sign off now and let you peoples get back to your studies. You noticed I said "studies", not loafing - or golfing - or sitting in the back yard with your big ole ceeger. Which reminds me, my average in bowling is 99. Perty good hunh? No that isn't a typing error it's really 99. Anybody got some good advice, maybe like giving up or trying something else. Remember I said earlier, "where there's life there's hope"? Famous last words. I'll shape up one of these days and stay out of the gutter and try for the pins. You know when most people go up to bowl somebody will say strike! Well I'm cheered on by everybody saying "gutter". Enough of this nonsense you guys are gonna think I've lost my marbles.

Bye for now and God Bless You.

Delphy

16 THE CAMERA CRAFTSMAN JULY-AUGUST 1959
Our Students Speak

I like the tools that were sent to me with this lesson, especially those fine tweezers. They're just dandy.

A. D. McLackland
Cleveland, Ohio

I enjoy the study material, each lesson on shutters, while devoted to complicated material, has been so arranged as to make the difficult easy.

Roland Curtiss
Beaver, Washington

I wrote for permission to skip several lessons. Forget it! I'm learning things I never knew before, especially on lenses.

Merle E. Gates
Flinton, Penn.

Recently I have earned a little extra money for repairing several cameras for my friends. They are very much satisfied with my work. This encourages me to start accepting repair jobs through photo supply stores. I hope this will help me to equip my shop further.

Fong Chung
Philippines

I completed a photography course approximately ten years ago. It is good to review it all over again. Your course is easy to understand.

John A. Reconnu
North Charleroi, Penn.

I thoroughly enjoy my lessons and am looking forward to the time when a diploma will be hanging on the wall of my own shop.

McKinley Wood
Port Hueneme, Calif.

SERVI SHOPS HEADQUARTERS ARE YOUR SPECIALISTS

Servi Shops Headquarters advertising is beginning to appear in National magazines. Rely on your Headquarters Shops to back up your own work. For example, electronic specialists and complete facilities here can take care of your repair on sound equipment, electronic flash and other specialized photographic machinery.

Send repairs direct to ServiShops Headquarters, Box 174 ER, Englewood, Colorado.
THESE WRENCHES are very effective tools for removing Lens and Retaining Rings that do not have built in Spanner Slots. You will not mar fine finishes or damage delicate lens mounts when you have a set of these wrenches in your kit. Available for any size diameter job.

SIZES IN STOCK to fit:
- EASTMAN KODAK LENS CELLS
- POLAROID LENS CELLS
- LEICA View and Rangefinder caps

OTHER sizes available on request.

PLEASE state size or purpose required when ordering.

Popular sizes: 7/16, 1/2, 21/32, 3/4, 1-1/8, 1-1/4, 1-1/2, 1-3/4

A ServiShops PRODUCT

National Camera Repair School
Englewood, Colo., U.S.A.

George Norberg, Assistant Art Director, and the man who actually puts this magazine together, displays his design that won first place in a contest held by the Denver Metropolitan Council for Community Service, to illustrate the organization's function.

(Cont. from Page 10)

have announced their slate of candidates for Society Officers by the time you read this. Members will receive an Election Ballot for return. The first elected group of Officers should be announced in the next issue of the Camera Craftsman.

In the meantime, the Charter Membership list will be closed soon. If you apply now for membership, you will likely be listed as a Charter Member of the Society of Photo-Technologists. We need your help. Send your application soon.

There have been a number of nice comments on the attractive SPT lapel emblem. This is a beautiful sterling silver pin with the SPT symbol on a turquoise blue background. If you've not yet gotten your pin, you can order one from SPT Headquarters. Simply enclose $3.00.

DON'T FEAR CRITICISM

The galleries are full of critics. They play no ball. They fight no fights. They make no mistakes because they attempt nothing. Down in the arena are the doers. They make mistakes because they attempt things.

Ford forgot to put a reverse gear in his first automobile. Edison once spent $2 million on an invention that proved of little value.

The man who makes no mistakes lacks boldness and the spirit of adventure. He is the one who never tries anything. He is the brake on the wheel of progress.

And yet it cannot truly be said that he makes no mistakes because the biggest mistake he makes is the very fact that he tries nothing, does nothing except criticize those who do.
When TransRak is not ordered, these kits include a P 201 Plastic tray for storing.

<table>
<thead>
<tr>
<th>Kit Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivet Assortment</td>
<td>$7.50</td>
</tr>
<tr>
<td>Wind Assembly Assortments</td>
<td></td>
</tr>
<tr>
<td>For Box Camera</td>
<td>$6.95</td>
</tr>
<tr>
<td>For Popular Priced Folding Camera</td>
<td>$6.95</td>
</tr>
<tr>
<td>Synch Installation Kits</td>
<td></td>
</tr>
<tr>
<td>External (Connectors, Insulators, etc.)</td>
<td>$9.75</td>
</tr>
<tr>
<td>Internal (Replacement Parts, contact material, etc.)</td>
<td>$15.50</td>
</tr>
<tr>
<td>Shutter Blade Assortment</td>
<td>$6.95</td>
</tr>
<tr>
<td>Flashcord Assortment (6 cords)</td>
<td>$9.90</td>
</tr>
<tr>
<td>Spring Wire Kit</td>
<td></td>
</tr>
<tr>
<td>3' each of sizes .011, .012, .018, .020, .022</td>
<td>$1.00</td>
</tr>
<tr>
<td>6' each of sizes .040 and .050</td>
<td></td>
</tr>
<tr>
<td>Metric Screw Assortment</td>
<td></td>
</tr>
<tr>
<td>(400 pieces)</td>
<td>$7.50</td>
</tr>
<tr>
<td>Mirror Assortment (6)</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

1/4 PRICE! YOUR TRANS-RAK, SHOWN ABOVE, COSTS YOU ONLY $1.00 WITH ANY ServiShops KIT ORDER TOTALING $20.00 OR MORE.
NEAR-ACCIDENTS

Nobody can actually predict how many accidents you'll have in the future -- regardless of how many or how few you may have had in the past.

However, it's been learned that the more near-misses you have, the more accidents you'll have. And this has been reduced to a handy formula by which you can predict your chances of having an accident. According to the formula, you can expect to have one accident for every 50 near-accidents you have.

What this means is that to improve your accident record, you must improve your near-accident record. For example -- suppose you're averaging one near-accident a week. At this rate, you can expect to have an accident about once a year. But by reducing your near-accidents to one each month, you'll probably have only one accident in four years. The longer it takes you to have 50 near-accidents, the longer you'll probably go without an accident.

This 50 to 1 formula has been tested over a ten-year period. The man who discovered it was averaging one accident a year at the beginning. The last five years he drove 250,000 miles without an accident.

You can keep track of near-accidents simply by making brief entries in a small notebook that can be kept in the glove compartment of the car. Enter brief descriptions and the dates they occurred. Here's what you should enter:
1. Mishaps resulting in no damage or loss.
2. Any situation where you felt, even for an instant, that you couldn't avoid an accident.
3. Any situation where an accident was avoided only by someone else's quick action.

Courtesy Nationwide Ins. Company

(Cont. from Page 8)

$4,500-a-year man puts in seven days each month just to pay his taxes. In the last 19 years --- 1940 through 1958 --- total state tax collections per person have tripled. And with a large number of state treasurers looking for more revenue, this total is bound to go even higher.

Of course, one reason why the tax bite is larger than it should be, says the Tax Foundation, is that government officials are free with other people's money. Other people's money comes easy, and apparently, it goes the same way. In this respect, it makes small difference whether the government official is operating in Washington or back home among the neighbors. This is an important point for everyone to remember the next time they vote to have some government agency do a job which the community could do itself.
RECENT CONSIGNMENTS ACCEPTED ON SERVI SHOPS ANALYZERS

There are never any trade-ins accepted on purchases of ServiShops Motion Analyzers. However, it has been NCRS Supply policy to take instruments on consignment. That’s good news for those of you who would like to make an especially good “buy” on a used test instrument.

Is there some particular machine in which you are interested? Place a request. When an instrument of the type you want comes in, you’ll be told. You can even name the price you’d like to pay, if you wish. The plan makes available shutter testers, synchronization testers, contact testers and others by such manufacturers as Aerotronic, Heiland, Hickok, and NCRS.

Here are the approximate prices you may expect to pay for different makes and models of used test equipment:

- Gardner Synchrotimer $195 to 300
- Heiland SynchroTester 80 $120
- Aerotronic (Synch) 60 $85
- Aerotronic (Shutter) 50 $75
- Rush 50 $75
- Hickok 50 $75

This also gives you some idea of the amount you will be paid for an instrument you now own, when buying a ServiShops Motion Analyzer.

THE CAMERA CRAFTSMAN JULY-AUGUST 1959 21
Custom-built Light Stand for Analyzer

This special light stand was built by Mr. Charles F. Massey of Philadelphia, Pa., for use with his ServiShops Motion Analyzer. It is made of plexiglass and designed for his particular use. Around the base are strips of "label tape" showing the fractions and milliseconds for the most popular shutter speeds and also fractions and milliseconds for the different times other than normal shutter speeds. Fig. 1 shows the components of the stand and Fig. 2 shows it assembled with the light and photo-tube box in position.

ED CANTIN IN PMI

The April issue of Photo Methods for Industry carried the full story of the photography necessary in keeping things rolling on the New York State Thruway.

The Thruway is a 556 mile ribbon of concrete running from New York City clear across the State to the Pennsylvania border. Its photo chief is Larry Fairbanks, who is one of a two-man department. His assistant, Ed Cantin, is one of NCRS' early students. It's Ed's job, among others, to maintain the 30-odd pieces of equipment used to provide the movie and still pictures needed by the authority.

The story of the many uses for photography in operating and maintaining this traffic artery is very interesting. If you do not receive PMI regularly your local library should have a copy. Subscriptions to Photo Methods for Industry are available from your ServiShops Supply.

Opportunity is as scarce as oxygen; men fairly breathe it and do not know it.

Anonymous
HOME STUDY DISCUSSED ON TV "TODAY"

Some Craftsmen readers may have caught an interesting interview that took place over Dave Garroway's NBC-TV network show, "Today", on July 9. The interview of Dr. Robert Allen, Executive Director of the National Home Study Council, was conducted in Washington by the well-known reporter, Martin Agronsky.

This interesting discussion on nation-wide TV was concerned with the value of good home study training to millions of men and women who find it an ideal path to a better education. Dr. Allen estimated that there are "over two million adults who are studying through correspondence" of which better than a million are studying with National Home Study Council schools.

Dr. Allen mentioned the fact that General Sarnoff, President of NBC, as well as Arthur Godfrey, Eddie Rickenbacker, and other well known figures are among that "20,000,000 graduates or more" of home study schools.

Quite interesting was the conversation after the interview ended which was reminiscent of earlier features and editorials you've read in this magazine. Charles Van Doren, in impromptu talk with visitors to the program said, "... As far as I am concerned, I don't really believe in teaching anybody anything." To which Dave Garroway replied, "That is a peculiar thing for a teacher to say."

Van Doren's answer was, "People learn, themselves, by working, themselves. There is no reason why you couldn't do it with a home-study course, just as well as you do in a class in college. I don't teach my students things. I suggest things to them. If they want to work, read and think, they will learn. If they don't they will not learn anything. ... . It takes a great deal of work and the teacher doing the work is not going to make you learn. You have to do it yourself."

---

**NATIONAL CAMERA REPAIR SCHOOL**

Box 174
Englewood, Colorado

I am interested in the opportunities and advantages of a career in Camera Craftsmanship. Please furnish me with complete information about your training program.

Name_________________________ Age________

Street___________________________

City__________________________ State__________

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**FOCAL PLANE SHUTTER MATERIAL**

42" wide $6.00 yard
Discount: 1 yard - 20%
2 to 4 yards - 30%; 5 to 10 yards - 40%
Minimum Order: 1 yard
Over 10 yards, write for special discount

---

**BELLOWS MATERIAL**

"Outer" 36" wide $2.20 yard
"Inner" 36" wide $2.00 yard
Discount: 1 to 4 yards - 20%
5 to 10 yards - 25%

---

If you have a friend or relative who may be interested in the money making opportunities that exist today in the camera repair field, have him or her fill out this coupon and mail it to the National Camera Repair School, Box 174, Englewood, Colorado.
Here is the precision spanner wrench designed especially for optical and camera work. It will serve you economically, for the tool accepts replaceable and interchangeable tips. Quickly adjustable from 0" to 6" (even more with proper tips), you lock the setting firmly with a single motion. The Multi-Span's versatility is unmatched because of the many varieties of tips you can use. You can instantly snap a tip for almost any application into one of two positions. Get a complete set of tips which you can use in pairs or in combination with each other.

Blanks with the tip unground are also available. These tips are already heat treated, and plated. You can grind the blade to the required shape for many of the hard-to-get-at retaining rings.

| 751-2 Tips, straight, flat, ground       | 1.60 |
| 751-3 Tips, straight, pencil point      | 1.60 |
| 751-4 1/8" offset, flat, ground        | 1.80 |
| 751-5 1/4" offset, flat, ground        | 1.80 |
| 751-6 3/8" offset, flat, ground        | 1.80 |

| 751-2u Tips, straight, flat, unground   | 1.30 |
| 751-3u Tips, straight, point, unground  | 1.30 |
| 751-4u Tips, 1/8" offset, flat unground | 1.50 |
| 751-5u Tips, 1/4" offset, flat unground | 1.50 |
| 751-6u Tips, 3/8" offset, flat unground | 1.50 |

751-15 A Special Spanner Wrench for removing narrow shutter retaining rings on the Retina and Korat cameras.

THE CAMERA CRAFTSMAN

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