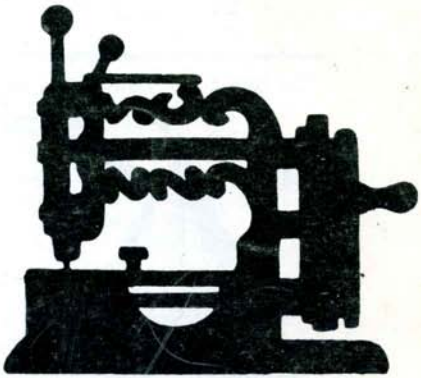
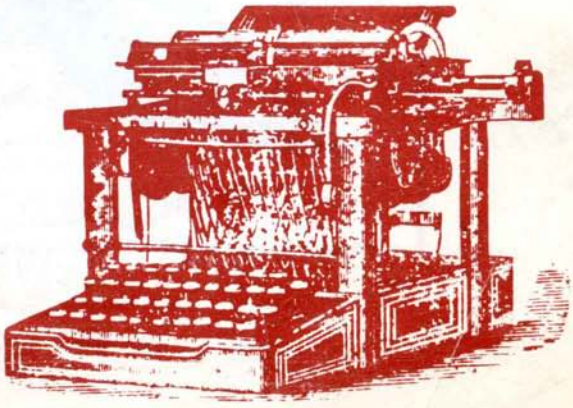
ISSUE No. 13. January 1973



BYGONE AND VETERAN

Price 15p

1973 The Centenary of THE TYPEWRITER



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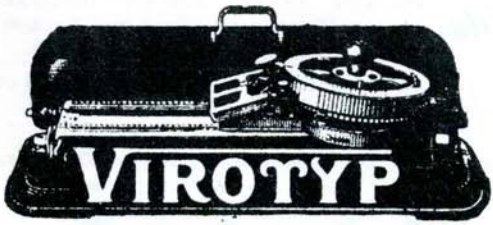

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BROADWATER COLLECTION NEWS

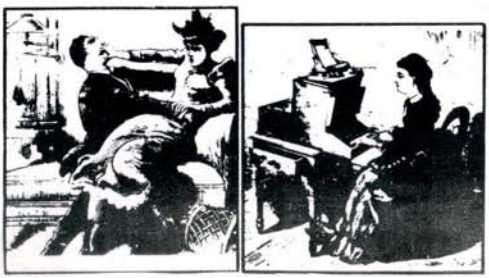
In collaboration with Mr. R. G. E. Sandbach, Curator of the Tunbridge Wells Museum, we are planning a series of exhibitions to commemorate the Centenary of the Typewriter in 1973. The programme is as follows:

March and April - Tunbridge Wells Museum
April to September - Travelling exhibitions at Steam Engine Rallies and Motoring Pageants
September to November - Broadwater Collection

Another subject for a future exhibition at the Broadwater Collection will be 'Bygones of Tunbridge Wells', and we are now seeking suitable items for display: Coachbuilders' Plaques, Metal Items bearing names of Tunbridge Wells traders, Inspection and man-hole covers, Building materials, Advertisements, letter and bill heads, Printing plates, Photographs, particularly those showing transport, industry and shops, Products of local industry and craftsmen, Spectacle cases, Bus, train, cinema and theatre tickets, Programmes, posters and notices of community events, Shop and Inn signs and notices, Town guides, Locally made bottles and jars, Postmarks, Local police, fire, ambulance and corporation relics, Certificates, menues and bills of fare. All items should be identifiable as of local origin or use. Exhibits of all periods are eligible but the exhibition will emphasise objects made and in use prior to 1950.

Future subjects for exhibitions will include Flying Displays of the 1920s and 30s, Sports Clubs Past and Present, and 19th Century Builders and Building Methods.

The Broadwater Collection of Veteran Machinery and Transport Models is open to the public on four days a week: Tuesday and Thursday mornings and all day (10 am to 6 pm) on Saturdays and Sundays.



PROGRAMME OF VETERAN MACHINE REGISTER TRAVELLING EXHIBITIONS IN 1973

This year the Register is fortunate in having the sponsorship of Frister & Rossman Sewing Machines and it is hoped to attend the following events:

Eastbourne Lion Preservation Group Autojumble (3rd February)
Caterham Motoring Festival
Polegate Steam Engine Rally
Penshurst Pageant of Motoring (13th May)
Haywards Heath Rally
Leukaemia Research Fund Garden Fete, Heathfield
Hadlow Down Steam Rally
Hadlow Down Steam Fair Organ Rally
Tonbridge Steam Rally
Biddenden Spectacular
Ardingly Steam Rally
Horsham Steam Rally
Medway Festival of Steam
New Ash Green Rally
Vintage Transport 73, Eastbourne
Open Days at The Kent & East Sussex Railway
Sellindge Steam Special
Crowborough Festival
Tunbridge Wells Carnival

This is a provisional list. Amendments and dates will appear in BYGONE & VETERAN during the course of the year.

TREASURE TROOPS AT TUNBRIDGE WELLS

Delving through the stored exhibits at the Tunbridge Wells Museum a few weeks ago, the Curator, Mr. R. G. E. Sandbach, came across some old lisle stocking boxes which were marked to say that their contents had been donated to the museum in 1949.

Opening the boxes he discovered several hundred 30mm and 40mm model soldiers, probably made by Hayden of Dresden, one of the first of the famous makers of 'solid' figures.

The models have not yet been sorted and catalogued but it is certainly a most impressive collection making a valuable addition to a museum already famous for toys and models.

Among the fresh finds are 40mm figures of the American War of Independence and a 30mm Royal Engineers Bridging Company with pontoon wagons.

CONTENTS

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Editorial

THIS MAGAZINE.

Magazines devoted to objects of the past have fallen mainly into two classes: those concerned with the world of objets de valeur and those intended for learned historians. Bygone & Veteran has a different aim.

In recent years, as pure antiques have become harder to find and, consequently, beyond the means of many people, more attention has been focused on the bygone - the object, not necessarily more than 100 years old, which faithfully reflects its period of manufacture and is coveted more for its interest than for its beauty or intrinsic value.

More and more people are discovering the fascination of old things mechanical, and we have seen the emergence of a new breed of enthusiasts and collectors whose interests range from automobiles to automata, from polyphones to player pianos. Bygone & Veteran exists to fill the gaps left by existing specialist journals. It is intended for those who think of London's Science Museum and the Smithsonian Institute in Washington as their temples; for those people who delve through junk shops; for the connoisseurs of the V & V world of the Steam Engine Rally and Motoring Pageant; for those who look in wonder on man's mechanical or industrial ingenuity.

Bygone & Veteran developed from the newsletter of the Veteran Machine Register, founded in 1971. In the magazine format we will continue the initial aim of accumulating knowledge of bygones and veteran small machinery, evangelise the cause of conservation, and it is hoped, entertain a little at the same time.

1973 marks the centenary of the commercial availability of the typewriter, and with this in mind we are placing a deal of emphasis on this mechanical contrivance. With this issue we include Part I of a provisional Directory of Typewriter Makes and Makers. By the middle of the year, through exchange of information, it should be possible to publish an accurate and comprehensive summary of typewriter marques. Readers are asked, apart from letting us know what they think of the journal, to help in our quests. One of our prime objectives is to be a vehicle of research and every scrap of information is important.

Contributions are invited.

OLIVETTI

This is an extract from the history of the Olivetti Typewriter contributed by Dott. Mario Minardi of C. Olivetti & Co. Spa.

'The truth is that in the past there has been no industrial mentality in Italy and this mentality is still lacking. The day our Country gives due consideration to scientific and experimental studies, and sound and honest industrial establishments are capable of deriving best advantage from both studies, contributing to development and practical applications, then and only then, will our inventors be able to see their ideas put into practice for the good of all and with great moral and economic advantage for their country of origin, which too often in the past has neither understood nor appreciated them'.

These words were pronounced at the start of the century by Ing. Camillo Olivetti, when the first typewriter was beginning to be produced in Italy. In this way he gave posthumous recognition to Giuseppe Ravizza, the little known inventor from Novara who fifty years previously had designed and constructed a complete working instrument for mechanical writing, but because of the incomprehension and unpreparedness of his contemporaries it only remained at the experimental stage.

When the sign 'Ing. C. Olivetti & C. First National Typewriter Factory', was put up on the old factory in Ivrea, which had been adapted to meet new demands, Camillo Olivetti's new plans were considered even more ambitious than those for electrical instruments, his earlier products. Indeed, the typewriter was still considered at the most as an object of curiosity and not at all as a competitor to pen and ink. In 1908 about 25 people were working speedily towards putting Ing. Camillo Olivetti's plans into effect. In the entrance hall to the offices a sign suggested that outsiders should not go in so as not to compel the management to ask them to leave.

At the end of the year Olivetti went to America, to bring his knowledge up to date, extend it, and purchase more equipment. He wrote to his family, 'Remington is a very fine factory. I think it produces the most machines in the world. I have paid detailed visits to the Underwood factory and the Royal factory. They are enormous and I learned a lot, so my trip to America has not been useless'. In February Olivetti returned to Ivrea and a few months later his first typewriter, the M1, was completed, original in all its parts. 'It is not yet perfect' he wrote on 12th August, 'but I think that in a short time I will be able to make it as good as the best machines of its kind'. This undertaking required large capital outlays. While finding new associates Olivetti had to sell the estate and house he had inherited from his father and also convince his mother to give up some of her apartments in Ivrea.

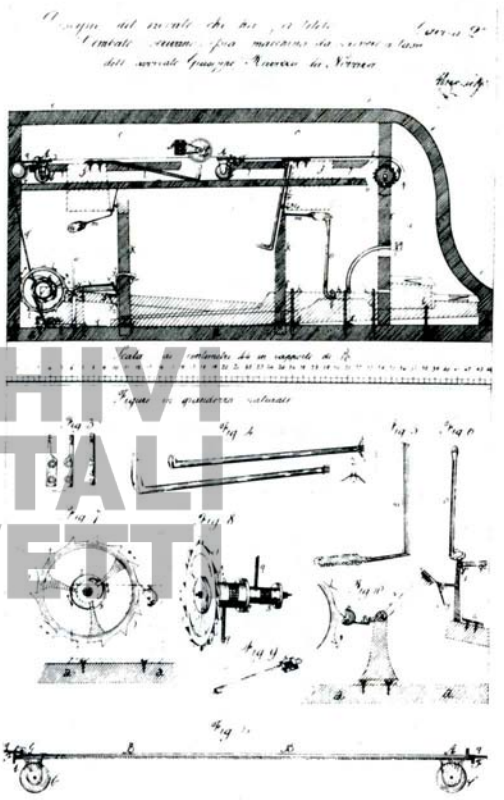
In 1911 the M1 was shown at the International Exhibition in Turin, which celebrated the 50th Anniversary of Italian unity. The M1 was successful and was also appreciated for its appearance. 'Industrial Design' was still unknown, yet Camillo Olivetti wrote: 'particular attention has also been paid to the machine's design. A typewriter should not be a drawing room ornament, decorated in questionable taste, it must be both elegant and serious in appearance'. In 1911 the M1 won an Admiralty (Ministero della Marina) supply contract. In 1912 the first sales branch outside Ivrea was opened in Milan, in Piazza della Scala, and then in the Arcade (Galleria). In 1913 the first advertising poster was issued - Dante pointing towards a M1 - designed by the Venetian painter Teodoro Wolf Ferrari. When the one thousandth machine was produced Camillo Olivetti had a badge issued to all employees and gave one in gold to his wife. The institution of the 'Golden Badge' for all employees with 25 years service commemorates this event.

During the first world war the factory produced shells and parts for machine guns and rifles, anti-aircraft fuses, gyroscopes for torpedoes and ignition magnetos for aeroplane engines. At this time only one or two M1 typewriters came out. Camillo Olivetti was already considering a new machine, 'which we think will be very successful because while it works as well and is as elegant as the current model, it is rather more economical and will enable us to stand up to competition in Italy and abroad'. Thirteen months after the end of the war the factory was back on peace production with an M20 which was decidedly more

more sophisticated than the previous model. Also Camillo Olivetti adopted the mobile type basket for capitals, a real revolution in typewriter construction technique. There were 400 workers, and 2,000 machines a year were produced. With a high quality machine like the M20 there was also the fundamental problem of commercial outlets. In 1920 the machine was shown at the Brussels International Exhibition, another branch was opened in Trieste, machines were sent to Holland and others to Buenos Aires.

The manufacture of Olivetti typewriters went from strength to strength and in 1937 studies carried out under the leadership of Ing. Giuseppe Beccio and Dott. Massimo Olivetti, the second of Camillo's sons, gave rise to the production of teleprinters. Four years later the company entered into the field of calculators with the Multisumma adding-machine.

At the age of 70, in 1938, Camillo Olivetti left the chairmanship of the company to his son Adriano, who had already been managing director for five years. He kept the management of the machine tools workshop for himself. During the last years the vicissitudes overwhelming Italy and the whole world induced him to add new capital to his journalistic activities. At the beginning of 1943 he had a pamphlet secretly printed in Ivrea containing suggestions for economic, financial and social reforms. In the autumn when the Nazi troops arrived in Ivrea, Camillo Olivetti had to leave his house and took refuge near Biella with a family of peasants. Here his health, already poor, grew worse. He was admitted to hospital in Biella, where he died on 4th December, 1943.



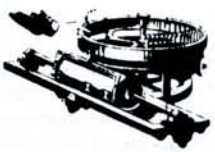
PART OF RAVIZZA'S DRAWINGS FOR THE CEMBALO SCRIVANO

THE TYPE-WRITER Part I

WE ARE INDEBTED TO MR. J.A. NEWBERRY OF THE REMINGTON RAND DIVISION OF SPERRY RAND LIMITED FOR THIS HISTORY OF THE TYPEWRITER.

Although the manufacture of writing machines goes back only to 1873, the story began almost 160 years before that date when, in 1714, Patent No. 395 was granted to Henry Mill in England for "An Artificial Machine or Method for the Impressing or Transcribing Letters, Singly or Progressively one after another as in Writing, whereby all Writing whatever may be Engrossed in Paper or Parchment so Neat and Exact as not to be distinguished from Print".
Unfortunately no description exists as to how the machine worked.
America's first typewriter patent was granted by President Andrew Jackson - "Old Hickory" - to William A. Burt of Detroit on the 23rd July 1829. This was a table-sized model called the "Typographer", although it was suggested in a New York newspaper that it should have been called "Burt's Family Letter Press". However, the Typographer never reached the production stage.
A Frenchman by the name of Progrin was next in the field with a patent granted on the 6th September 1833.
On the 26th August 1843, Charles Thurber Worcester, Mass., patented his roller-platen machine but like the inventions of Burt and Progrin it was not put into production.
Christopher Latham Sholes, took out the principal patents in his name and is usually given credit for being the inventor of the typewriter.
Sholes was born on the 14th February 1819 in Moorsburg, Pennsylvania. At the age of 14 he became an apprentice to a newspaper editor in Danville, Penn., and 4 years later, in 1836, he joined his brother, Charles, who was active in Wisconsin politics. At the age of 19, Christopher Latham took charge of the House Journal of the Wisconsin Territorial Legislature and became editor of a succession of small Wisconsin newspapers. In addition to journalism he spent several one-year terms in the State Assembly of Wisconsin.
Sholes moved to Milwaukee, becoming editor of the Daily Sentinel, and subsequently the Milwaukee News. But in the year 1866 he was made Collector of Customs for the Port of Milwaukee. Contemporary descriptions of the man are generally flattering. They describe him as "gentle and loveable, cultured and brilliant, modest and unselfish". However, he is also described as "eccentric", troubled with "almost excessive tenderness of conscience, viewed from the usual business standpoint", and a "dreamer".

The Burt Machine



The Thurber Machine

To return to the year 1866, Christopher Latham Sholes and a printer, Samuel W. Soule, were using the Kleinsteuber Machine Shop in Milwaukee, and "puttering" with a machine for serially numbering pages without the necessity of setting type. At this same shop Carlos Glidden, the son of an iron worker, was developing a mechanical "spader" to replace the plow. Working in the same building, naturally the three men exchanged ideas and described the progress toward their inventions. Story has it that Glidden one day remarked of Sholes and Soule's paging machine:"Why cannot such a machine be made that will write letters and words and not figures only?" A year later Glidden saw an article in "Scientific American" which descriped a London invention designed to write letters and words.
The three men pooled their ideas, relying on the skilled mechanics at Kleinsteuber's Machine Shop. The first model was made by the autumn of 1867, with Patent No.79265 being taken out on the 23rd June 1868.
While work proceeded on additional and improved models,the first typewriter was used to type sales letters to many prominent men. These letters were designed to create interest and enlist finances to help in the new enterprise. One of these letters reached oilman, James Densmore of Meadville, Penn., who as a former editor and printer, was immediately interested. Densmore was one of those dynamic, farseeing, yet practical men. He bought an interest in the new machine by paying all expenses incurred until that time - and bought it sight unseen. When he did see the typewriter in March 1868, he decided only the idea was worthwhile. The machine had too many defects. Soule soon dropped out of the group, leaving the project to Sholes, Glidden and Densmore.
Densmore became the drive of the organisation, forging ahead in his aggressive and militant fashion. Patiently, yet firmly, he urged Sholes through six years of development until 1873, never allowing the daily discouragements to become too great.

A severe test of the models was provided by James Ogilvie Clephane, later associated with Ottmar Mergenthaler, the inventor of the Linotype. At this time Clephane was an official shorthand reporter who "test piloted" the models. Clephane's criticisms were so severe that only Densmore could keep Sholes from becoming completely disheartened.

It was during this period that Sholes christened his machine "Type-Writer". The name stuck and is still in current usage wherever English is spoken. This is rather surprising when you consider the many other names coined to describe similar inventions, including: "Typographer". "Mechanical Chirographer", "Pterotype", etc.

Shole's correspondence from 1867 to 1873 ranges from the heights of joy over accomplishment to depths of despair and predictions for ultimate failure. He sent models of his machines (he and Glidden developed some 25 to 30 of them during these years) to many prominent persons, particularly telegraphers. They saw an immediate application. Sholes even consulted and received help from Thomas A. Edison. By 1873 Sholes, Glidden and Densmore were certain they had sufficiently developed their ideas. They were now ready to go into production. To do this the trio had to to enlist the aid of an established manufacturer. So, James Densmore, the driver, corresponded with E. Remington & Sons. He presented the facts concerning the invention of this machine to replace the pen. Stating that they now had a working model, he requested an "interview and a chance to demonstrate the model." He would bring it up to Ilion, the home of E. Remington & Sons, if they would care to consider manufacturing the device. By this time E. Remington & Sons had built a considerable reputation, both nationally and internationally, as gun makers. The founder of the Company, Eliphalet Remington, had, according to a famous story, welded a piece of iron pipe from scraps in his father's forge in Ilion and walked 14 miles to Utica. He had it rifled to build a weapon unrivalled by those currently sold. He capitalized on a "good thing", developing and expanding his gun making until the forge was replaced by a gun factory. During the Civil War the famous Remington rifles were made for the North. Afterwards, gun making was continued, mostly for foreign governments. Idle space in the factory was taken up by the manufacture of agricultural implements and sewing machines.

Eliphalet Remington died in 1861, and the business was conducted by his three sons, Philo, Samuel, and Eliphalet, Jr. It was Philo, the eldest son, and President, who was largely responsible for promoting his company's association with the typewriter. Two other members of the Remington firm were to become prominent in that company's association with the typewriter. Henry Harper Benedict, was in 1873 a confidential secretary. He later became a member of the board of directors of the corporation and treasurer of the Remington Sewing Machine Company. A second man, William K. Jenne, was destined to succeed Scholes in the mechanical idea development field. In 1873, after 12 years of employment with the firm, Jenne was assistant superintendant in the Sewing Machine Department.

Benedict relates the story of E. Remington & Sons' first contact with the new invention, the Type-Writer.

"Mr Philo Remington's office and mine communicated. One day I saw on the mantlepiece in his office an envelope addressed to him in something that looked like print. I asked him what it was. He said, "Read it". It proved to be a letter from one James Densmore (unknown to us all) setting forth at considerable lengths the facts in connection with the invention of a machine to take the place of the pen, that is, to write by manipulation of keys. He told who were the inventors, and said after many years of effort they had finally produced a working model, and they wanted to find someone to undertake the manufacture of the machine. He wished to bring the model to Ilion to see if Remington would care to take it up."

H. Benedict: "Have you done anything about this?"

P. Remington: "No, what do you think we had better do?"

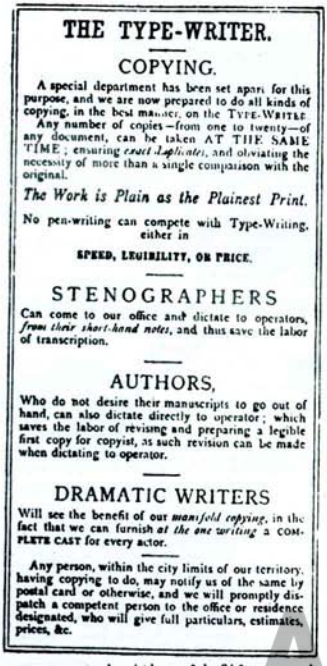
H. Benedict: "Why of course we want to see the machine; it is a wonderful invention if it's anything, and we should not neglect the opportunity offered us to examine it."

Arrangements were made for the critical demonstration. Sholes did not come along with Densmore to Ilion. But Densmore did not wish to risk the outcome of his campaign solely on his own resources. He brought along some "heavy artillery" in the form of a super-saleman, George Washington Newton Yost. Yost had previously won selling laurels in the oil business. And Benedict's description of Yost's powers are enough testimony to the wisdom of the choice. The stage is set: The place was Small's hotel in Ilion. The participants in this dramatic situation were:

Representing E. Remington & Son:
Mr. Philo Remington (Pres)
Mr. Jefferson M.Clough.
Mr. William K. Jenne.
Mr. H.H.Benedict.

Representing Sholes, Glidden, and Densmore:
Mr. James Densmore.
Mr. G.W.N. Yost.

Densmore and Yost had brought their precious model. H.H. Benedict describes the scene:
"The model was brought to Ilion early in 1873 by Mr. James Densmore and another man whom Mr. Densmore introduced as Mr. Yost. Densmore, as we soon saw was not much of a talker, and he had brought Yost to serve, as he himself expressed it, as "Aeron to his Moses". He did well, for Yost was one of the most persuasive talkers I ever listened to, and his tongue never tired".
"The model was opened and exhibited. We examined and discussed the machine for perhaps an hour and a half, or two hours, and then adjourned for lunch".
Remington: (To Benedict as they left the room) "What do you think of it?"
Benedict: "That machine is very crude, but there is an idea there that will revolutionize business".
Remington: "Do you think we ought to take it up?"
Benedict: "We must on no account let it get away. It isn't necessary to tell these people that we are crazy over their invention, but I'm afraid I am pretty nearly so".
The group reconvened later the same day and tentative arrangements were made as to contract terms. Though cautious, the Remington organisation was not going to let a 'good thing' escape. So, on 1st March 1873, a contract to "manufacture only" was signed. At about this time Sholes left the scene selling out his royalty rights to Densmore for $12,000. Though a considerable sum, this was as much money as Sholes ever got from the typewriter.
Much development word remained to be done on the model. Densmore undertook to handle the selling but was unsuccessful. He chose instead to sell his interests to E. Remington & Sons, accepting a royalty arrangement. By this arrangement, Densmore eventually profited much more than Sholes had.
William K. Jenne was put in charge of the typewriter operation under the overall supervision of the factory superintendent, Jefferson M. Clough. Jenne so remained for 30 years, continuing to contribute to the machine's development and improvement.
Actual manufacture was begun in September 1873, with the machine titled the "Type-Writer", now known as No. 1 Remington.
The first typewriters were not particularly attractive. However, they were richly



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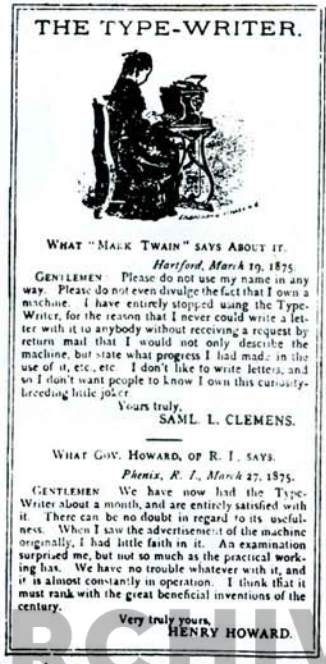
Will see the benefit of our *manifold copying*, in the fact that we can furnish *at the one writing* a COMPLETE CAST for every actor.

Any person, within the city limits of our territory, having copying to do, may notify us of the same by postal card or otherwise, and we will promptly dispatch a competent person to the office or residence designated, who will give full particulars, estimates, prices, &c.



THE TYPE-WRITER.

WHAT "MARK TWAIN" SAYS ABOUT IT.

Hartford, March 19, 1875.

GENTLEMEN: Please do not use my name in any way. Please do not even divulge the fact that I own a machine. I have entirely stopped using the Type-Writer, for the reason that I never could write a letter with it to anybody without receiving a request by return mail that I would not only describe the machine, but state what progress I had made in the use of it, etc., etc. I don't like to write letters, and so I don't want people to know I own this curiosity-breeding little joker.

Yours truly,
SAML. L. CLEMENS.

WHAT GOV. HOWARD, OF R. I., SAYS.

Phenix, R. I., March 27, 1875.

GENTLEMEN: We have now had the Type-Writer about a month, and are entirely satisfied with it. There can be no doubt in regard to its usefulness. When I saw the advertisement of the machine originally, I had little faith in it. An examination surprised me, but not so much as the practical working has. We have no trouble whatever with it, and it is almost constantly in operation. I think that it must rank with the great beneficial inventions of the century.

Very truly yours,
HENRY HOWARD.

Utica, N. Y., Feb. 24, 1875.

I have been using the Type-Writer for two months, and I have learned to do all my editorial writing with it.

I could not be induced to return to the old, tedious and straining method of editorial work. The printers all like the "copy" of the Type-Writer, and claim that they can set it faster and more accurately than from any hand-writing, no matter how legible.

I think the Type-Writer is destined to revolutionize newspaper work. It relieves it of the severe physical strain which is gradually killing off our best editors. The most stalwart editor cannot write steadily for several hours without experiencing a fatigue and exhaustion, which is almost entirely obviated by the use of the machine.

It is especially excellent in night work, as it relieves the eyes from the effects of long writing under bad gaslight. Yours truly,
S. N. D. NORTH,
Ed. Utica Morning Herald.

WHAT "OLIVER OPTIC" SAYS.

Boston, March 17, 1875.

GENTLEMEN: I have had one of your Type-Writers for the last ten days, and during this time I have written with it one hundred pages of a story for the magazine under my charge, all the editorial matter for the current number of this publication, and a great many letters; in fact, I have not used a pen since the machine came into my possession. After this experience of ten days, I find that I can write, with this apparatus, about two thirds as fast as I can with a pen; and though I am a rapid writer, I confidently expect to be able to put more words on paper, before many weeks, with this machine, than I ever could with a pen in the same time. Writing with it is a very pleasant occupation, while to me the use of the pen is the merest drudgery. I find no difficulty in "composing" or doing any of my regular literary or editorial work with the Type-Writer.

Very truly yours,
WILLIAM T. ADAMS,
Ed. of Oliver Optic's Magazine

"I like the machine better and better every day."
Very truly yours, EDWARD H. MAGILL,
President Swarthmore College.

ornamented with gold filagree decorations, hand-painted flowers and at times inlaid with mother-of-pearl. The first model so closely resembled a sewing machine that no imagination is necessary to realize that a sewing machine company had a hand in the development. The foot treadle used for returning the carriage and line spacing was soon found to be impractical. It and the sewing machine stand were soon discarded.

Interestingly, the mechanism was covered, a practice which was gradually done away with in favour of the exposed working parts. But since the 1930s the swing has gone the other direction toward the enclosure of the operating parts of the typewriter.

The original typewriter wrote only upper case letters and numerals, having no "shifting" mechanism. It did possess an escapement or mechanism to allow the one step at a time characteristic of all typewriters since. It had a returnable carriage as well as line spacing mechanism for rotating the cylinder. Hanging typebars were arranged so as to strike the roller at the same place each time. The big drawback we can now see was that the writing was done from underneath the roller. The operator could not see the results unless she raised up the carriage assembly, or she could wait until the paper had rolled up several lines to see the finished copy.

The arrangement of the keyboard on the first model has "stuck" as has the name "typewriter". The letters have been rearranged little, though the addition of the shift key has caused regrouping of the punctuation signs. Densmore and Sholes are jointly given credit for the arrangement. Though both were printers and publishers, the arrangement does not fit patterns of frequency known to printers. Apparently it evolved from mechanical difficulties with the early models. The letters were so placed as not to collide during the test typing. The system has become virtually universal. Any reform movement would be running contrary to the large groups of "skills" already attained by teachers, students, and touch typists throughout the world.

The Centennial Exhibition held in 1876 in celebration of the signing of the Declaration of Independence saw a much improved Remington typewriter. It had an elaborate mother-of-pearl finish, was handsomely hand painted and intricately decorated for the occasion. It aroused much curiosity and 'sample' letters were sold for 25 cents a copy, but little financial success resulted.

Introducing such a radically different device was difficult. "Why, pay $125 for a machine to replace the 1-cent pencil or pen? Fantastic! " The honest efforts to introduce this time and work saver were met with ridicule of the type represented by this story:

"A Kentucky mountaineer returned his first typewritten letter to the man who wrote it, with the words indignant scribbled on the margin, "You don't need to print no letters for me. I kin read writing".

All the while debts mounted until it seemed that the cost of development, manufacturing and securing patent rights would never be recovered. By 1880 only 1,000 machines had been sold.

THE CYCLOSTYLE

We are indebted to Mr. R. S. Hughes of Gestetner Limited for this, the story of the Duplicator.

Stencil duplicating is so commonplace nowadays, one can hardly believe there could ever be anything exciting or dramatic about it.

It was nevertheless a great invention - a copying process so fundamentally different from anything that had been known before, that it completely revolutionised the late 19th century office. It was so simple, it spread throughout the world with astonishing speed. Its principles were formulated on such sound lines that they are now an essential part of modern communications.

There is no doubt that from the moment when the written record replaced and amplified the human memory, man was concerned with the problem of copying original information.

The history of man's attempts to grapple with this problem throughout the ages makes a fascinating study. One fact emerges clearly: the principal tool was always the scribe himself. Even up to the end of the 19th century, we find him hunched on his high stool, laboriously copying business correspondence.

Why did this state of affairs persist? The main reason was that the copying clerk was cheap and, up to this time, attempts to replace him with a more efficient copying process had met with little success.

A notable attempt was made by James Watt, better known as the British inventor of the steam engine. He devised a Copy Press. Watt's process made use of a special ink in which the document to be copied was written. The document was then placed in contact with a dampened sheet of unsized tissue paper and rolled in a great, mangle-type press. Under pressure, the ink of the original offset on to the tissue. The impression so obtained was, of course, in reverse, but the paper was thin enough to permit the image to be read from the back. It was a slow process and the

WATT'S COPY PRESS

press was heavy to operate. Another alternative was carbon paper, for making carbon copies; but at the time it was a messy and unreliable product. So the copying clerk remained on his stool.

By the last quarter of the 19th century the need for a quick, simple, copying method was occupying the minds of many business men exasperated by the slow and wasteful ways that then existed. There was need not only for better ways of copying the business letters of the day, there was need also for a quick and cheap method of making multiple copies of various handwritten documents.

About this time, both in Britain and the United States - the traditional home of big business - a number of suggestions were being made, and tried out, for making copies by perforating pieces of paper and passing ink through the perforations. In other words, making copies by the use of a stencil.

The work stencil comes from the Old French 'estenceler', derived in turn from the Latin 'scintillare', meaning to shine or sparkle, and relates to the strips and pieces cut out from thin sheets of metal to provide ornament and 'tinsel' glitter at the village fair.

A sheet of metal perforated with patterns of holes was used in the textile trade for 'stencilling' colour on to cloth. And so, to begin with, the term stencil meant a sheet of some impervious substance pierced or perforated with a master pattern of holes through which the dye, ink or paint could be passed to ornament or mark cloth or other material.

In 1875 Thomas Alva Edison, the great American inventor, was transmitting Morse signals by puncturing holes in pieces of paper with a sharp point. A number of patents taken out in the United States of America by Edison round about 1877 show the precursor of the modern stencil in the idea of making holes in bits of tough paper by means of a reciprocating needle and thus forming perforate patterns in the shape of letters through which ink could be passed and copy made. And so, in the United States, the name Edison is associated with the beginnings of modern stencil duplicating.

The needle-punching of holes in a piece of paper did indeed provide a possible means of making multiple copies of 'special' handwriting. It was the first step along the road to the perforation of a stencil by the act of handwriting, and the reciprocating needle which formed the 'pen' certainly overcame, in some measure, the problem of keeping the centres of o's and e's and other loop letters in place, so that the true character of such letters could be reproduced.

But Edison's attempts on the whole were still crude and the perforating instrument top heavy and cumbersome to handle.

Apart from Edison's efforts, there are reports of experiments which were concerned mainly with pushing the paper with a blunt needle or stylus against some rough surface like a file plate. It was soon found that the paper had to be very, very thin tissue in order to be perforated by the 'points' of the file. And the resultant copy was fine and spidery. There are British and U.S. patents covering these various attempts in names that have long since disappeared from the stencil duplicating scene, including that of one Eugenio de Zuccato of Padua, a law clerk in London, who reached the stage of cutting waxed sheets of fine tissue paper with a stylus on a rough metal surface.

Chemical means of perforation were also tried: but they, like the early carbon papers, were messy and did not readily lead to a practicable process.

So, with the first faint glimmers of light on the experimental scene, the stage is set for the appearance of a young stockbroker's clerk from Csorna, Hungary. After the financial collapse in Vienna towards the last part of the 19th century, he made his way to America, with no assets but an alert, inventive mind and a preoccupation with copying - acquired during his earlier clerical days. Selling Japanese kites on a street corner in Chicago to earn a meagre livelihood, he noticed the peculiar qualities of the paper of which his wares were made. It was light yet strong and coated with wax to make it waterproof.

He came to London, and in 1881 took out a British patent for a new kind of implement for writing on a sheet of waxed paper.

This man was David Gestetner. His implement was a pen, but in place of the conventional nib was a tiny revolving wheel. He placed the stencil - the waxed sheet - on a smooth hard surface and wrote with the pen. As he wrote the wheel revolved and pierced the stencil. It was an instant success: for it made handwriting on a stencil a much easier process and it produced good copies. The Patent Number was 2450 and dated 3rd June 1881.

This new pen was light in weight, easy to hold and to handle. David Gestetner called it the 'Cyclostyle Pen'. It marked the beginning of stencil duplicating as an efficient, commercially practicable process. It was this little wheel that started the great revolution in copying. For the Cyclostyle Pen was the key to the quick, simple copying process that the world had impatiently awaited for so long.

Viewed in the light of subsequent developments, it made an important contribution to the progress of modern methods of communication. And it has made the word 'Gestetner' famous as the name of the inventor who banished the hordes of copying clerks from their high stools.

The principle of Gestetner's Cyclostyle Pen for perforating a sheet of waxed paper was, like all great inventions, essentially simple. Because the sharp teeth of the revolving wheel punctured both wax and paper base, the perforations were more capable of giving full and pleasing copy, practically indistinguishable from the original handwriting.

This was in marked contrast to the fine and spidery copy obtained by use of stylus and file

plate. Gestetner had, in fact, successfully reversed the roles of the cutting surfaces. Not only did this Cyclostyle Pen and process receive a considerable amount of immediate recognition, but David Gestetner had the faith and commercial foresight to go into business with the idea. He made, and rapidly sold, an apparatus in a box containing a metal writing surface, serving later as a printing bed, a frame into which the wax stencil was clamped, a wooden inking board and a roller. This was the Cyclostyle Duplicating Apparatus which David Gestetner, as a one-man-and-a-girl business, manufactured together with the Cyclostyle Pens, the wax stencils and the ink - the beginning of the Gestetner organisation, originally called the Cyclostyle Company.

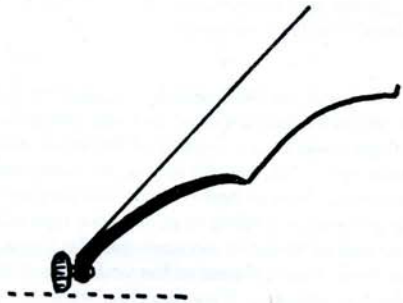
In 1888 the pen was improved to make it more manoeuvrable. The wheel was set at an angle to the shaft. This Neo-Cyclostyle Pen was an even greater success and gave its name to the Neo-Cyclostyle Duplicating Apparatus, affectionately called the Neo. It was this apparatus that established the Stencil Duplicating Process as a going concern and set David Gestetner on the path to success. It soon became a standard piece of equipment in the business office of the day.

STENCILS

The improved wax stencil used with the Cyclostyle Pens was patented by David Gestetner in 1885 on the basis of the important advantage that it was coated on a very thin, strong, long-fibred, and essentially non-porous Japanese tissue - known as Takamatsu - which gave the stencil a new dimension and a new strength. It was the light, tough tissue of the Chicago kites. This coupled with the new method of punc turing the stencil with the Cyclostyle to form good ink-passing perforations, was the secret of the success. Clamped in the frame of the flat-bed duplicating apparatus, it was written on with the Cyclostyle Pen, and then inked directly by means of a roller; copies were taken on sheets of duplicating paper.

NEW PROBLEMS

As is often the case in the history of progress based on invention, a happy set of circumstances links the main purpose of the invention with the beginning of some other equally great and much needed development. It was thus that the typewriter in the 1880s began to make its impact on the late Victorian office. Its advent was a great



THE NEO-CYCLOSTYLE

stimulus to stencil duplicating, but at the same time it posed new and difficult problems. The handwriting stencil with its closed-up base paper could not be perforated by the typewriter and it was necessary to find a new kind of stencil which did not require the base to be punctured.

In principle, the typewriting stencil which eventually solved the problem consisted of a coating of wax on an open porous tissue, quite different from the closed-up sheet used for the handwriting stencil. This porous tissue also came from Japan; it was called Tengujo, or Yoshino. The typewriter type on impact pushed the wax aside, or through the tissue, leaving the long, thin but strong fibres clear in the perforation. Note that the perforation was continuous, instead of being a series of dots as in the handwriting stencil; and the exposed area was, therefore, correspondingly weaker. This increased the possibility of cut-out, the chopping out of pieces of loop letters like the centres of o's and e's and various means were employed to minimise this. One way was to place a fine piece of fine paper called muslin tissue over the typewriter so as to cushion it from impact of the type. Behind the stencil was placed an oil board to provide a suitable hard, working surface. It also set the stencil forward in the right position in relation to the type, and it frequently helped to cover up the pitted platen of a well-worn typewriter. Platens in those days took a hard pounding from the new Victorian typists.

After typing, the stencil, with a resin reinforced sheet of porous paper of diaphragm on top to protect and support it, was clamped into the frame of the Neo and copies taken by pressing an inked roller over the diaphragm. The stencil, a large sheet, same size as the handwriting stencil, was not only subject to damage by the folding that was necessary to get it into the typewriter, it

could by ruptured or distorted in the perforation under the stretching forces set up by the act of clamping it into the frame.

In the 1890s the Neo models intended for typewritten work had a framed and wax margined diaphragm made of silk instead of the expendable paper one. The stencils for use on these models were made smaller and not only did they no longer require folding to go into the typewriter, but instead of being clamped into the frame of the Neo, they adhered to the underside of the inked diaphragm. They therefore were not exposed to the distorting forces occasioned by clamping.

One of the early expressions of stencil progress was the Combined Typo Stencil of the early 1900s. This consisted of a paper backing sheet, a waxed Yoshino-based stencil, and a thin muslin sheet, all combined together at the top edge. The backing sheet was printed solid black, and had a typing guide frame printed round the margin which was visible through the stencil. The whole assembly was put in the typewriter for typing and was much easier to handle than the earlier method of separate sheets.

After typing, the muslin sheet was removed, and the stencil and backing, separated at top edge, were placed on the printing bed, stencil uppermost. The frame was closed, and the ink roller passed across the diaphragm. The stencil adhered to the underside of the diaphragm. The backing sheet, albeit black, took the first impression, ensuring that copy on the first sheet of duplicating paper (put down in place of the backing) was perfect.

This particular stencil was also sold with a packet of paper diaphragms with broad waxed margins for clamping in the frame of the Neo models not provided with a mounted silk.

It was about 1920 that wax gave way to gelantine coating for stencils. Wax was fragile and the surface was in consequence easily cracked. It was sensitive to temperature, and it was necessary in manufacture to modfy the wax to make it suitable for different climates. It was plasticised with tallow - but was never a durable product. The gelatine coating provided something much more enduring. These gelatine coated stencils were the first 'Durotype' stencils - a name registered as a Gestetner trademark in 1921.

They were coloured blue and had to be dampened by hand to soften them before typing. They were durable in the sense that they did not crack or flake like the wax stencils. But they were inclined to dry up in warm weather. A later form of gelatine stencil was a plasticised product. White in colour, it did not require moistening before use and could be put straight in the typewriter. One of these plasticised gelatine stencils could be impressed by means of printer's type. This was the first 'Duroprint'.

The modern 'Durotype' made of plastic chemicals other than gelatine, came on the scene about 1925, and has steadily improved since that date.

Hand-made Yoshino tissue is now replaced by a machine-made product capable of being manufactured to much higher standards of quality control.

The lifting-frames of the Cyclostyle Duplicating Apparatus led naturally to the Automatic Cyclostyle with its reciprocating action whereby the operations of closing the frame, inking and reopening to remove copy, were effected automatically by turning a handle. That was in 1893. By the end of the century this desire for automation in duplicating had led to the rotary system. It was in 1900 that David Gestetner invented and patented a twin-cylinder, externally inked, rotary duplicator with the stencil supported on a silk screen or carrier. Known as the No. 3, it was manufactured and first marketed in 1902. The cylinders were of Plaster of Paris on a light metal body, covered with paper, varnished and hand polished. The ink distributing waver rollers were made of gelatine, and it was necessary to disengage them when not in use in order to prevent their developing 'flats'. The paper was fed in by hand, smoothly synchronising with three turns of the handle for each copy. A later model, the No. 6, was fitted with an automatic feed, cam-synchronised and requiring only one turn of the handle for each copy.

In 1909 came the first electric machine, the No. 11, soon yielding place to the improved and more popular No. 15, which could be turned by hand as well without removing the driving belt.
The First World War over, the new age saw the epoch making Ream Machines, hand and electric, the first, as their name implies, to take a whole ream of duplicating paper on the feedboard.

GESTETNER PATENTS FOR COPY APPARATUS
No. 2450 of 1881. Cyclostyle Pen.
No. 11832 of 1888. Neo-Cyclostyle Pen.
No. 19438 of 1891. Automatic Flat-bed.
No. 25373 of 1901. No. 3 Rotary Duplicator
No. 18257 of 1905. No. 6 Rotary Duplicator with Automatic Paper-feed.

WANZER

I have had a letter from a lady in Tonbridge who has told me that the patent dates on her Wanzer sewing machine are May 10th and June 17th 1867. Mine states May 16th.

A screwhole was neatly put in after the 18-- in the name plate of my Wanzer. I think you can safely enter this detail in my registration form (121) and I feel it is of interest. I think she may have misread May 16th for May 10th.

Mrs. Imogen Nichols,
Birchington, Kent.

We have just had another registration form relating to a Wanzer. This is Serial No. 58129. Patent dates May 16th and June 17th 1867.

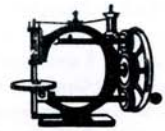
Another we have registered is Serial no. 13886, carrying the patent date years 1872-3-4-5.

This serial number difference seems hard to explain.

Editor.

NEWTON WILSON
The drawing and description of the Sewing Machine in Saint's Specification (No. 1764) is reproduced in the volume for 1790-91 (Patents 1761-1841) of the Drawings and Specifications of Patents, edited by Bennet Woodcroft, published by the Great Seal Patent Office, and printed by Eyre and Spottiswoode in 1856.

This fact disposes of Mr. Morley's suggestion that Saint's Machine was a hoax by Newton Wilson, which he must have planned more than 20 years before he chose to reveal his discovery.
K. R. Gilbert,
The Science Museum,
South Kensington.



READERS LETTERS

Mr. Gilbert's letter is in response to a suggestion by Mr. Morley, in the Veteran Machine Register's newsletter, that Newton Wilson's claim that he had discovered the Thomas Saint 1790 specification (considered to be the world's first sewing machine) at the Patent Office, could have been a hoax or a stunt to publicise his own make of sewing machine in the latter part of the 19th century.
Editor.

CARBURINE MOTOR SPIRIT
Do you think any of the readers of Bygone & Veteran magazine could give me any details of a motor oil called "CARBURINE MOTOR SPIRIT'. I am in possession of a small advertisement for this company. It is enamel on metal.
Jim Milroy,
Chatham, Kent.

POLYPHONES
I would like to appeal to readers of your magazine who may have surplus polyphone parts and discs.
M. Miles,
Robertsbridge, Sussex.

COMMEMORATIONS IN JANUARY

January was fixed by Numa Pompilius as the first month, named after Janus, a prince supposed to have been taught by Saturn the art of dividing the year.

1st Number plates on motor cars made compulsory, 1904.
2nd Penguin Island, off the Cape of Good Hope, sunk, 1809.
3rd Pepys saw a woman on the stage for the first time, 1661.
4th First appendicitis operation, 1883.
5th Opening of the London to Berlin air passenger service, 1925.
6th Birthday of Joan of Arc, 1412.
7th English Channel crossing by balloon, 1785.
8th Invasion of Normandy by the Danes, 794.
9th Davy's safety lamp first used, 1816.
10th London's underground railway opened, 1863.
11th Charing Cross station opened, 1864.
12th First aircraft take-off from a ship, 1912.
13th Chemists forbidden to manufacture precious metals, 1404.
14th Establishment of the Irish Free State, 1922.
15th Opening of the British Museum, 1759.
16th Absence from church punishable by £20 fine, 1580.
17th Prohibition in the U.S.A., 1920.
18th Horse bus mentioned by the "Public Advertiser", 1772.
19th Gold discovered in California, 1848.
20th Feast Day of St. Sebastian, Patron of makers pins and needles.
21st Double-deck steam bus licensed, 1899.
22nd Opening of the Forth bridge, 1890.
23rd First landing on the Antartic continent by Carsten Borchgrwink, 1895.
24th Battle of the Dogger Bank, 1915.
25th Henry VIII married Anne Bolyn, 1533.
26th Discovery of the Cullinan diamond, 1905.
27th Television demonstration by Logie Baird, 1927.
28th Gas Lighting tested in Pall Mall, 1807.
29th Karl Benz granted patent for a motor car, 1886.
30th Menai suspension bridge opened, 1826.
31st Launching of the 'Great Eastern', 1858.

SCALES

(Serial Part 2)

The Turnpike Act of 1741 authorised all road trustees to erect at the Toll Gates 'any crane, machine, or engine, which they shall judge proper for the weighing of carts, waggons or other carriages', and ordered them to exact toll according to the weight and to employ the money for the repair of the roads.

This Act not only created a demand for cart weighing steelyards but also gave an impetus to inventors. The names of Eayre and Yeomans are connected with the invention of platform weighing machines, but in all probability John Wyatt constructed the first true compound lever platform scale at about this time. He is supposed to have been in the employ of Matthew Boulton for a period at the Soho Manufactury. By the invention of his spinning engine Wyatt succeeded in spinning yarn without the help of human hands, yet his life's story is of one great struggle against poverty.

The first Wyatt weighbridge was erected at the Birmingham Workhouse but no details of the machine have survived. There is a model of a Wyatt weighbridge, once at Lichfield, in the Museum of the Weights and Measures Department of the City of Birmingham.

Wyatt's invention consisted of a number of levers supporting a platform in such a way that the ultimate leverage was always the same, no matter where the load was placed. As the platform rose or fell in its weighing movement, it was always horizontal. The principle is embodied in most modern weighbridges and platform scales.

Wyatt's genius and the enormous value of his invention to modern commerce were not recognised in his time. In 1831 Thaddeus and Erastus Fairbanks took out an American Patent for a compound lever scale and their agents took out a British patent in 1833. The latter, however, was declared invalid when English scalemakers proved that the invention had been in use for a number of years.

It is only fair to add that the introduction of Fairbanks' designs led to great improvements in the manufacture of weighbridges and platform scales throughout the world. Henry Pooley saw in these machines a convenient means for meeting the demands of the railway companies for weighing heavy goods and, entering into an arrangement with Fairbanks' agents, took up the manufacture vigorously. He placed the first platform scale on the new railway between Liverpool and Manchester in June 1835.

Platform scales were originally fitted with loose-weight steelyards and with these the major portion of the load is balanced by loose proportional weights suspended from the long arm of the steelyard. A small sliding poise serves to balance and indicate the odd pounds and ounces.

No-loose weight steelyards were introduced later and fitted to platform scales and weighbridges. In these, a major poise balances the greater part of the load, such as the tons, and one or more smaller sliding poises serve to balance the remaining hundredweight, quarters, pounds, etc. The major poise is located by notches in the steelyard blade, and a notched protection bar may be fitted to guide the nib on the poise into these notches and preserve the accuracy of the scale. The Quintenz Platform Scale illustrated is of a design introduced about 1820 and was popular in France and Germany.

THE EVOLUTION OF THE KNIFE-EDGE

Whilst new types of weighing devices were being introduced and improvements made in the methods of weighing, so also was attention turned to developing a more satisfactory form of pivot, which would provide a greater degree of precision and reduce friction. The needs of the alchemists and of the early assayers for accuracy in their work probably encouraged inventors, and, during the 16th and 17th centuries in particular, many forms of pivots for balances were tried. Some of these were good, others definitely bad; but finally the true knife-edge emerged.

THE WEIGHING OF COINS

Until well into the 19th century the coinage of most European countries was inadequate for the needs of Commerce, and in Great Britain the national currency was supplemented by the use of foreign coins, mainly of Spanish and Portugese origin. This state of affairs encouraged the existence of gangs of unscrupulous men who made a precarious living by 'clipping' and 'sweating' -

that is, by cutting metal from the edges of gold and silver coins, and by dissolving away some of the precious metal by putting the coins in acids.

There is no wonder then, that bankers and merchants would not accept coins at their face value, but insisted on checking them by weight. Large numbers of money-weight scales were made, many of them beautiful examples of craftmanship, and usually they were balances of the swan-neck or box-end beam types.

They were sometimes fitted in cases with sets of coin weights, and could be carried in the pocket.

Thomas Beach, of No. 11 Digbeth, Birmingham, a predecessor of William and Thomas Avery, established his business in 1730. In the Avery Historical Museum there is a Beach made box-end coin scale probably made at the beginning of the 19th century.

The 'spring-into-position' type of coin balance was a popular instrument for the pocket. When the lid of the case was opened, the scale came into position ready for use. The counter-weighted beam was set for weighing specific coins, and by means of a hinged weight, called a 'turn', the scale could be used to weigh guineas and half-guineas according to which way the 'turn' lay on the beam. The coin was placed on the swinging pan.

Everyone is familiar with the type of scale in which the pans are mounted above the weighing beam, and which does not suffer from the disadvantage of having swinging pans, or from the encumbrance of chains or rods above the pans.

In 1669 Gilles Personne de Roberval invented what is known as the 'Static Enigma' which puzzled the greatest mathematicians of the day, although an average engineering student of the 20th century would have no difficulty in explaining the mechanics of the device.

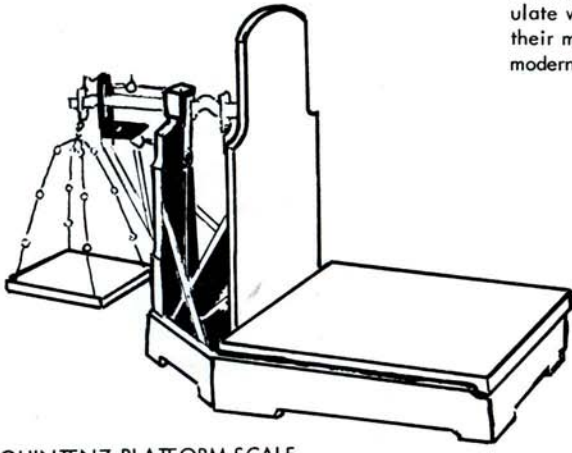
Providing that the beam, legs and stay forming the system make perfect parallelograms, and that the two poises are equal in weight, then balance will be maintained even if one poise is moved along its arm towards the centre, and the other moved outwards from the centre of the me chanism.

Not until the beginning of the 19th century did scalemakers apply this principle to the balance, but since then the Roberval enigma has formed the basis of many types of counter scales. For many applications, it is still the most convenient form of lever system. In one of its variations the stays are arranged above the beam, to give the type known as the Imperial Scale.

In the middle of the 19th century Joseph Beranger, a French scale-maker invented the balance known by his name and in which each scale pan is provided with a four-point support on a system of levers. This design has some advantages and, although more costly to produce than the Roberval balance, is very reliable and accurate. The Beranger design permitted several variations, of which the Phanzeder has become popular on the continent of Europe.

THE SELF-INDICATING SCALE

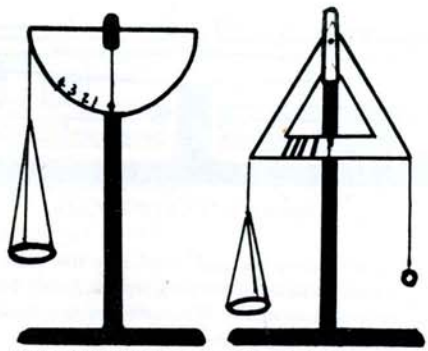
A self-indicating scale is capable of balancing a load automatically and giving an indication of its weight, without the operator having to manipulate weights or sliding poises. These scales, in their many forms and sizes, are indispensable to modern commerce.



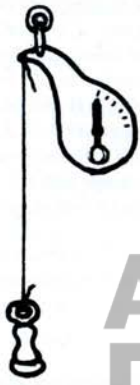
QUINTENZ PLATFORM SCALE

EARLY POOLEY PLATFORM SCALE

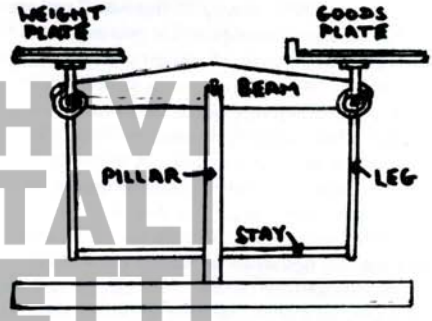
The first records of the invention of the self-indicating scale were made by that universal genius of the 15th century, Leonardo da Vinci, whose paintings of 'The Last Supper' and the 'Mona Lisa' are world-famous. His notebooks, which were compiled over a period of 40 years, were written in mirror script and contain sketches and a description of two self-indicating weighing mechanisms, similar in principle, one being semi-circular in form, the other triangular. There are two working models, made from the original sketches, in the Avery Historical Museum.



SELF-INDICATING SCALE DESIGNS BY LEONARDO DA VINCI



PENDULUM BALANCE



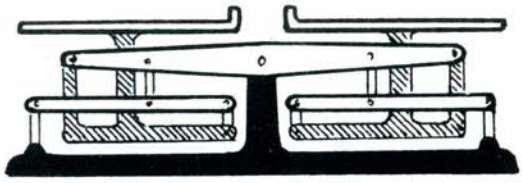
ROBERVAL COUNTER SCALE

When an article is placed on the pan, the semi-circular chart acts as a pendulum and swings over to a new position of equilibrium. The triangular chart acts similarly, and in both cases the weight of the article is indicated at the point where the cord of the plumb-bob crosses the graduated scale. Although Leonardo da Vinci's original sketches of these mechanisms were essentially practical in conception, no attempt seems to have been made to exploit the invention until the 19th century.

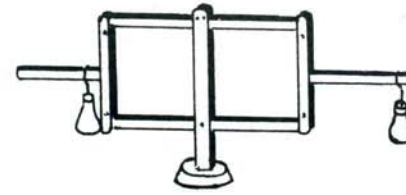
A simple pendulum balance, patented in 1863, consisted of a pendulum made from flat sheet brass and suspended from a small shackle. The load was applied by a cord and ring. The circular pendulum weight formed a graduated scale at the centre of which was freely pivoted a counter-balanced pointer, which always hung vertically.

When a load was suspended from the instrument the pendulum swung outwards to a position of balance, and the pointer, remaining vertical, indicated the correct weight.

These little balances were made for the use of anglers, and also for weighing letters and postal packages. Many modern self-indicating scales use a pendulum for the resistant unit. The load is applied to the pendulum by means of a steel band attached to a cam. The steel band is connected to the lever system supporting the scale pans. The cam was introduced about 1906 to enable chart graduations of equal width to be obtained. As the pendulum moves outwards, under the influence of the load, to a position of equilibrium, the indicator traverses the chart and indicates the correct weight.



BERANGER COUNTER SCALE



ROBERVAL'S STATIC ENIGMA

The idea of making the scales indicate the value of the goods as well as the weight, occupied the minds of inventors in the 19th century, and towards its close, many patents to this end were taken out in the U.S.A., Great Britain and other countries.

One of the earliest of the price indicating scales to be made on a commercial basis was the Stimpson steelyard computing scale, which made its appearance in 1897, mostly in the American market. The steelyard carries a flat rectangular chart graduated in units of weight and with price computations. A weighted cursor slides along the steelyard to balance goods up to ten pounds in weight. The cursor is divided vertically into graduations of price per pound, in increments of one penny, and enables the value of goods weighed to be read at any price per pound within the range of the instrument. Goods over 10 lbs in weight may be balanced by means of additional loose weights placed on the counterbalance hanging from the end of the steelyard . The scale was not automatic and was therefore slow in use.

It was soon followed by the Dayton automatic computing scale with suspended pan, familiarly known in Britain as the swinging pan cylinder. Two helical steel springs balanced the load, and a rack and pinion served to rotate the cylindrical chart, on which were marked both weights and price computations. Two air dashpots damped out excessive oscillation. The swinging pan was soon replaced by a goods fitting carried on a Roberval lever system, and, in 1907, Henry Pooley & Son Limited, by arrangement with the Dayton Computing Scale Company, successfully submitted to the British Board of Trade a scale. This was to be the conventional form of cylinder scale for many years.

One of the chief modifications to this type was the introduction of the pendulum resistant unit, in place of springs, by the Toledo Scale Company of U.S.A., based on De Vilbiss' patents. These machines were sold in England through the agency of W. & T. Avery Limited.

Modern counter scales of the cylinder-type usually have a capacity of 20 pounds, with a minor division on the chart of half-an-ounce. Since the Board of Trade Regulations require, on verification, an accuracy of half of a sub division, this means that the scale must be accurate to 1 in 1, 280. Manufacturers would hesitate to submit a new scale to a Weights and Measures Inspector if it were not accurate to 1 in 1, 800. Only great technical skill and extreme accuracy in manufacture have made possible the commercial production of reliable scales to this standard.

The original De Vilbiss Patents were for a fan computing scale with a pendulum resistant.

BEFORE THE FISHEYES

At the Tonbridge Steam Rally on 30th September - 1st October, the Broadwater Collection had a good gathering of veteran cameras on show. This was their first and only outing in the 1972 show season.

The stars of this division of the display were a c. 1880 Underwood Instanto, a Marion of about 1890, an early Klito repeating plate camera and a Cinematagraphe candle-lit 35mm film projector, the latter belonging to Alan Lindfield of Horam.

On the second day of the event Mr. Hayes of Tonbridge brought into the tent a camera of unusual design. It was called the No. 4 PANORAM KODAK MODEL D, made by the Eastman Kodak Company in the U.S.A., with the last patent date shown as 1914.

The idea behind the camera was to take a series of exposures in quick succession with a swinging lens so that a wide-angled panoramic effect is obtained.

1973 marks the centenary of the commercial production of the typewriter. During the coming months we will, in "Bygone & Veteran", examine the history of mechanical writing.
A great deal of the historical background of the typewriter is unexplored territory and it is hoped that many hitherto unknown facts will come to light.

In this Directory of "Typewriter Makers and Marques" there are a number of "blank spots". In some cases only the existence of a trade mark is known. One of the early tasks is to fill in these blanks and to correct any inaccuracies.

"ADLERETTE" The name under which the "Klein-Adler" was marketed in France.

"ADLER-FAHRED-WERKE, FRANKFURT" Manufacturer of the "Empire" typewriter under the name of "Adler". "Klein-Adler No.I" appeared in 1912.

"ADLER-FAVORIT" A typewriter manufactured by Adler-Fahred-Werke.

"ADLERITA" The name under which the "Klein-Adler" was marketed in Spain.

"ADLER-PRIVAT" A typewriter manufactured by Adler-Fahred-Werke.

"ADLER-PICCOLA" The name under which the "Klein-Adler" was marketed in Italy.

"ADLER PORTABLE" Alternative name of the "Klein-Adler".

A.E.G. GES. Makers of the "A.E.G." typewriter and parent company of Union Screibmaschinen G.e.b.H., Berlin, manufacturers of the "Mignon" typewriter between 1905 and 1932.

"ALEXANDER"

"ALLEN"

"AMERICAN" A typewriter manufactured in the U.S.A. from 1893. See also "Armstrong" and "Fleet".

AMERICAN WRITING MACHINE COMPANY Marketing organisation for the "New Century Caligraph" machine between 1900 and 1905.

"AMERICAN POCKET"

"AMERICAN STANDARD" Possibly associated with "Jewett".

"AMERICAN VISIBLE".

"ANNELL"

APPARATE & MASCHINENBAU GES, BERLIN. Makers of the "Phoenix" machine from 1908.

ARMES, MANUFACTURE D'; PARIS. Makers of the "Baka I" typewriter of 1908. A model identical to the "Moya Model 2".

"ARMSTRONG" Made in London and later in Birmingham by the British Typewriter Company between 1902 and 1915. Identical to the "American" and similar to the "Fleet".

"ARNOLD"

"AUTOCRAT"

"AUTOMATIC"

"BABY FOX" Invented by H.P. Nordmark and manufactured by the Fox Company, Grand Rapids, Michigan, USA, from 1917. Later known as the Fox Portable Model. The company also made the "Fox Sterling" in 1918.

"BAKA L" Identical to the "Moya Model 2" and made in Paris by Manufacture d'Armes in 1908.

"BALTIMORE" See "Chicago".

BAR-LOCK TYPEWRITER COMPANY, LONDON. Purchased the manufacturing rights of the "Royal Bar-Lock" machine in 1914, but the outbreak of World War I halted production. See also "Columbia" and Spire.

BARRATT TYPEWRITER COMPANY LIMITED, LONDON. In 1915 this company announced that they would be marketing the German "Stoewer" machine in Great Britain, but this manufacture did not materialise.

"BARR"

BARRON, WALTER J. Inventor of the "Densmore" typewriter in 1891.

BENEDICT, HENRY H. A clerk of the Remington Small Arms Factory at Ilion, NY, who influenced his company to manufacture the Sholes & Gidden typewriter in 1874.

BENNETT, CHARLES A; DOVER, N.J. Inventor of the "Junior" typewriter of 1907. In 1910 the machine was redesignated the "Bennett".

BING-WERKE AG, NURNBERG. Toy manufacturer who made the "Bing" machine from 1925. This typewriter sold in Great Britain for £3.19.6.

"BLICK-BAR" Introduced in 1913. It was a developement of the earlier "Moyer" (not "Moya"). When the Blick company was dissolved in 1919 the machine was renamed the "Harry A. Smith".

"BLICKENSDERFER ELECTRIC" Made between 1908 and 1916. There was a Blick typewriter on which all essential movements were powered by electricity as early as 1902.

BLICKENSDERFER, GEORGE C. Founded a typewriter company in 1889 and marketed his first machine in 1893. The company was dissolved in 1919.

"BLICK-NINETY"

"BOSTON"

"BRADY-WARNER"

BRASA, SOC. AN. BREVETTI; MILAN. Manufacturer of the "Saab" portable typewriter. Production ceased about 1928.

BRITISH TYPEWRITER COMPANY, OXFORD STREET, LONDON. (Later Birmingham). Makers of the "Armstrong" typewriter between 1902 and 1915.

"BROAC

"BROADWAY STANDARD". See "Decker-Beachler".

"BROOKS"

BROWN, ALEXANDER T. Inventor of the "Smith Premier" typewriter which was produced from 1889.

"BURNETT"

"BURROUGHS ELECTRIC". Manufactured by the Burroughs Adding Machine Company from 1931.

"CALIGRAPH" Invented by Yest and Wagner in 1883.

"CARISSIMA"

"CARLEM" Name given to the "Sun" typewriter when marketed in Germany.

"CASH" ("TYPOGRAPH).

"CENTURY"

"CHAMPION" (PEOPLES" or "PEARL").

"CHANCELLOR" ("KANZLER", "HANSA", "RAPID").

CHATTAWAY, J.G. A founder, with Hidalge Moya, in 1902, of the company later to be developed into the Imperial Typewriter Co. Ltd.

"CHICAGO" There is confusion about the history of typewriters that carry the names "Chicago", "Munson", "Galesburg", "Baltimore' and "Draper", and combinations of two or more of these names. Production started in 1890 and ceased in 1917.

"COFFMAN"

"COLUMBIA" COLUMBIA TYPEWRITER COMPANY NEWPORT, USA. Makers of the "Columbia" and "Bar-Lock" typewriters. The first introduced in 1884 and the latter in 1887, the inventions of Charles Spire.

"COMMERCIAL VISIBLE"

"CONCORD" ("MERZ")

"CONQUEROR" This is the name under which the German "Stoewer Rekord" typewriter was marketed in Great Britain from 1922. Also known as the "Swift".

"CORONA" Known originally as the Standard Folding" and made by the Rose Typewriter Company in 1906. The Standard Typewriter Co. was formed and made the "Corona" from 1909.

TO BE CONTINUED NEXT MONTH.

POSTAL AUCTION OF BYGONES AND VETERAN MACHINERY.

RULES OF SALE.

1. The sale of each lot shall be made to the highest bidder, subject to the Vendor's reserve price. The reserve price is not an indication of the market value of the lot.

2. Only bids received by postal delivery are accepted.

3. Lots are held by Auctioneers for seven days after notification to succesful bidder. A purchaser failing to honour his bid will be disqualified from future auctions.

4 Cheques, drafts and postal orders to be made payable to de Havilland Clark Limited. Lots will be dispatched when purchaser's cheque has been cleared. This normally takes four days.

5. Cost of postage or other form of carriage will be charged to the purchaser. If registration or insurance of items in transit is required, this must be stated when making the bid.

6. Postal bids will be opened and considered at 4 pm, February 20th, 1973, in order of date of postmark. A tie of similar bids for a lot will be decided by date of postmark. Witnesses to the auction are welcome.

7. Descriptions are made in good faith but the Auctioneers cannot be held responsible for inaccuracies in dates and makers of lots.

8. Lots for auction must reach the Auctioneers by the 10th of each month.

9. All lots are accepted at the discretion of the Auctioneers.

10. A charge to cover the printing and expenses will be made to the Vendor; £1.50 for each £10 or part of £10. If a reserved lot is unsold a charge of 15 per cent or £1.50 (whichever is the lower amount) will be made.

11. The Auctioneers' decisions concerning this Sale are final.

JANUARY 1973 POSTAL AUCTION.

Lot 1.	10¾" heavy copper warming bottle.	£5 Reserve.
Lot 2.	Mid-19th century 8½"x7" copper coach warmer.	£7 Reserve.
Lot 3.	Celluloid figure of woman 3" high. "Votes for Women" on sash.	£2 Reserve.
Lot 4.	Boxwood and brass carpenter's brace. Believed to be c. 1850.	£7 Reserve.
Lot 5.	Model mangle 8¼" high. Steel frame. Cast iron hand wheel. Wooden rollers (sprung). Marked "M & S".	£2 Reserve.
Lot 6.	Elm cider tap 11" long.	£2 Reserve.
Lot 7.	Brass beer cask tap 7½" long.	£1 Reserve.
Lot 8.	A.R.P. handbell.	£4 Reserve.
Lot 9.	Silver A.R.P. badge. Hallmarked Birmingham 1938.	£2 Reserve.
Lot 10.	Maginot Line badge; "On ne passe pas".	£2 Reserve.

Registration of Machines

The activating idea behind the Veteran Machine Register is to establish a catalogue of historic small machinery of all kinds. This is essential as research material for future works of reference and to aid recording the history of mechanical invention.

All items of small machinery, hand-operated or powered, are eligible for registration, the only ruling being that they should be considered as veteran or of special interest.

We require as much information as possible about each notable machine and want to ensure that when there is a change of ownership, notification is made to the Registrar. Self-adhesive plaques are provided to be affixed to machines. These plaques certify inclusion in the Register and carry a registration number. The address of the Register is also shown so changes of ownership can be notified. The known history of a machine can then be supplied on application. Collectors and dealers in antiques and bygones will find this a useful service.

Owners wishing to register their machinés are invited to complete this form and return it as soon as possible to:

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VETERAN MACHINE REGISTER,
THE BROADWATER COLLECTION,
BROADWATER COURT,
TUNBRIDGE WELLS.

Veteran Machine Register
Broadwater Court
Tunbridge Wells
Please advise change of Ownership.
Number:

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The cost of Registration is 25p for any number of machines up to ten.

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PARTICULARS OF MACHINE FOR REGISTRATION.

Purpose of machine (i.e. sewing, cash register etc.) .....

Maker and Trade Mark .....

Address of Maker (if known) .....

*HAND/TREADLE Model. *CHAIN/LOCK stitch.

Serial Number .....

Year of Manufacture ..... or Estimated Date .....

Patent Dates Shown .....

Name and Address of Importer/Agent .....

Materials used (iron, brass, wood, marble etc.) .....

Condition .....

WITH/WITHOUT Makers Instructions.

Further Description .....

Any known history of machine .....

.....

Present Location/Owner (if different to that of applicant)

.....

Museum/Collection Number (when appropriate) .....

V.M.R. Plaque Required (not obligatory) YES/NO

WHEN POSSIBLE PLEASE ENCLOSE A PHOTOGRAPH OR DRAWING OF MACHINE. PLEASE USE PLAIN PAPER IF INSUFFICIENT SPACE AND IF MORE THAN ONE MACHINE IS TO BE REGISTERED. USE SEPARATE SHEET FOR EACH MACHINE.

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