for reference, and copies are only sent out to the men who have to assemble or erect and complete mechanisms. The second are distributed to the several shops and departments where sectional portions are being prepared, as pattern shop, smithy, turnery, machine shop, &c. General drawings are, as a rule, drawn to a small scale, ranging say from ⅛ in. to 1 in. to the foot; but details are either to actual size, or to a large scale, as from 1½ in. to the foot or 3 in. or 6 in. to the foot.

A large number of minutiae are omitted from general drawings, but in the detailed ones that are sent into the shops nothing is apparently too trivial for insertion. In this respect, however, there is much difference observable in the practice of different firms, and in the best practice of the present compared with that of former years. In the detailed drawings issued by many firms now, every tiny element and section is not only drawn to actual size, but also fully dimensioned, and the material to be used is specified in every case. This practice largely adds to the work of the drawing-office staff, but it pays.

The present tendency therefore is to throw more responsibility than of old on the drawing-office staff, in harmony with the tendency towards greater centralization of authority. Much of detail that was formerly left to the decision of foremen and skilled hands is now determined by the drawing-office staff. Heterogeneity in details is thus avoided, and the drawings reflect accurately and fully the past as well as the present practice of the firm. To so great an extent is this the case that the preparation of the tools, appliances, templets, jigs and fixtures used in the shops is often now not permitted to be undertaken until proper drawings have been prepared for them, though formerly the foreman's own hand sketches generally sufficed. The practice of turret work has been contributory to this result. In many establishments now the designing of shop tools and fixtures is done in a department of the office specially set apart for that kind of work.

The growing specialization of the engineer's work is reflected in the drawing office. Specialists are sought after, and receive the highest rates of pay. A man is required to be an expert in some one branch, as electric cranes or hydraulic machines, steel works plant, lathes, or heavy or light machine tools. The days are past in which all-round men were in request. In those firms which manufacture a large range of machinery, the drawing-office staff is separated into departments, each under its own chief, and there is seldom any transference of men from one to another.

Although in the majority of instances designs and drawings are completed before the manufacture is undertaken, exceptions to this rule occur in connexion with the work of standardizing machines and motors, for repetitive and interchangeable manufacture on a large scale. Here it is so essential to secure the most minute economies in manufacture that the first articles made are of a more or less experimental character. Only after no further improvement seems for the time being possible are the drawings made or completed for standard use and reference. In some modern shops even standardized drawings are scarcely used, but their place is taken by the templets, jigs and fixtures which are employed by the workmen as their sole guides in machining and assembling parts. By the employment of these aids locations and dimensions are embodied and fixed absolutely for any number of similar parts; reference to drawings thus becomes unnecessary, and they therefore fall into disuse.

The mechanical work of the drawing office is confined strictly to orthographic projections and sections of objects. Perspective views are of no value, though occasionally an object is sketched roughly in perspective as an aid to the rapid grasp of an idea. Drawings involve plans, elevations, and sectional views, in vertical and angular relations.

There are a good many conventionalities adopted which have no correspondences in fact, with the object of saving the draughtsman's time; or else, as in the case of superposition of plans and sections, to show in one view what would otherwise require two drawings. Among the convenient conventionalities are the indications of toothed wheels by their pitch lines only, of screws by parallel lines and by diagonal shade lines; and of rivets, bolts and studs by their centres only. The adoption of this practice never leads to error.

In the preliminary preparation of drawings in pencil no distinction is made between full or unbroken lines, and dotted or centre lines, and the actual outlines of the objects. These differences are made when the inking-in is being done. Indian or Chinese ink is used, because it does not run when colours are applied. There are conventional colours used to indicate different materials. But colouring is not adopted so much as formerly, because of the practice of making sun prints instead of the more expensive tracings for the multiplication of drawings. When tracings are coloured the colour is applied on the back instead of on the side where the ink lines are drawn.

The economical importance of the printing department of the drawing office cannot be overestimated. Before its introduction drawings could only be reproduced by laborious tracing on paper or cloth, the first being flimsy, the second especially liable to absorb grease from the hands of the workmen. By the sun copying processes (see SUN COPYING) any number of prints can be taken from a single tracing. But even the fickle sun is being displaced by electricity, so that prints can be made by night as well as day, on cloudy days as well as on bright ones. Twenty minutes of bright sunshine is required for a print, but the electric light produces the same result within five minutes. Prints are blue, white or brown. The advantage of white is that they can be coloured. But the majority are blue (white lines on blue ground). All can be had on stout, thin or medium paper.

An innovation in drawing-office equipment is that of vertical boards, displacing horizontal or sloping ones. They have the advantage that the draughtsman is able to avoid a bending posture at his work. The objection on the ground that the tee-square must be held up constantly with one hand is overcome by supporting and balancing it with cords and weights. (J. G. H.)

DRAWING AND QUARTERING, part of the penalty anciently ordained in England for treason. Until 1870 the full punishment for the crime was that the culprit be dragged on a hurdle to the place of execution; that he be hanged by the neck but not till he was dead; that he should be disembowelled or drawn and his entrails burned before his eyes; that his head be cut off and his body divided into four parts or quartered. This brutal penalty was first inflicted in 1284 on the Welsh prince David, and on Sir William Wallace a few years later. In Richard III.'s reign one Collingbourne, for writing the famous couplet " The Cat, the Rat and Lovel the Dog, Rule all England under the Hog," was executed on Tower Hill. Stow says, " After having been hanged, he was cut down immediately and his entrails were then extracted and thrown into the fire, and all this was so speedily done that when the executioners pulled out his heart he spoke and said 'Jesus, Jesus.' " Edward Marcus Despard and his six accomplices were in 1803 hanged, drawn and quartered for conspiring to assassinate George III. The sentence was last passed (though not carried out) upon the Fenians Burke and O'Brien in 1867. There is a tradition that Harrison the regicide, after being disembowelled, rose and boxed the ears of the executioner.

DRAWING-ROOM (a shortened form of " with-drawing room," the longer form being usual in the 16th and 17th centuries), the English name generally employed for a room used in a dwelling-house for the reception of company. It originated in the setting apart of such a room, as the more private and exclusive preserve of the ladies of the household, to which they withdrew from the dining-room. The term " drawing-room " is also used in a special sense of the formal receptions or " courts " held by the British sovereign or his representative, at which ladies are presented, as distinguished from a " levee," at which men are presented.

DRAYTON, MICHAEL (1563–1631), English poet, was born at Hartshill, near Atherstone, in Warwickshire in 1563. Even in childhood it was his great ambition to excel in writing verses. At the age of ten he was sent as page into some great family, and a little later he is supposed to have studied for some time at Oxford. Sir Henry Goodere of Powlesworth became his patron, and introduced him to the countess of Bedford, and for

several years he was esquire to Sir Walter Aston. How the early part of his life was spent, however, we possess no means of ascertaining. It has been surmised that he served in the army abroad. In 1590 he seems to have come up to London, and to have settled there.

In 1591 he produced his first book, *The Harmony of the Church*, a volume of spiritual poems, dedicated to Lady Devereux. The best piece in this is a version of the Song of Solomon, executed with considerable richness of expression. A singular and now incomprehensible fate befell the book; with the exception of forty copies, seized by the archbishop of Canterbury, the whole edition was destroyed by public order. It is probable that he had come up to town laden with poetic writings, for he published a vast amount within the next few years. In 1593 appeared *Idea: The Shepherd's Garland*, a collection of nine pastorals, in which he celebrated his own love-sorrows under the poetic name of Rowland. The circumstances of this passion appear more distinctly in the cycle of 64 sonnets, published in 1594, under the title of *Idea's Mirror*, by which we learn that the lady lived by the river Ankor in Warwickshire. It appears that he failed to win his "Idea," and lived and died a bachelor. In 1593 appeared the first of Drayton's historical poems, *The Legend of Piers Gaveston*, and the next year saw the publication of *Matilda*, an epical poem in rhyme royal. It was about this time, too, that he brought out *Endimion and Phoebe*, a volume which he never republished, but which contains some interesting autobiographical matter, and acknowledgments of literary help from Lodge, if not from Spenser and Daniel also. In his *Fig for Momus*, Lodge has reciprocated these friendly courtesies. In 1596 Drayton published his long and important poem of *Mortimerades*, which deals with the Wars of the Roses, and is a very serious production in *ottava rima*. He afterwards enlarged and modified this poem, and republished it in 1603 under the title of *The Barons' Wars*. In 1596 also appeared another historical poem, *The Legend of Robert, Duke of Normandy*, with which *Piers Gaveston* was reprinted. In 1597 appeared *England's Heroical Epistles*, a series of historical studies, in imitation of those of Ovid. These last poems, written in the heroic couplet, contain some of the finest passages in Drayton's writings.

With the year 1597 the first half of the poet's literary life closes. He had become famous by this rapid production of volumes, and he rested on his oars. It would seem that he was much favoured at the court of Elizabeth, and he hoped that it would be the same with her successor. But when, in 1603, he addressed a poem of compliment to James I., on his accession, it was ridiculed, and his services rudely rejected. His bitterness of spirit found expression in a satire, *The Owl*, which he printed in 1604, although he had no talent in this kind of composition. Not much more entertaining was his scriptural narrative of *Moses in a Map of his Miracles*, a sort of epic in heroics printed the same year. In 1605 Drayton reprinted his most important works, that is to say, his historical poems and the *Idea*, in a single volume which ran through eight editions during his lifetime. He also collected his smaller pieces, hitherto unedited, in a volume undated, but probably published in 1605, under the title of *Poems Lyric and Pastoral*; these consisted of odes, eclogues, and a fantastic satire called *The Man in the Moon*. Some of the odes are extremely spirited. In this volume he printed for the first time the famous *Ballad of Agincourt*.

He had adopted as early as 1598 the extraordinary resolution of celebrating all the points of topographical or antiquarian interest in the island of Great Britain, and on this laborious work he was engaged for many years. At last, in 1613, the first part of this vast work was published under the title of *Poly-Olbion*, eighteen books being produced, to which the learned Selden supplied notes. The success of this great work, which has since become so famous, was very small at first, and not until 1622 did Drayton succeed in finding a publisher willing to undertake the risk of bringing out twelve more books in a second part. This completed the survey of England, and the poet, who had hoped "to crown Scotland with flowers," and arrive at last at the Orcades, never crossed the Tweed. In 1627 he published another of his miscellaneous volumes, and this contains some of his most characteristic and exquisite writing. It consists of the following pieces: *The Battle of Agincourt*, an historical poem in *ottava rima* (not to be confused with his ballad on the same subject), and *The Miseries of Queen Margaret*, written in the same verse and manner; *Nimphidia, the Court of Faery*, a most joyous and graceful little epic of fairyland; *The Quest of Cinthia* and *The Shepherd's Sirena*, two lyrical pastorals; and finally *The Moon Calf*, a sort of satire. Of these *Nimphidia* is perhaps the best thing Drayton ever wrote, except his famous ballad on the battle of Agincourt; it is quite unique of its kind and full of rare fantastic fancy.

The last of Drayton's voluminous publications was *The Muses' Elizium* in 1630. He died in London on the 23rd of December 1631, was buried in Westminster Abbey, and had a monument placed over him by the countess of Dorset, with memorial lines attributed to Ben Jonson. Of the particulars of Drayton's life we know almost nothing but what he himself tells us; he enjoyed the friendship of some of the best men of the age. He corresponded familiarly with Drummond; Ben Jonson, William Browne, George Wither and others were among his friends. There is a tradition that he was a friend of Shakespeare, supported by a statement of John Ward, once vicar of Stratford-on-Avon, that "Shakespear, Drayton and Ben Jonson had a merry meeting, and it seems, drank too hard, for Shakespear died of a feavour there contracted." In one of his poems, an "elegy" or epistle to Mr Henry Reynolds, he has left some valuable criticisms on poets whom he had known. He was even engaged in the labour of the dramatists; at least he had a share, with Munday, Chettle and Wilson, in writing *Sir John Oldcastle*, which was printed in 1600. That he was a restless and discontented, as well as a worthy, man may be gathered from his own admissions.

The works of Drayton are bulky, and, in spite of the high place that he holds in critical esteem, it cannot be pretended that he is much read. For this his ponderous style is much to blame. The *Poly-Olbion*, the most famous but far from the most successful of his writings, is tedious and barren in the extreme. It was, he tells us, a "Herculean toil" to him to compose it, and we are conscious of the effort. The metre in which it is composed, a couplet of alexandrines, like the French classical measure, is wholly unsuited to the English language, and becomes excessively wearisome to the reader, who forgets the learning and ingenuity of the poet in labouring through the harsh and overgrown lines. His historical poems, which he was constantly re-writing and improving, are much more interesting, and often rise to a true poetic eloquence. His pastorals are brilliant, but overladen with colour and sweet to insipidity. He is, with the one magnificent exception of "Since there's no help, come let us kiss and part," which was first printed in 1619, an indifferent sonneteer. The poet with whom it is most natural to compare him is Daniel; he is more rough and vigorous, more varied and more daring than the latter, but Daniel surpasses him in grace, delicacy and judgment. In their elegies and epistles, however, the two writers frequently resemble each other. Drayton, however, approaches the very first poets of the Elizabethan era in his charming *Nimphidia*, a poem which inspired Herrick with his sweet fairy fancies and stands alone of its kind in English literature; while some of his odes and lyrics are inspired by noble feeling and virile imagination.

In 1748 a folio edition of Drayton's complete works was published under the editorial supervision of William Oldys, and again in 1753 there appeared an issue in four volumes. But these were very unintelligently and inaccurately prepared. A complete edition of Drayton's works with variant readings was projected by Richard Hooper in 1876, but was never carried to a conclusion; a volume of selections, edited by A. H. Bullen, appeared in 1883. See especially Oliver Elton, *Michael Drayton* (1906). (E. G.)

DREAM (from a root *dreug*, connected with Germ. *trügen*, to deceive), the state of consciousness during sleep; it may also be defined as a hallucination or illusion peculiarly associated with the condition of sleep, but not necessarily confined to that state. In sleep the withdrawal of the mind from the external